

GOVERNMENT OF INDIA
DEPARTMENT OF ARCHAEOLOGY
CENTRAL ARCHAEOLOGICAL
LIBRARY

CLASS

Acc No. 12722

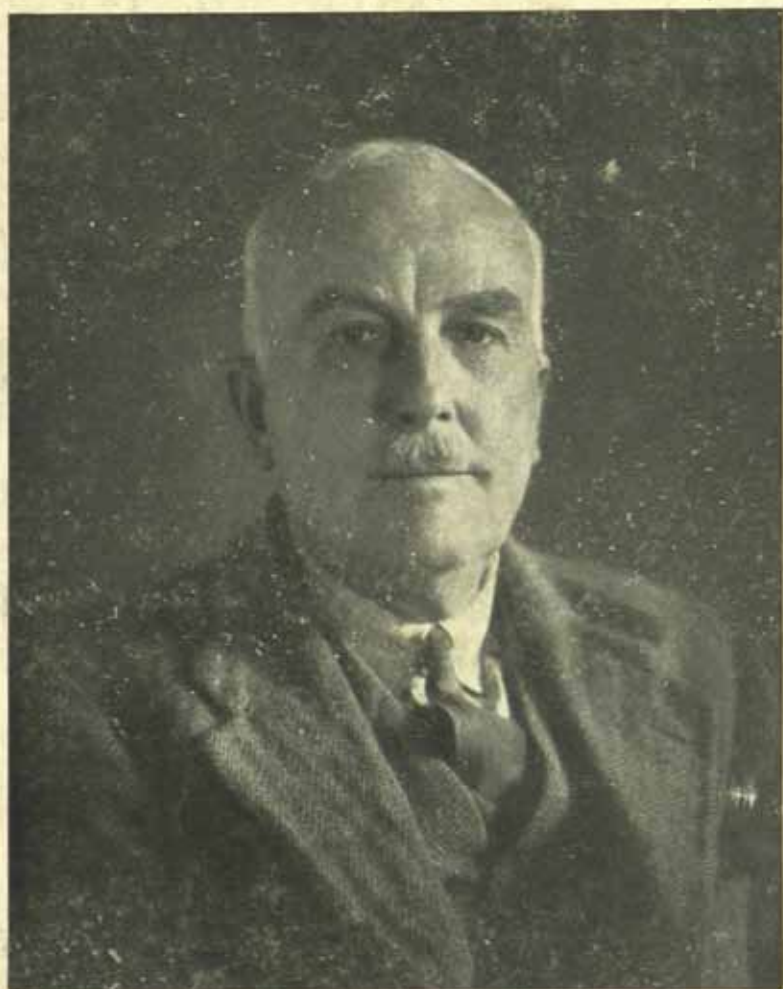
CALL NO.

082 Cra-Gxi

D.G.A. 79.







O. G. S. Crawford

ASPECTS OF ARCHAEOLOGY

IN BRITAIN AND BEYOND

12722

Essays presented to
O. G. S. CRAWFORD

Edited by
W. F. GRIMES

R 082
Cra/Gri

14305



H. W. EDWARDS

102 GREAT RUSSELL STREET, LONDON, W.C.1

1951

12722
 22-10-62
 082/Cra/Gai

ORIGINAL
 DELHI
 Acc.
 Date.
 Call

FOREWORD

No single scholar has done more than O. G. S. Crawford to place the study of the remoter past, and of the past of Britain in particular, on the secure and sound basis upon which it now rests.

Crawford's work has at once widened scholarship and encouraged an enlightened lay interest in archaeology. His contributions have ranged so widely over matter and method that all archaeologists (as well as many workers in other fields) are in one way or another, directly or indirectly, indebted to him. His distributional and environmental studies, his contributions to field-archaeology, his unique series of period-maps produced for the Ordnance Survey—these are but the more tangible signs of his influence upon scholarship. The journal *Antiquity* which he founded and maintained through difficult years has been a rich mine of information and ideas for specialist and layman alike.

The publication of this tribute to Crawford has been delayed by the difficulties of the post-war years. But it is not inappropriate that it should appear in 1951, which is the year in which Crawford attains his 65th birthday and *Antiquity* its hundredth number. The volume is at once an expression of thanks for the past and of good wishes for the future in which his colleagues and friends, whether contributors or subscribers, are glad to join.

ACKNOWLEDGMENTS

The acknowledgments of individual contributors are made in the appropriate places in the text. In connexion with the illustrations thanks are due to the following :—

The Egyptian Exploration Society, for permission to reproduce Plate I, B ;

The Welch Trustees, for permission to reproduce Plate II A and B from the Welch Collection in Belfast Museum and Art Gallery ;

The Editor of *Archaeologia Cambrensis*, for the loan of blocks for Figures 36 a and b ;

The Society of Antiquaries of London, for permission to reproduce Plate VII, 5 and Figure 52 ; and the Oxford University Press, for the provision of electrotypes ;

Mr. N. C. Cook, for help in obtaining the photograph on which Plate X A was based, and Mr. S. A. Chandler of Southampton, for permission to reproduce it.

The Editor wishes to record his gratitude to Miss J. K. Macdonald for much assistance in the preparation of the volume and in seeing it through the press.



SUBSCRIBERS TO THE VOLUME

His Majesty King Gustav VI Adolf of
Sweden

Aberdeen University Library (3 *copies*)
The University College of Wales,
Aberystwyth (2 *copies*)

F. Addison, Leeds

G. Leslie Adkin, Wellington, New
Zealand

Thomson S. Aikman, Aberdeen

Sir Walter de L. Aitchison, Wooler

Harold W. Mooring Aldridge, Christ-
church

E. M. M. Alexander, London

E. G. Allen & Son Ltd., London
(2 *copies*)

American Geographical Society, New
York

Miss A. T. Anderson, Helensburgh

W. A. Anderson, Paisley

C. K. Croft Andrew, Northallerton

W. Fraser Annand, Coventry

Lt.-Col. R. J. Appleby, Colchester

Col. Goodwyn L. Archer, Ely

Col. Sir Charles Arden-Close, Win-
chester (2 *copies*)

A. J. Arkell, London

Pedro Armillas, Mexico

Ashmolean Museum, Oxford

Thomas Eli Atchinson, Tynemouth

The British School of Archaeology at
Athens

J. Atkinson, Leeds

R. J. C. Atkinson, Edinburgh

W. B. Atkinson, Colombo

Auckland University College, New
Zealand

Avery's of Bristol Ltd.

J. C. Baily, Penrith

J. L. R. Baiss, Rugby

Lt.-Col. A. B. Lloyd Baker, Gloucester

The Rt. Hon. H. T. Baker, Winchester

The University College of North Wales,
Bangor

Miss K. Barber, Southampton

S. P. Barham, Watford

Dr. H. L. Barker, Ilkeston

Brandon Barringer, Pennsylvania

Sydney W. Barrott, Sheffield

Major Bertram C. Barton, Christ-
church

Miss D. M. A. Bate, Tring

E. A. Baxter, London

Major W. W. Baxter, Harrogate

C. E. Bean, Sherborne

Bedfordshire County Libraries

Waller K. Beddingfield, Rugby

A. O. Belfour, Co. Antrim

Berkshire Archaeological Society

Mrs. Mayberry Best, Folkestone

Mrs. F. N. Betts, London

A. H. Bevan, Stromness

Dr. Frank A. Bevan, Oxford

B. J. Bibby, New York

Birkbeck College Library, London

E. Birley, Durham (2 *copies*)

Birmingham Reference Library

Birmingham University, Department of
Archaeology

B. H. Blackwell Ltd., Oxford

Charles Watson Boise, London

J. K. Booth, Garstang

E. W. Bovill, London

Bowes & Bowes Ltd., Cambridge

Mrs. J. T. Bradbury, Dorchester

H. L. Bradfer-Lawrence, Ripon

W. Bramwell-Hill, Swindon

Rev. Dr. S. G. F. Brandon, Austria

J. C. Brash, Edinburgh

R. S. Bridge, Nottingham

Department of British and Medieval
Antiquities, British Museum

Brighton Public Libraries

University of Bristol Spelaeological
Society

SUBSCRIBERS TO THE VOLUME

University of Bristol
 Bristol Public Libraries
 Mrs. D. W. Brogan, Cambridge
 The Bromborough Society
 C. N. Bromehead, Charlbury
 Kenneth Buckley, Blackpool
 James B. Bullitt, Chapel Hill, N.C.
 M. C. Burkitt, Cambridge
 Col. A. D. Burnett-Brown, Beaconsfield
 S. L. Burrows, Manchester
 R. M. Butler, Cambridge

Miss E. A. Callow, Birmingham
 The Haddon Library of Archaeology
 and Ethnology, Cambridge
 Newnham College, Cambridge
 Mrs. Margaret Shaw Campbell, Isle of
 Canna

The University of Cape Town
 Carlisle Public Libraries
 A. D. Carmichael, Ontario
 F. E. L. Carter, Aden
 Geoffrey Cartwright, Sevenoaks
 William Carver, Chicago, Illinois
 D. A. Casey, Coldstream, Victoria,
 Australia

Castleford Public Libraries
 Norman E. Cawse-Morgan, San An-
 tonio, Texas

Cheltenham Public Libraries
 Chester Public Libraries
 Professor V. Gordon Childe, London
 B. G. Childs, Harwell
 Miss Lily F. Chitty, Pontesbury, Shrop-
 shire

Mrs. Derwas Chitty, Didcot
 E. S. E. Clark, Abadan, Iran
 Dr. J. G. D. Clark, Cambridge
 Dr. R. C. C. Clay, Fovant, Wiltshire
 Hugh Clausen, Bradford-on-Avon
 Charles Clemens, Pershore
 Mrs. E. M. Clifford, Gloucester
 Stephen Coffin, London
 Clarence J. Coleman, Washington
 E. D. Collins, Eastchurch
 H. L. Constable, Fakenham, Norfolk
 Miss I. M. Cooper, Exmouth
 The National Museum of Copenhagen
 (2 copies)

The Royal Library of Copenhagen
 R. A. Corbett, Sunbury-on-Thames
 Philip Corder, London
 Mrs. M. A. Cotton, Waltham St.
 Laurence, Berkshire
 J. G. Covernton, Woodbridge, Suffolk
 T. Doran Cox, London
 Ernest E. Cripps, Steyning, Sussex
 Arthur J. Crocker, Leicester
 J. Cromwell, Baildon, Yorkshire
 B. S. Cron, Kew
 P. J. Crowle, Braunton
 Croydon Public Libraries (4 copies)
 Robert W. Cruttwell, Newquay
 W. G. Cubitt-Currie, Tanganyika
 R. H. Cunningham, Botley, Oxford
 Col. James W. Curtis, Springfield,
 Illinois
 E. Cecil Curwen, Hove

Dagenham Public Libraries
 Rev. G. E. Dalby, Luton
 Miss Grace M. Dangberg, Minden,
 Nevada
 P. Darby, Wickford, Essex
 W. S. Darlington, Tunbridge Wells
 Miss H. R. Davidson, London
 General Charles G. Dawes, Chicago,
 Illinois (10 copies)
 Wm. Dawson & Sons Ltd.
 Professor Margaret Deanesly, London
 (2 copies)
 Deutsches Archäologisches Institut,
 Frankfurt

James J. Dolan, New York (2 copies)
 Dorset Natural History and Archaeo-
 logical Society
 Captain W. O. E. Dowdall, Bermuda
 Professor M. R. Drennan, Cape Town
 Lt.-Col. C. D. Drew, Dorchester
 Miss Dorothy Dudley, Camelford,
 Cornwall
 R. Dumbreck, Hurst Green, Sussex
 J. D. Duncanson, London
 R. H. Dundas, Oxford
 University College, Dundee
 J. W. Dunford, London
 G. C. Dunning, London
 The University Library, Durham

SUBSCRIBERS TO THE VOLUME

Geo. E. Eades, London
 Leonard Eames, Whitley Bay, North-
 umberland
 Mrs. S. V. Earnshaw, Oxford
 East Riding County Libraries, Beverley
 The University Library, Edinburgh
 Francis Edwards Ltd., London
 H. W. Edwards, Newbury
 Mrs. H. W. Edwards, Newbury
 John H. Edwards, Coventry
 W. H. Edwards, London
 F. C. Elliston-Erwood, London
 L. K. Elmhirst, Totnes
 Brigadier J. W. English, Tiverton
 A. Edward Evans, London
 E. Estyn Evans, Belfast (2 *copies*)
 Mrs. E. M. Evans, Ventnor
 H. J. Evans, Ilford
 Exeter City Library
 University College of the South West,
 Exeter

Lieut.-Commander R. H. Farrands,
 Harwich
 Daniel B. Fegley, Boyertown, Penn-
 sylvania
 Finchley Public Libraries
 Dr. G. M. Findlay, Radlett
 Dr. Kenneth Fooks, Bromsgrove, Wor-
 cestershire
 H. F. Forbes, Gloucester
 Professor Ir. R. J. Forbes, Amsterdam
 G. F. Forsey, Southampton
 Dr. Max Forster, Innsbruck
 A. H. Foster-Smith, Rhayader, Radnor
 Mrs. E. M. Fowler, Petersfield
 Mrs. Margaret Fowler, Manchester
 Sir Cyril Fox, Exeter (2 *copies*)
 Lieut.-Col. C. J. Fox, Clacton-on-Sea
 Rev. Henry R. M. Ford, Westray,
 Orkney
 G. D. Freeman, London
 S. S. Frere, Shoreham-by-Sea

James Galt & Co. Ltd., Manchester
 Eric Gardner, Weybridge
 Captain G. A. Gardner, Natal
 J. W. Gardner, Bath
 Dr. Willoughby Gardner, Deganwy,
 North Wales

William A. Gauld, Caerleon, Mon-
 mouthshire
 Mrs. Joan Gibbs-Smith, Malton, York
 Sir William Gibson, Riding Mill,
 Northumberland
 Miss Virginia C. Gildersleeve, New
 York
 Dr. H. H. Gleave, Southampton
 John Gloag, London
 Miss E. F. Glyn, Salisbury
 Mrs. Florence Golding, Sevenoaks
 Angus Graham, Edinburgh
 R. D. Graham, Bridgewater
 Air Commodore G. W. P. Grant,
 Hadlow
 Robert Graves, Deya, Mallorca
 Dr. Douglas Gray, Henlow, Bedford-
 shire
 The Rev. H. Tyrrell Green, Brandon,
 Suffolk
 R. D. Greenaway, Bristol
 Major General W. H. Greenly,
 Kington, Hereford
 Professor D. H. Gregory, Cyprus
 C. A. Gresham, Criccieth
 Miss C. St. H. Griffith, Melksham (2
copies)
 R. C. L. Griffiths, Newport Pagnell
 W. E. Griffiths, Aberystwyth
 W. F. Grimes, London (4 *copies*)
 N. U. Grudgings, Melksham
 Thomas Guthrie, Pembury
 W. H. Hanbury, Derby
 C. G. Hardie, Oxford
 D. F. Drew Harris, London
 Professor C. F. C. Hawkes, Oxford
 Gwladys M. Hawksley, Southampton
 J. F. Head, Gerrards Cross
 Brigadier K. M. F. Hedges, Devizes
 Major W. Percy Hedley, Newcastle-
 upon-Tyne
 W. J. Hemp, Criccieth
 John Hemsley, Coventry
 Mrs. E. St. J. Henderson, Bath
 Alfred C. Henry, Reading, Penn-
 sylvania
 Miss Audrey Shore Henshall, Oldham
 Mrs. W. A. Heptinstall, Romsey
 Herefordshire County Libraries

SUBSCRIBERS TO THE VOLUME

Captain M. W. B. Hervey, London
 G. E. Higgins, Trinidad
 E. J. W. Hildyard, Bishop Auckland
 Miss E. M. Hillsdon, Wellingborough
 Mrs. Dina Dobson Hinton, Wrington,
 Somerset
 Sir John Hobhouse, Liverpool
 Dr. R. C. Hodges, Warwick
 Hodges Figgis & Co. Ltd., Dublin
 R. H. Hodgkin, Shipston-on-Stour
 A. H. A. Hogg, Aberystwyth
 R. Holdsworth, Ilford
 Miss Christina Hole, Oxford
 J. Holmes, Braughing
 Maurice Holmes, Douglas, Isle of Man
 W. & R. Holmes (Books) Ltd., Glasgow
 Michael Holroyd, Oxford
 Professor S. H. Hooke, London
 Dr. E. A. Hooton, Cambridge, Massa-
 chusetts (2 copies)
 R. J. Hopper, Sheffield
 Hornsey Public Libraries
 E. J. Howe, Southampton
 J. V. Howe, Virginia, U.S.A.
 The University College of Hull
 H. D. C. Hunter, Wilsmlow
 Mrs. Martha Champion Huot, Los
 Angeles
 Colin N. B. Hurt, London

 M. E. Impey, London
 John A. Inglis, Invergarry
 International University Booksellers
 Ltd., London
 Islington Public Libraries
 Irish Antiquities Division, National
 Museum of Ireland, Dublin
 The Rt. Hon. The Earl of Iveagh,
 Woking

 Ernest Wilfrid Jackson, Saltburn by the
 Sea
 G. Jardine Ltd., Manchester
 S. A. Jeavons, Streetly
 Col. T. W. M. Johnson, Dymock,
 Gloucestershire
 P. K. Johnstone, St. Louis, Missouri
 Arthur Louis Joquel II, Los Angeles
 Mrs. Owen Josephs, Birchington
 Frank P. Jowett, Colwyn Bay

John Jowett, Manchester
 Mrs. Marilyn F. Joynt, St. Louis,
 Missouri
 J. J. Judge, Plymouth

 Alexander Keiller, London
 Kent County Libraries
 Sir Frederic Kenyon, Godstone, Surrey
 Kenneth E. Kidd, Toronto
 L. J. Kingston, London
 Miss Joan R. Kirk, Oxford
 G. D. Kirwan, London
 Casper J. Kraemer Jr., New York

 Lambeth Public Libraries
 W. A. P. Lane, Littlehampton
 W. H. Langhorne, Pulborough
 M. A. De Lavis-Trafford, Beaulieu-sur-
 Mer
 Leeds Public Libraries
 The Brotherton Library, Leeds Univer-
 sity
 The University Library, Leeds
 J. J. Leeming, Weymouth
 Mrs. Edgar Lees, Fareham
 Leicester Museum & Art Gallery
 Eduardo B. Marques Leitao, Laurencio
 Marques
 Lt.-Col. G. Lennox, Old Borham
 R. S. Lepper, Carnalea, Co. Down
 Miss C. Le Sage, Arundel
 Ian Lesinoir-Gordon, East Burnham
 D. G. Lewin, Croydon
 Dr. E. V. Lindgren, Harston, Cam-
 bridgeshire
 E. S. Lindley, Wotton-under-Edge
 Mrs. C. D. Linehan, Sidmouth
 Liverpool Public Libraries
 The University of Liverpool
 Sir John Conway Lloyd, Brecon
 L.C.C. Education Library
 The London School of Economics &
 Political Science
 The Institute of Archaeology, Univer-
 sity of London
 The University of London Library
 The Society of Antiquaries of London
 A. Long, Ibadan, Nigeria
 C. E. Lucas, London
 Ab Lundequistska Bokhandeln, Sweden

SUBSCRIBERS TO THE VOLUME

Miss Catherine McClellan, Pennsylvania
 T. L. MacDonald, Carlisle
 McGill University Library, Montreal
 J. McIntyre, Bishop Auckland
 Mrs. Dorothy Mackay, Beirut
 Douglas McKie, London
 Ross Macky, Parkstone, Dorset
 Miss Morven Macleod, Strathpeffer, Ross-shire
 J. F. Madden, El Damer, Sudan
 Maggs Brothers Ltd., London
 E. J. Maguire, Newbury
 Captain A. M. A. Majendie, London
 Professor M. E. L. Mallowan, Wallingford
 The University of Manchester
 I. D. Margary, East Grinstead
 Lt.-Col. W. Lockwood Marsh, Woking
 Sidney W. S. Marshall, Drybrook
 General Sir James Marshall-Cornwall, London
 Sverre Marstrander, Trondheim, Norway
 Mrs. V. P. May, Leeds
 S. G. Maylott, Merthyr Tydfil
 Charles R. Mayo, Chepstow
 C. E. K. Mees, Rochester, New York
 Andrew Geoffrey Mein, Nottingham
 Dr. E. C. Menzies, Fairville, N.B.
 The University of Michigan
 A. E. Mills, Fleetwood
 Dr. J. Mills, Reading
 James Fairweather Milne, Peterhead
 (2 copies)
 Sir Ellis Minns, Cambridge
 R. A. Molyneux-Johnson, Little Baddow
 F. W. Morgan, Haslemere
 Dr. Louis S. Morgan, Wichita, Kansas
 Miss Antonia Morland, Oxford
 S. V. Morris, Guisborough
 Wm. Mullan & Son Ltd., Belfast
 Miss Winifred Myers, London
 Sir John L. Myres, Oxford
 J. N. L. Myres, Oxford
 R. C. Neale, Leicester
 R. S. Newall, Wylke, Wiltshire

The Society of Antiquaries of Newcastle-upon-Tyne
 Newcastle-upon-Tyne Public Libraries
 New Delhi Central Archaeological Library
 University of New Mexico
 Newport Public Libraries
 Godfrey Nicholson, Newbury
 Mrs. John Nicoll, Honiton
 Michael D. Nightingale, Oxford
 E. R. Nonweiler, Singapore
 A. B. Nordiska Bokhandeln, Stockholm
 H. T. Norris, Cambridge
 Norfolk County Libraries
 The Castle Museum, Norwich
 Victor George Nugent, Auckland, N. Zealand
 J. L. O'Brien, Victoria, Australia
 Professor Michael J. O'Kelly, Cork
 Universitetets Oldsaksamling, Norway
 B. H. St. J. O'Neil, London
 Oppenheim & Co. Ltd., London
 Professor Seán P. Ó Riordáin, Dublin
 Lt.-Col. The Marquess of Ormonde, Maidstone
 The University of Otago, New Zealand
 School of Geography, University of Oxford
 Lady Margaret Hall, Oxford
 Oundle School Library, Peterborough
 Arthur E. B. Owen, London
 Geo. F. Palmer, Johannesburg
 Clement Woodbine Parish, Burwash, Sx.
 Parker & Son Ltd., Oxford (3 copies)
 Peter J. Parr, Sutton Coldfield
 W. J. Parsons, Lewes
 Miss L. V. Paulin, Nottingham
 Peabody Museum Library, Cambridge, Massachusetts
 R. D. Peck, London
 R. H. Penley, Dursley
 J. B. Ward Perkins, Rome
 Mrs. J. Turville Petre, Oxford
 Girard W. Phelps, Bucks County, Pennsylvania
 The Free Library of Philadelphia
 C. W. Phillips, Surbiton

SUBSCRIBERS TO THE VOLUME

Professor Stuart Piggott, Edinburgh
Arnold R. Pilling, San Luis Obispo,
U.S.A.

Lady Plant, London
Clifford L. Platt, Chislehurst
Plymouth Institution & Devon &
Cornwall Natural History Society
R. Eric Pochin, Leicester
William F. Pointon, Saskatchewan
Portsmouth Public Libraries
H. C. Potter, Alberta, Canada
Col. W. A. Potter, Woodborough
Miss I. G. Powell, Englefield Green
W. G. Putnam, High Wycombe

Queens University, Belfast

C. A. Raleigh Radford, Uffculme,
Devon

Dr. A. Raistrick, Skipton
H. J. Randall, Bridgend, Glamorgan
Reading Public Libraries
The University of Reading
T. Ifor Rees, Bowstreet, Cards.

F. Renouf, London
Mrs. A. Isabella Richardson, Ulverston
Professor I. A. Richmond, Newcastle-
upon-Tyne (2 copies)

George C. Riley, Hudson Heights,
Quebec

Lewis Ritchie, Farnham
P. Ray Ritchie, Glasgow
Harold Roberts, Birmingham
H. E. Robins, Bromley

Mrs. H. Robinson, Tunbridge Wells
R. T. Robinson, Quarndon, Derby
Commander William C. A. Robson,
R.N.R., London

F. G. Roe, Victoria, B.C.
Miss Helen M. Roe, Dublin
The British School of Archaeology at
Rome

G. Ronnell, Stockholm
C. F. Ross, Ashford
Thomas A. Ross, Three Bridges, Sussex
Mrs. Marjorie A. Rowling, Windermere
Royal Geographical Society, London
The Royal Ontario Museum of Arch-
aeology (2 copies)
E. B. Royden, Wirral

Dr. J. K. St. Joseph, Cambridge
St. Helens Public Libraries
F. J. Salberg, London (2 copies)
The Salisbury, South Wilts & Black-
more Museum

Miss Elsie M. Sandell, Southampton
Mrs. M. G. Sanders, Birmingham
E. G. Sanford, Marlborough (2 copies)
Dr. George Sarton, Cambridge, Massa-
chusetts

Walter Schlapp, Cheadle
Walter Scobell, Bath
J. B. Schofield, York
Institut für Ur-Fund Frühgeschichte
der Schweiz, Basel

Society of Antiquaries of Scotland,
Edinburgh

Donald Scott, Cambridge, Mass-
achusetts

George Senior, Wakefield
Col. O. P. Serocold, Maidenhead
E. O. Shebbeare, Banbury
Sheffield City Libraries

The University of Sheffield
D. G. Shingles, Hadleigh
P. L. Shinnie, Khartoum
Miss Ann L. Showers (Mrs. Aubrey
Morley), Oxford

Simpkin Marshall Ltd., London
Dr. A. Simmons, Newbury
H. Simpson, Sunderland
W. Douglas Simpson, Aberdeen (2
copies)

Dr. Charles Singer, Par, Cornwall
R. H. Skelt, Romsey
W. H. Smettens, Scarborough
Carlyle Shreeve Smith, Kansas
Smith College, Northampton, Massa-
chusetts

Samuel Smith, Falkirk
W. H. Smith & Son Ltd., London (2
copies)

Smithsonian Institution, Washington
H. A. Solomon, Newcastle-upon-Tyne
Mrs. W. H. B. Somerset, Broadstone,
Dorset

Professor Alf Sommerfelt, Oslo
Archaeological Survey of the Union
of South Africa, Johannesburg

SUBSCRIBERS TO THE VOLUME

Southampton Public Libraries (2 copies)
 Southampton University College
 South Australian Museum, Adelaide
 National Museum of Southern Rhodesia
 Lieut.-Col. G. R. B. Spain, Newcastle-upon-Tyne
 J. E. Spence, Eccles
 Dr. H. E. Stapleton, Jersey C.I.
 H.M. Stationery Office, London
 Miss Myfanwy Stephens, London
 C. E. Stevens, Oxford
 B. F. Stevens & Brown Ltd., London
 James R. Stewart, Sydney, N.S.W.
 Rev. M. J. Stewart, Bishops Stortford
 J. L. Stirling, Ballymena, N. Ireland
 Frank S. Stone, Philadelphia
 Dr. J. F. S. Stone, Winterbourne Gunner, Wiltshire
 E. L. G. Stones, Glasgow
 E. L. Sukenik, Jerusalem
 Francis Sulley, London
 R. Summers, Bulawayo
 University College of South Wales, Swansea
 James Johnson Sweeney, New York
 Swets & Zeitlinger, Amsterdam
 Professor E. G. R. Taylor, Bracknell
 Herbert Taylor, Bristol
 John Taylor, Kilbarchan, Renfrewshire
 M. V. Taylor, Oxford
 Robert S. Taylor, Falkirk
 W. G. Taylor, London
 John R. Teasdale, Sheffield
 The University of Texas
 Arthur P. Thirlwell, Malvern (2 copies)
 A. C. Thomas
 C. W. Thomas, Stourbridge
 J. Gareth Thomas, Aberystwyth
 N. de L'E. W. Thomas, Oxford
 C. H. Thomson, Stirling
 J. Thornton & Son, Oxford
 Mrs. C. C. Topp, Southsea
 S. E. Toulmin, Oxford
 Mrs. M. A. Toulmin, Oxford
 Miss Rachel Toulmin, Oxford
 E. R. Townsend, Dublin
 George Tregarneth, Worthing
 J. G. Chenevix Trench, Gerrards Cross

Miss A. M. Trout, Southampton
 W. G. Trower, London
 Miss Twemlow, Ciboure, France
 Anthony E. Vine, Bury St. Edmunds
 K. Vitterhets Historie o. Antikvitetsakademien, Stockholm
 Hilary Waddington, New Delhi
 William V. Wade, Leeds
 M. H. Waitt, Lancaster
 F. T. Wainwright, Dundee
 Mrs. E. S. Waley-Cohen, Watford
 The National Museum of Wales, Cardiff
 The Royal Commission on Ancient and Historical Monuments in Wales & Monmouthshire, Aberystwyth
 C. C. Walker, Stanmore Common
 G. R. Walshaw, Birkenhead
 James Walton, Basutoland
 John Ware, Askam-in-Furness
 F. Warren, Winchester
 Warrington Municipal Museum (2 copies)
 Ronald S. Waters, Sheffield
 F. Weatherhead & Son, Aylesbury
 A. L. Wedlake, Watchet
 Richmond Weed, New York
 National Library Service, Wellington, N.Z.
 T. A. Wellsted, Nagpur, India
 C. E. Werry, Reading
 H. Q. O. Wheeler, Accrington
 Professor R. E. M. Wheeler, London
 D. S. Whitelegge, Oxford
 G. Whitfield, Houghton-le-Spring
 T. H. B. Whitford, Gillingham
 L. J. Wickes, Sudbury
 J. B. Willans, Newtown
 Mrs. Audrey Williams, St. Albans
 R. Williams, St. Leonards-on-Sea
 W. Nalder Williams, Penn, Bucks
 Major P. D. R. Williams-Hunt, Kuala Lumpur, Malaya
 Willesden Public Libraries
 G. W. Willis, Basingstoke
 Captain Edwin D. Wilson, Everett, Washington
 Francis E. Wilson, West Hartlepool

SUBSCRIBERS TO THE VOLUME

Winchester County Libraries
Robert P. Winter, Newcastle-upon-
Tyne
The University of Wisconsin
Ministry of Works Library (*2 copies*)
Commr. E. C. Wrey, Highcliffe-on-
Sea
Dr. C. E. Wright, London
R. P. Wright, Erie, Pennsylvania
Frederick R. Wulsin, Medford, Massa-
chusetts
John B. Wylie & Co. Ltd., Glasgow

M. F. Yarwood, Newbury
W. H. Yeatman-Biggs, Warminster
Yorkshire Archaeological Society
William E. V. Young, Marlborough
Miss Jane Zielonko, Paris

D. E. Bennett, Chatham
Horace G. Commin, Bournemouth
Nordiska Museets Bibliotek, Stockholm

CONTENTS

	<i>Page</i>
FOREWORD	iii
ACKNOWLEDGMENTS	iv
SUBSCRIBERS TO THE VOLUME	v
LIST OF PLATES	xiv
LIST OF ILLUSTRATIONS IN THE TEXT	xvi
I. THE MAN AND HIS PAST <i>Sir John L. Myres</i>	1
II. TIME AND MEMORY <i>Sir Charles F. Arden-Close</i>	18
III. MEROE AND INDIA <i>A. J. Arkell</i>	32
IV. THE BALANCED SICKLE <i>V. Gordon Childe</i>	39
V. FOLK-CULTURE AND EUROPEAN PREHISTORY <i>J. G. D. Clark</i>	49
VI. THE ROMANO-BRITISH BUILDINGS AND ENCLOSURES IN EDLINGTON WOOD, NEAR DONCASTER <i>P. Corder</i>	66
VII. CROSS-RIDGE DYKES IN SUSSEX <i>E. Cecil Curwen</i>	93
VIII. SOME ARCHAIC FORMS OF AGRICULTURAL TRANSPORT IN ULSTER <i>E. Estyn Evans</i>	108
IX. THE ROUND-CHIMNEYED FARMHOUSES OF NORTHERN PEMBROKESHIRE <i>Sir Cyril Fox</i>	124
X. THE JURASSIC WAY ACROSS ENGLAND <i>W. F. Grimes</i>	144
XI. BRONZE-WORKERS, CAULDRONS, AND BUCKET-ANIMALS IN IRON AGE AND ROMAN BRITAIN <i>C. F. C. Hawkes</i>	172
XII. THE VOTADINI <i>A. H. A. Hogg</i>	200
XIII. THE ADVENTUS SAXONUM <i>J. N. L. Myres</i>	221
XIV. SOUTHAMPTON TOWN WALL <i>B. H. St. J. O'Neil</i>	243
XV. THE FENLAND RESEARCH COMMITTEE, ITS PAST ACHIEVEMENTS AND FUTURE PROSPECTS <i>C. W. Phillips</i>	258
XVI. STONEHENGE REVIEWED <i>Stuart Piggott</i>	274
XVII. A ROMAN ARTERIAL SIGNALLING SYSTEM IN THE STAINMORE PASS <i>I. A. Richmond</i>	293
XVIII. A SURVEY OF PIONEERING IN AIR-PHOTOGRAPHY PAST AND FUTURE <i>J. K. St. Joseph</i>	303
XIX. GLEN URQUHART AND ITS CASTLE: A STUDY IN ENVIRONMENT <i>W. Douglas Simpson</i>	316
XX. BRITAIN BETWEEN THE INVASIONS (B.C. 54-A.D. 43): A STUDY IN ANCIENT DIPLOMACY <i>C. E. Stevens</i>	332
XI. ROMAN CONTACT WITH INDIA, PAKISTAN AND AFGHANISTAN <i>R. E. M. Wheeler</i>	345
BIBLIOGRAPHY OF THE PUBLISHED WORK OF O. G. S. CRAWFORD	382

LIST OF PLATES

O. G. S. Crawford	.. .. .	<i>Frontispiece</i>
		<i>Facing page</i>
I.	Egyptian reapers of the Old Kingdom using (A) angled and (B) balanced sickles	39
II A.	Roller slipe carrying peats across a bog. Co. Antrim	108
B.	Block-wheeled car, slide-car for corn, and slipe. Glenhesk, Co. Antrim	
C.	Slide-car with turf-creel and straw-harnessed pony. Glendun, Co. Antrim	
III A.	Croftufty, Whitchurch, Pembrokeshire, from the road	124
B.	Garn, Llanychaer, Pembrokeshire, from the farmyard	
C.	Garn: window of "second room", the scullery outshut, base of stack and wash-house	
IV A.	Garn, Llanychaer, Pembrokeshire, from the back	127
B.	Garn from the back showing outshut and slated wall-top	
C.	Croft at Lanergill, Caithness	
V A.	Tueaberry, Birsay, Mainland, Orkney: outshut	131
B, C.	Newtondale, Yorkshire: exterior and interior of field shed	
VI A.	Bowl with running scroll ornament, Desborough, Northampton- shire	144
B.	Pot with scored ornament, Draughton, Northamptonshire	
VII.	Bronze ox-heads: 1. Ham Hill, Somerset; 2. Dinorben, Caernarvonshire; 3, 4. Felmersham, Bedfordshire; 5. Thealby, Lincolnshire	191
VIII A.	Bronze mirror-handle, Ingleton, Yorkshire	197
B.	Bronze-mounted wooden bucket, Mount Sorrel, Leicestershire	
IX.	Details of bronze bucket-mounts from Mount Sorrel (1, 2) and Twyford (3-5), Leicestershire	198
X.	Southampton Town Wall	245
A.	The north (outer) elevation of the Bargate	
B.	The Arundel Tower: interior	
C.	The West Gate	
XI.	Southampton Town Wall	246
A.	Norman buttress on west wall	
B.	The Catchcold Tower	
C.	The Arcade	

	<i>Facing page</i>
XII. Southampton Town Wall	250
A. God's House Gate (left) and Tower	
B. God's House Tower (or South Castle) looking west	
XIII. Southampton Town Wall	252
A. The interior of the east wall	
B. The first tower on the east wall, north of God's House Gate	
XIV A. Air photograph of Roman fort at Carriden, West Lothian ..	305
B. Air photograph of Roman fort near the Watling Street at Stretton Mill, Staffordshire	
XV A. Air photograph of Herefordshire Beacon Camp, Malvern Hills ..	306
B. Air photograph of Cistercian Abbey, Byland, Yorkshire	
XVI. Air photograph of Roman fort, Whitley Castle, Northumberland	309
XVII. Air photograph of XVIIth century Civil War fort known as The Bulwark, Earith, Huntingdonshire	310
XVIII. Castle Urquhart: view looking towards Great Tower from the <i>Motte</i>	329
XIX A. Bronze statuette of Heracles-Serapis from the Begrām hoard, Afghanistan	347
B. Bronze statuette of Poseidon from Kolhāpur, W. India	
XX. Clay "bullae" imitating coins of Tiberius from Konḍāpur, Hyderabad State, Deccan	350
XXI. Arikamedu, site of a trading-station near Pondicherry, S. India	355
XXII A. Roman pottery from Arikamedu, S. India	358
B. Mediterranean amphorae from Arikamedu	

LIST OF ILLUSTRATIONS IN TEXT

<i>Fig.</i>		<i>Page</i>
1.	The Meroitic lion god Apezemek	34
2.	A Meroitic king riding an elephant bareback	36
3.	Diagram to explain the classification of sickles	40
4.	Straight reaping-knife and examples of tangential and angled sickles ..	42
5.	Examples of balanced, tangential and looped sickles	44
6.	The suggested hafting of looped sickles	46
7.	Balanced sickle from Mas de Menente, Spain	48
8.	Map of Edlington Wood showing sites	67
9.	Edlington Wood: plan of Site 1	68
10.	Pots containing Hoards 1 and 2, Site 1	70
11.	Edlington Wood: plan of Site 2	75
12.	Edlington Wood: plan of Site 5	77
13.	Edlington Wood: plan of Site 6	78
14.	Edlington Wood: plan of Site 7	79
15.	Samian ware from Edlington Wood	87
16.	Coarse pottery from Edlington Wood	88
17.	Small finds from Edlington Wood	90
18.	Highden Hill, Washington: cross-ridge dyke and field-system	97
19.	Fore Down, Lullington: bivallate cross-ridge dyke and field-system ..	98
20.	Harting Downs: dykes, Roman road and terrace-ways	102
21.	Alfriston Down: cross-ridge dyke and terrace-ways	103
22.	Relation of spur-dykes to terrace-ways near Steyning	104
23.	Relation of spur-dykes to terrace-ways near Sullington	106
24.	Ass-creels with slip-bottoms and wood-carrier	110
25.	Turf-barrows	112
26.	Slipes	114
27.	Slide-cars	120
28.	Croftufty, Whitchurch, Pembrokeshire: plan	125
29.	Garn, Llanychaer, Pembrokeshire: plan	128
30.	Distribution map of houses	130
31.	House sections	132
32.	Plans of round-chimneyed houses in Pembrokeshire	134
33.	Plan of Kirbister, Mainland, Orkney	135
34.	Section of Kirbister, Mainland, Orkney	136
35.	Tueaberry, Birsay, Mainland: plan and cross-section	137
36a.	Reconstruction (plan) of aisled house at Dinas Noddfa, Glamorgan ..	139

36b. Reconstruction (elevation and cross-sections) of aisled house at Dinas Noddfa, Glamorgan	140
37. Aisled house plans at Dinas Noddfa, Glamorgan and Lough Gur, Limerick ..	141
38. The Jurassic Way from Lincoln to Banbury	146
39. The Jurassic Way from Banbury to Glastonbury	150
40. Roads, settlements and geology between Northampton and Desborough ..	154
41. Pedestalled bowls	160
42. Pottery with scored ornament from Draughton, Northamptonshire ..	161
43. Scored and finger-tip-ornamented pottery from English sites	162
44. The distribution of Belgic coins in relation to the Jurassic Way	170
45. The British Isles showing the distribution of copper and tin ores ..	174
46. Bronze cauldrons	178
47. Bronze cauldrons	180
48. Sketch-map of the Ingleborough district	186
49. Bronze cauldron from Wotton, Surrey	187
50. Bronze oxheads from Manchester and Gloucester	194
51. Bronze oxhead, Kenchester	195
52. Bronze oxhead, Kirkby Lonsdale	196
53. Plan of excavated area (latest level) at Traprain Law	210
54. Plan of Traprain Law	212
55. Pottery from Traprain Law	215
56. Pottery from Traprain Law	216
57. Table showing the affinities of the Traprain Law pottery	218
58. Outline-plan of Southampton showing remains of town wall	242
59. Internal elevation of the Arcade, Western Shore, Southampton	255
60. External elevation and plan of the Arcade, Western Shore, Southampton	255
61. Map of barrows around Stonehenge	286
62. Map of Roman forts and signal-stations in the Stainmore Pass	294
63. Plans of signal-stations at Roper Castle and Bowes Moor	296
64. Map showing the strategic position of Castle Urquhart	317
65. Map of Lower Glen Urquhart	319
66. Celtic cross from Temple	321
67. Medieval grave-slabs from Kilmore	328
68. Roman glass and pottery lamp fragment from India	348
69. Mediterranean amphora-neck from Taxila (Sirkap)	353
70. Section through the " Warehouse ", Arikamedu, 1945	356
71. Map showing the distribution of Roman coins of the 1st century in South India	366
72. Map of India showing the distribution of Roman coins	374

THE MAN AND HIS PAST

BY JOHN L. MYRES

IN 1921 the Oxford University Press issued a book of 128 pages with the title *Man and his Past*, simply and clearly written, with conviction and enthusiasm. Beginning with the notion of man's earliest tools as "extra-corporeal" limbs, which reacted on the brain and personality of their user, and from the broad conception of history which this notion implies, it emphasized the connexions between the arts and crafts of the simpler living peoples, and those represented by implements of other periods, and illustrated archaeological method from the army-intelligence officer's study of cap-badges, and earth-works shown on air-photographs, as checks on the "historical evidence" of prisoners. This led to the examination of the relation of archaeology to history, and to anthropology, and a critical comparison of British and continental points of view, and the terminology which they respectively employ. With geology, archaeology has in common the *time* aspect of its enquiries; with geography, the *space* aspect. Both are essential to ascertain the relations of humanity to its surroundings; and these too have to be reconstructed from survivals and stratigraphical "fossils." All factors alike have to be plotted on a time chart, and on a map; and account taken of man's own dislocation of his environment, the counterpart of his extension of it. The value of archaeological specimens is the measure of their utility, and this is enhanced by their connexion with each other, in time-sequence and space-distribution. Even chance-finds may plot the course of a route between settlements; and the distributions of different kinds of objects reinforce or qualify each other, and reveal influences of one group of people on another, the most delicate task of the archaeologist. Examples are the passes into Wessex over watersheds or fords, forest-glades or harbours; the Roman roads, recognizable by construction and alignment, supplemented by documentary evidence, boundaries, and skilled dissection. For the

conservation and use of such evidence, local museums, well administered, are indispensable. The "uses" of such studies are as obvious, and as hard to define, as the "uses" of art. Archaeology is an end in itself, but its value is to enlarge men's outlook and knowledge of the world.

Here was a confession of faith, and the programme of a career, and if ever a man practised what he preached, it was its author. He cut his first trench, and read his first paper, before leaving school ; he graduated in geography, as a means to the study of antiquity ; he applied his war-training to transform the geographical survey of early monuments, and to apply air-photography to their discovery ; he has inspired and co-ordinated the studies of a generation of local observers, and enlarged the provision for recording their finds. Above all he has shown what can be done by a combination of intensive field-work with methodical revision and interpretation, to build up a fabric of scientific knowledge out of scattered and inexpert observations, and literally to "put upon the map" the outlines of British prehistory.

Now his friends join to offer him contributions to the studies which he has pursued, with their good wishes for his further pursuit of them, and by way of preface to recall to him many happy memories, in this brief study of the Man and his Past.

Osbert Guy Stanhope Crawford was born on 28th October, 1886, at Breach Candy, a suburb of Bombay. His father, Charles Edward Gordon Crawford, was an Indian Civil Servant—educated at Marlborough and entered at Wadham College, Oxford, though as an Indian probationer he did not reside—and a Judge in the High Court at Thanah. The Crawford after whom the Crawford Market in Bombay is named was a cousin. Charles Crawford's father was Charles J. Crawford, D.D., to whom Lord Brougham gave the rectory of Woodmanstone, Surrey : he married Eleanor, daughter of Vice-Admiral Sir Edward Foote, K.C.B., buried at South Stoneham, Hampshire. Robert Crawford, a great-uncle, was a Governor of the Bank of England, like his father, who made and lost a fortune as an Indian merchant. The Crawfords were Ayrshire

folk, from the neighbourhood of Maiden Castle. The founder of the family is said to have run away from home and reached the sea at Brighton, where he founded a well-known lending library and became postmaster to George III. To his Ayrshire ancestry Osbert Crawford attributes many of his qualities.

His mother, Alice Luscombe Mackenzie, died a few days after his birth. Her father was an army doctor from Aberdeen, whose sister Sophie lived in a "grim granite villa" at Frintville, "a quiet, pleasant and kindly old Scotswoman of the best kind". His wife was a White, from Combe Royal near Salcombe in Devon; she lived to be 90, and remembered coming to London in the family coach.

Osbert was sent to England at the age of three months, in charge of his father's sister Eleanor, head of the Poona Convent of the Wantage Community, and an *ayah*. The ship, P. & O. *Bokhara*, was lost on her next voyage. He spent his first seven years with two other aunts, at 10 Devonshire Street, off Portland Place, W. He has vivid memories of the "sunset glow of late Victorian prosperity": muffin-men and crossing-sweepers, hansom-cabs and four-wheelers, horse-buses, horse-trams to Hampstead, the smell of horse-dung and of the gardens in Park Place. He was three or four years old when he first saw the stars, near Petersfield, a great experience. He went to a dame-school at 1-2 Portman Square, but owed much to his aunts, to whom he was devoted. Born in 1836 and 1846, and older than his father (1849) their outlook was Georgian rather than Victorian, very religious but "mercifully free from many taboos and Victorian vulgarity". They said *fifpence* and *Suthampton*, and threw back the accent on certain words, and belonged to the "close-knit community presided over by Queen Victoria and W. E. Gladstone," and quite distinct from "tradesmen" and "the poor," to whom one did not write on the best note-paper. A proper prelude to *Man and his Past*. He saw little of his father, who however was at home to show him the wedding procession of the Duke of York (H.M. George V) and illuminations, and for a memorable holiday-scamble on Birchington cliffs. In 1894 he died in India, and in 1895 the aunts moved to

The Grove, East Woodhay, near Newbury, "a charming house," probably a rebuilt farm, with large garden and three-acre meadow at the foot of the downs which divide Hampshire from Berkshire. Osbert went to school at Park House, Reading—the master, A. C. Bartholomew, had been a school friend of his father at Marlborough—and was well taught and happy. "Bartie" was kindly, human, and interested in the boys; but quick-tempered. To his "resounding slaps" was attributed a slight defect of one ear, which did not however affect the hearing. His son, Major-General A. W. Bartholomew, C.B., served with distinction in 1914-18.

At Marlborough, his father's school, on the other hand, Osbert was thoroughly unhappy. Once he slipped away, but failed to find a ship at Weymouth, and returned home, but was over-persuaded by his aunts and endured much from masters and boys. He hated compulsory games, because they were compulsory. To avoid them he went cross-country runs, as far as Ramsbury with its fragments of carved cross, and the chapel in Chisbury Camp at Bedwyn. Walter Leaf, however, was "a dear, and a first rate teacher," and started him in French, and his form- and house-master, F. B. Malim, afterwards Master of Wellington College, "taught us to think," a great and good influence. Through his coaching, Malim won Osbert a Junior Scholarship at Keble, and for himself—so he said later—his first head-mastership. Malim presided over the archaeological section of the Natural History Society—a very active one—and used Hippisley Cox's *Green Roads of England* as a guide to the downland and its monuments, still almost unexplored, communicating his enthusiasm to Osbert, who at first had been more interested in architecture, read a paper on the buildings of Rome, and later became secretary. His minutes of the President's paper on "pre-historic policy" "in which he put forward the plausible theory . . ." drew a smile and a curse "for his impertinence," without breach of friendship. Excursions to Stonehenge, Avebury, and Martinsell were memorable; but it was the cheap "educative" pulls of the one-inch O.S. maps, sold through the Society, that were the chief inspiration. These included the downs nearer home, with Walbury Camp in O.E.

characters. So next holidays there was unlicensed trenching on the north side of Walbury—very properly stopped by the owner, but renewed nearby with leave. The first barrow to be opened was on the county boundary near Bull's Copse.

At this time Harold Peake, who lived at Westbrook House, Boxford, near Newbury, was working on the *Victoria County History of Berkshire*. He heard of Osbert's digging from the rector of Inkpen, and from Hippisley Cox, who had passed by on one of his "green roads"—and rode over to Woodhay; and a great friendship followed.

Thus the foundations were laid for the study of "Man and his Work": the Ordnance map with its O.E. characters, the Ramsbury Crosses, the Inkpen barrows, Malim's enthusiasm, Peake's informal and kindly guidance, some reading of Ruskin, and a memorable visit to Rome, while still at school. But the geographical interest was insistent. Grundy's series of *Handy Classical Maps* were coming out, including that of Roman Britain mainly edited by Haverfield. Out of this grew the O.S. map of *Roman Britain*, matured in captivity at Holzminden, and deliberately copied as to lettering and style. Geography was not taught at Marlborough, except in a voluntary class by J. S. Taylor.

The Marlborough course had been mainly classical, but after a third class in Honour Moderations, and a year's work for Greats, philosophy became an obstacle—"all seemed different and therefore not true"—and geography was substituted. But so keen a topographer had found his way about the Bodleian; Herbertson had succeeded Mackinder, and was impressing his ideas on the newly founded School of Geography; there were informal classes at New College on prehistoric Greece, and private exploration among Saxon charters. He rowed every day for four years, and stroked the College eight, with two "bumps": won College sculls three years in succession, but in University sculls encountered the winner, a "blue" of Christ Church, in the first heat. He met T. E. Lawrence "bareheaded and always bicycling furiously," and was helped informally by D. G. Hogarth, who recognized a possible explorer. On a vacation cruise

to Jamaica he saw Kingston after the earthquake, and about the same period Messina in similar plight. On his first Geography examination he only obtained his "certificate," but he took the course again, offering as his "thesis" the draft of his *Andover District*. Working with Peake in vacations, he read a paper to the Royal Geographical Society on the distribution of flat celts in 1911. Herbertson advised him to study abroad, either (like himself) in Germany or at the Sorbonne. He chose the latter, but was not happy there, and came home, regretting later that he had not gone to Germany. It was about this time that he found the Museum at Newport, Isle of Wight, in great disorder, and succeeded in having it transferred to Carisbrooke Castle, with help from the British Association and private funds. To the influence of Herbertson he owed much; and not least the determination of his career. Herbertson gave him a Junior Demonstratorship, but presently asked him frankly: "Are you a geographer or an archaeologist? You must make up your mind which you are going to be." He replied, after a moment of reflection: "An archaeologist," and Herbertson said "Then you must find a job."

This was not so easy; for archaeology had as yet no organization and very little academic standing, except as an adornment to classical studies. The nearest substitute was the Diploma in Anthropology, mainly directed by R. R. Marett. This was secured, though without success in physical anthropology. Applications for the Craven Fellowship, and for a post in the Bombay Museum, though supported by Hogarth, were fruitless, but the Routledge Expedition to Easter Island was prepared to take an assistant who had the Oxford Diploma. This party set out from Southampton in March, 1913, in the 70-ton schooner *Mana*, but encountered bad weather, and put in to Madeira. Then there were differences, and he left the ship at Cape Verde and returned by cargo-boat, with a modern pot from Laguna (Tenerife) for the Pitt-Rivers Museum. This might have been a set-back, but his friend, E. A. Hooton, a fellow student, now of the Peabody Museum, called his attention to an advertisement of the Wellcome Excavation at Abu Geili in the Sudan, a large and well-equipped

enterprise, though its copious finds have not yet been fully published. It was this project which drew from the Military Governor the laconic permit "burrow and welcome." On the way out, October, 1913, he spent a month under G. A. Reisner excavating at the Pyramids, "my only real tuition in archaeology, but worth all the rest put together." He had already applied to F. Ll. Griffith for a place in his Nubian expedition, but the reply, "cautiously favourable," arrived in Reisner's camp: too late, and perhaps a lucky escape. There are diversities of operations. With Reisner he got on excellently. He returned to England in June, 1914, and was to have returned to Abu Geili; but the War came while he was digging barrows at Oxenwood near Bedwyn with Hooton.

On Mr. Peake's advice Crawford enlisted in the London Scottish, went to France on 1st September, and was in trenches at Givenchy in December. Here he received a cheering letter from Reisner, giving reasons for his support of the Allies, in spite of official rebuff for his German name.

Malaria contracted in Sudan brought him home before long, but arsenic treatment prescribed by Wellcome cured him in a month. He was rejected by the R.F.C. on account of his weight, but received a commission in the Royal Berkshire Regiment, and then came to the notice of the Chief of the Staff in France, Sir William Robertson, and was posted to Third Army (Maps) in July, 1915, at Beauval and St. Pol. At Beauval he was ordered by General Munroe to photograph Kitchener "if he wished it," but Kitchener's reply was "Well, you know, I never *am* photographed." Finding the "field work" of the Third Army inadequate, he transferred to the R.F.C., and was posted to a long-distance squadron of FF.2b's, more interesting, and reputed less dangerous, than artillery-spotting. He was shot down over Cambrai, hit in the foot, and sent to Cornwall for convalescence. Returning to France in the autumn to Squadron No. 48 (Bristol Fighters, Flight-Commander (Air Chief Marshal) Sir Kirk Park) stationed near Dunkirk, and then at Flez for experiments in over-the-cloud reconnaissance, he was taken prisoner after a forced landing, and confined first at Le Cateau, then at Karlsruhe and

Landshut, whence he escaped, and tried to swim the Iser "flowing rapidly" in March, but was recaptured and well treated, with a warder whose wife was English. He was then transferred to Holzminden near Hanover, where he traded food for maps copied from a dictionary. But the "Tunnelers of Holzminden" were already at work; attempts at escape were discouraged until the tunnel should have been finished and the great exodus from it effected; moreover he was weak from under-feeding, and too recently arrived to rank for a place in the tunnel. He messed with two of the ringleaders, read Samuel Butler, and drafted *Man and his Past*, which he had begun in Cornwall in 1917.

Released in due course, and demobilized with a gratuity, he spent 1919 and 1920 in summer digging and winter field work, wrote on the Saxon barrows of Bedwyn, excavated for the Cambrian Association at Carneddau Hengwm, for Sir William Portal at Roundwood and in the Isle of Wight. These however were temporary pursuits.

At the School of Geography he had already met Major Charles Close, R.E., then (1905-11) head of the Map Department of the War Office and President of the Geographical Section of the British Association at Portsmouth in 1911, where Crawford read a paper; and during the war he had been sent to deliver maps to him personally. Close, who was now (1921-22) Director-General of the Ordnance Survey, provided him with a set of 6-inch O.S. sheets in return for field-information, and soon after offered him the new post of archaeological officer to the O.S., which had been recommended (on Close's initiative) by the British Association before the War. He entered on his duties on 1st October, 1920: they were:—to correct archaeological information on O.S. maps; to photograph old cadastral and other plans—initiated by Close with the old map of Weyhill Fair (*Hampshire Field Club Proceedings*, Vol. 9)—; and to compile period maps. The first was to be a "historical map," abstracting on to a single sheet the historical and archaeological entries already on O.S. maps. By tactful stages, Close was induced to omit everything on this new sheet except the physical features, and so create the needful basis for all periods.

Close was further persuaded to authorize field work in this new type of "period" information. The Cotswolds were now being revised on a large scale, and the opportunity was taken to remedy the chaotic record of the chambered barrows. Around Broadway as many as 25 round-barrows and two or three long were recorded in one day's work. As the Stationery Office regulations prevented the O.S. from printing a *book*, the new material was eventually published by Bellows of Gloucester : *Long Barrows and Stone Circles of the Cotswolds and the Welsh Marches*, 1925.

The quality of Crawford's work for the O.S. is attested in the following lines from Colonel Sir Charles Arden-Close, R.E., K.B.E., C.B., F.R.S. :

"I appointed O. G. S. Crawford to the Ordnance Survey as Archaeology Officer in October 1920. I consulted Marett and he said that Crawford was just the man for the post, which I established to get the archaeology of the national maps into order : for there still survived 'giants' graves' and such titles, and a larger number of objects of antiquarian interest remained unmarked on the maps. Crawford took up the work systematically, sheet by sheet of the 6-inch and the 1 : 2500. He continued for years to complete the description of British field archaeology, so far as it could be represented on the maps of the country. No one could have been more thorough and capable in carrying out this most interesting work, and, so far as his labours extended the maps presented to the public a mass of archaeological information shown by no other national surveys. He was, and is, not only one of the leaders in the subject, but was in touch with all the most recent investigations and theories, and his getting the maps into good order archaeologically is of permanent value and interest. One is carried back in thought to the days of General William Roy (1726-1790) who, in addition to being a geographer, was an enthusiastic antiquary, and helped not only to found the Ordnance Survey, but to emphasize the desirability of correct information about the remains of past ages."

Meanwhile there was field work also in 1921 in the Black Mountains, and experimental "boring" on the Iron Age village-site at Worthy Down, Winchester, after trials at Roundwood in 1920 suggested by the earlier trials of Pitt Rivers.

It was almost inevitable that so keen an archaeologist and topographer, who was also an airman with war-training in the decipherment of air-photographs of earthworks and obscure tracks, should have seen the immense value of air-reconnaissance on ancient sites. In France he had discovered a Roman road from the air. Others indeed had had the same experience ; but no one had seized the opportunity of liaison between the air forces, the cartographers, and the field-archaeologists ; and few have been so lucky in their employment, among service colleagues, but without much service restriction. During the Portsmouth Meeting of the British Association in 1911 Crawford had already met at Evenwood a Hampshire country doctor and J.P., Williams-Freeman, author of *Field Archaeology illustrated by Hampshire*, and been much influenced by him. It was with him that he first traced a Roman road. Williams-Freeman shared his interest in air photography, and in 1922 took him to see Air Commodore Clark Hall at Weyhill Aerodrome, where an air photo in the Winchester district showed soil-markings which revealed Celtic fields. Following this new clue, in the light of his own earlier work at Great Litchfield Down, by plane table before 1914, he read a paper to the Royal Geographical Society which opened a new phase of archaeological research. Later development is recorded in *Wessex from the Air* (with Alexander Keiller, 1928) and applied in *Air Photography for Archaeologists* (1929) and *Field Archaeology* (1932).

From April, 1924, to January, 1940, this report is based on daily engagement records. In May, 1924, air survey was begun at Andover with Keiller ; there were frequent visits to Heywood Sumner, Clay, and the Peakes, and a holiday in December with Hemp, including Avignon, Narbonne, and Majorca. In March, 1925, he met at Netheravon his former Wing Commander (now Air Vice Marshal) Holt who exonerated him from blame for his capture, and recommended him to Freeman of the Air Ministry. He also met Flinders Petrie, who became "an influence, critically accepted." At New College in May he was consulted by some of the younger men, Nowell Myres, Hawkes, and C. E. Stevens, as to careers in archaeology, and advised them that the British Museum was the only safe job.

Hawkes followed his advice, and has passed on to the new Chair of Prehistoric European Archaeology at Oxford (1946). In June there was the first field work in Scotland ; in August a spelaeological camp in the Mendips, with C. W. Phillips ; in the autumn a holiday in Italy, returning by Lausanne and Paris, and "much to do with" Robin Collingwood, whom he had known at Oxford.

In 1926 (February 8) he discussed the project of *Antiquity* with Bellows and Austin at Gloucester, and secured the latter as assistant editor. But the first number did not appear till 1927. There was at that time no magazine devoted to archaeology and kindred interests. Several such enterprizes had failed and much valuable information was being buried in the "proceedings" of a score of local societies. *Man*, originally projected by Flinders Petrie, on very broad lines, to succeed the *Academy* of J. S. Cotton, had become mainly anthropological, under the direction of the Royal Anthropological Institute (1901). The Congress of Archaeological Societies, and the Society of Antiquaries, missed the occasion of the growing interest in antiquity after the War. What everyone needed, it seemed no one's business to supply ; a periodical well printed, well illustrated, above all well edited, without the restraints of committee or publisher. It need not compete either with the proceedings of societies, or with the monthly magazines, or with the quarterly reviews. It need not avoid controversy, if the editor kept his head. But it must be economically and efficiently managed, widely informed, and prepared to seize opportunities and maintain publicity. The programme was precise (Vol. I, page 1). "*Antiquity* will attempt to summarize and criticize the work of those who are recreating the past. Archaeology is a branch of science which achieves its results by means of excavation, field-work, and comparative studies : it is founded upon the observation and record of facts. Today the accumulated riches of years lie to our hand, and the time is ripe for interpretation and synthesis. We are emerging from the archaic stage, and we are able at last to see simple facts in their relation to an organic whole—the history of Man. Simplification supervenes, and the outline of the past becomes intelligible. Here and there attempts are made to summarize a

period, or interpret a group of facts : but they seldom reach the general public, and remain buried in obscure publications. *Antiquity* will publish creative work of this character." . . . "our field is the Earth, our range in time a million years or so, our subject the human race" . . . "The universal interest in the past is perfectly natural. It is the interest in life itself." How these requirements have been met, the long files of *Antiquity* are there to show. The combination of a congenial printer, a devoted and capable home-editor close at hand, and a director so ubiquitous and enterprising, has overcome all difficulties. Long may *Antiquity* flourish !

Meanwhile there were many engagements. Field work in the Scilly Islands in March 1926 ; in April a lecture to the Irish Air Force in Dublin ; in May another visit to France. On July 30 Stuart Piggott called at the O.S. On August 8 there was a visit to Professor A. H. Sayce at Oxford ; on the 28th a meeting with the English Place Name Society at Liverpool, where Allan Mawer was Professor. In October came a week-end with Douglas Freshfield, a second cousin ; and on 23-28 a visit to Glozel and thereafter the first public exposure in *The Times* of the notorious forgeries. Then another visit to Majorca, for cave-work with Hemp. On his return in January 1927, the response to the prospectus of *Antiquity* was "overwhelmingly successful." The week-end January 29-31 was spent with Professor Stenton at Reading, another "influence." Meanwhile, on September 22 *Wessex from the Air* had been sent to the Oxford Press. It resulted from experimental work mainly in the neighbourhood of Andover, undertaken in 1924 in conjunction with Alexander Keiller, and included fifty air photographs illustrating a general introduction to the surface archaeology of the Chalk districts, with a retrospect of this new technique of "Archaeology from the Air" ; descriptions of the principal types of monuments so observed, and examples of discoveries and verifications by air-survey. It was issued in 1928, and remains the classical exposition of this means of research.

Excavation at Windmill Hill began on April 27. Some time before this the Rector of Winterbourne Bassett, Kendall, had cut a

trench through the ditch, and Crawford had compiled a record, confirming Kendall's opinion that the pottery was neolithic, resembling what the Cunningtons had found in the causeway camp at Knapp Hill. Soon after, the threat of a wireless station at Windmill Hill, happily averted, determined Keiller to buy the hill. Crawford's own first finds of neolithic pottery had been under the Long Barrow at Wexcombe ("Two Barrow" on Andrew Stowy's *Map of Wilts.*) which he was digging with Hooton when war broke out in 1914: they were on the *old* land-surface under the south end of the barrow, smooth, without ornament, with slightly flattened rim: examples are at Devizes and in the Peabody Museum; all records were destroyed in 1940.

In June 1927 there was field work on Dartmoor, and in July came a project, with Sir John Squire and Keiller, to buy Stonehenge. A committee was formed, which "did the rest." On August 8 Crawford broadcast an appeal for funds for this scheme; and on October 10 an account of Glozel. On October 10 he discussed with R. E. Mortimer Wheeler the formation of an Institute of Archaeology. In October also he met Stanley Casson, an Oxford contemporary; and in November he lectured in Cambridge. There were now many calls on his time, but his work for the O.S. under sympathetic and indulgent chiefs, left him much freedom, especially in the matter of absence from Southampton.

In 1928 began a series of longer journeys. With his cousin-by-marriage, Hilton Simpson, who was living that winter among the Berber natives in Algeria, he made a mule-tour in the Aurès Mountains, returning by Malta—where he met Zammit—and Rome, in time for the Lord Mayor's lunch for the Stonehenge appeal (February 17). In May he took Waterhouse of the British Museum to Neuchâtel to make drawings of Vouga's finds for *Antiquity*. But in June he was lecturing to the R.A.F. at Farnborough, and urging on Sir Philip Game of the Air Council, brother of a war-colleague, the recovery of air-photographs from R.A.F. stations in the East. Game introduced him to Air Chief Marshal Sir Edward Ellington, A.O.C. Bagdad, and Air Vice Marshal Sir Tom Webb-Bowen, A.O.C. Cairo; Ellington

invited him to Bagdad, with air-transport, and the O.S. gave him leave of absence on full pay. On September 28 he travelled overland to Stambul, thence by Rhodes, Mersin, and Alexandretta, to Beirut, visiting Tarsus and Antioch : thence by bus across desert to Damascus (where he met Miss Dorothy Garrod) and Bagdad. He stayed with Ellington and Insall, visited Ctesiphon, flew with Insall to Mosul, and photographed Samarra ; to Hatra, Ur (where Woolley was at work) and El Obeid. In Bagdad he met Sir Philip Sassoon, Under Secretary for Air, and returned by air to Amman, and thence to Cairo, where he met Reisner again, and saw Firth at Sakkara. At Alexandria he looked in vain for the reputed "submarine quays," and returned home by Port Said, arriving November 15, and describing his tour to the Royal Geographical Society on March 18, 1939 (*Geographical Journal*, May 1939).

Another project now took shape. At the Cambridge Meeting of the British Association (1904) he had proposed an International Map of the Roman Empire, and at a conference at Florence in April 1929 with the support of Brigadier Evan Maclean Jack, R.E., (Director O.S., 1922-30) a good beginning was made. In July he planned with Sir Aurel Stein an air-photo-survey of Transjordan and Syria, where the Roman frontier lines are conspicuous in desert. In December he was collecting air-photo negatives personally from aerodromes at Catterick, Birmingham, Bicester, and Netheravon, and took a winter holiday in the museums of Paris, Brussels and Liège.

Fieldwork took much time in 1930, in Oxfordshire on the Grim's Ditch, and at Upper Heyford ; in Scotland and on the Roman Wall ; round St. Albans, Colchester and Cirencester. There were holidays in Corsica, at Cologne, and later in Tunisia with Dr. King-Martyn. In 1931 in Germany, Austria, Transylvania and Roumania ; and in December he met G. Bersu, Secretary of the German Archaeological Institute at Frankfort-on-Main. In May-July 1932 he travelled in Russia from Leningrad to Tiflis, and returned through Black Sea ports to Constanza. This glimpse of another order of society and of research impressed him greatly. In November a Congress in Rome for the *Map of the Roman Empire* led to visits to Pompeii, Ostia, and Venice,

and to Vienna, Buda-Pest and Basel. In 1932-33 there was fieldwork in Yorkshire, Lincolnshire, Kent and Scotland ; in 1934 in Norfolk, Cambridgeshire, and Hertfordshire, the Scillies and Scotland again. He attended the Geographical Congress at Warsaw, and paid a visit to Ireland.

Fieldwork in 1935 was interrupted by the death of an aunt, aged over 90, who left him her estate. She lived at Tan House, Donnington, and was buried at Speen. In April and May came a first visit to Cyprus followed by fieldwork in Scotland, a visit to Theodor Wiegand, Head of the German Archaeological Institute at Berlin, and Christmas with Dr. and Mrs. Bersu. Fieldwork also occupied most of 1936, in Cornwall and the Hebrides. In May he photographed houses in London reminiscent of Marx, Lenin, and other communists ; and in October returned to Cyprus, spending his fiftieth birthday "on a Dutch boat, in good company." After a visit to the Canal Zone, he bought land at Kyrenia in the north coast of Cyprus, for a house.

After winter fieldwork, in 1937, and spring visits to Berlin and Paris, he spent the summer in Scotland, seeing much of Sir George Macdonald, whom he had long known. In September there was again a conference at Cluj for the *Roman Empire Map*, after which he travelled with the Bersus to Belgrade, Sofia, and Sadowitz where Bersu was excavating ; thence alone to Varna, Sofia, Athens, and Limassol in Cyprus, to see Macartney, the architect of his house. He flew homewards with Alington and the Spratts to Rhodes, and with Alington alone by Athens and Brindisi, in a two-seater aeroplane.

In February 1938 he made a long walking-tour following Roman roads in Shropshire, followed by fieldwork from Stafford to Derby : lectured and gave air-survey instruction in Berlin, and arranged an air-photo exhibition ; flew to Vienna to meet Menghin, an old acquaintance ; and rectified a misunderstanding with the Greek Government over the *Roman Empire Map*. This was the opportunity for seeing Mycenae, Tiryns, and Argos, returning by Berlin and Hamburg to Southampton on April 1 ; "a crowded fortnight, and not a bad month's work." But on April 10 he was at Cuxhaven for

fieldwork on barrows in Schleswig, and on May 28 he was planning an excavation with Bersu, part of the scheme for such co-operative work propounded when he was President of the Prehistoric Society. Spending June in England, he flew with Alington to Rome, Remi, Palermo, Tunis, Gabes, Jerba, Benghazi and Alexandria. After a forced landing at Bardawil, and visits to Lydda, Nicosia and his house at Kyrenia, he returned by the Turkish coast, Athens, Sofia, Prague, Strassburg and Paris ; and spent October and November in fieldwork in Scotland.

In January 1939, he was in Paris, Bonn, and Brussels : did some air-surveying on his own account in Scotland, and visited and photographed the excavations at Sutton Hoo with W. F. Grimes. On August 20 he flew to Berlin for the International Archaeological Congress, and returned a few days before war broke out.

The war did not prevent fieldwork, and as late as October 1940 he cycled to Criccieth to see Hemp. But on 30 November the Ordnance Survey Office was destroyed, with many of his records. This put an end to the revision of Ordnance Maps for the present, but there was other work, urgent enough, in the National Buildings Record, which was being put in hand as soon as the risk of wholesale destruction was realized, with systematic photography as well as description and history. Southampton was an obvious starting-point, and there had been no such house-to-house survey as Salter had made for Oxford. With a fresh start, however, the limits of date could be widened. To collect and edit this material must take time, and priority had to be given to the actual recording of other towns within reach, as far as Dorchester and Blandford, Weymouth and Winchester, and the Isle of Wight ; some 4,000 photographs in all.

Meanwhile came the invitation to deliver the Rhind Lectures at Edinburgh in 1943. The subject was *The Topography of Roman Scotland*, a description of all Roman sites—and most alleged ones—north of the Antonine Wall ; all visited, and all roads tramped, between 1925 and 1943. These lectures were published by the Cambridge University Press in 1949.

Another work of revision has been the report and plans of the

Wellcome Expedition to Abu-Geili in the Sudan, completed and sent to press in 1947. And a curious by-product is the *History of the Fung Kingdom of Sennar*, ready for press, including geographical studies and the topography of the Roman and Christian periods, and involving wider study of North-east Africa and especially of Abyssinia.

These recent activities Crawford himself ascribes to a "second childhood," or "later medieval period." May they inaugurate a fitting "renaissance" or "adolescence."

This might seem to be a chronicle of small doings, but collectively they have not been small, and the record illustrates what a single worker can compass, if he has a secure base of operations, congenial chiefs, and opportunities for following his instinct for exploration and co-operative work. Gradually Crawford has built up a wide acquaintance among the leading archaeologists of Central Europe, interested them in his projects and methods, and—always giving fully as much help as he received—found colleagues everywhere, as well as friends. Good health, great endurance, and enjoyment of open-air life have been priceless auxiliaries. Long may he continue to delight in them.

TIME AND MEMORY

By C. F. ARDEN-CLOSE

TIME is measured by the sequence of events : without events there would be no time, or in other words, time depends upon some form of motion. No motion, no time. The past is the representation in our minds of previous events, and we live mainly in the past and the near future. The measurement of time depends upon the orderly repetition of the same event. Our primitive ancestors naturally made use of day and night, the phases of the moon, and the recurring seasons of the year. It has been said that our feeling of the passing of time may be due to the beating of our hearts.

If the idea of time is inseparable from that of motion it follows that it is also inseparable from that of space, for we cannot picture motion without thinking of space. In talking of time we often use terms derived from our experience of space ; thus, we talk of looking backward into the past, as if we were thinking of a road over which we had travelled ; or of looking forward to the future, as of a road over which we expected to travel. Distance in time has much the same effect as distance in space, and we can use much the same expressions in speaking of the two kinds of distance. We can refer to a past event as being misty or hazy in our minds ; we can more easily pick out the salient features of the past than the minor details, though this remark requires qualification, for some past events are lit up by emotion, just as a distant feature in a landscape may be lit up by a gleam of sunlight. We can only travel in one direction, but, curiously enough, we only see clearly what is immediately behind us. The future landscape is always round the corner. Or we may say that our present and immediate past are in a clear light, that the past is increasingly misty the further we look back, and that the future, except the immediate future, is in a dark fog.

What happens to the past? It is certain that past events did happen and that they are in the chain of the present and the future.

Apart from their effects, have past events absolutely vanished? Remember Carlyle's words "Yesterday and to-morrow both *are* . . . with God as it is a universal *here*, so it is an everlasting *now*." Another thinker has said, "The past is not annihilated merely because it is past, but . . . the past with all its content still goes on existing, carrying with it the lives that have been lived"; and "We can store up within ourselves successions of objects; such storing up is the work of memory. . . . We have come to accept both time and space as actually existing outside ourselves."¹

The following is a passage from Galton's *Memories* written when he was over eighty:

"I will mention here a rather weird effect that compiling these *Memories* has produced on me. By much dwelling on them they become refurnished and so vivid as to appear as sharp and definite as things of today. The consequence has been an occasional obliteration of the sense of Time, and to replace it by the idea of a permanent panorama, painted throughout with equal vividness, in which the point to which attention is temporarily directed becomes for that time the Present. The panorama seems to extend unseen behind a veil which hides the Future, but is slowly rolling aside and disclosing it. That part of the panorama which is veiled is supposed to exist as vividly coloured as the rest, though latent. In short, this experience has given me an occasional feeling that there are no realities corresponding to Past, Present and Future, but that the entire cosmos is one perpetual Now. Philosophers have often held this creed intellectually, but I suspect that few have felt the possible truth of it so vividly as it has occasionally appeared to my imagination through dwelling on these *Memories*."²

The past comes into our minds in the form of phantom images, or faintly re-captured sounds. The images may vary greatly in vividness and they generally lose their brightness of outline with the passage of time. Most people have a clearer memory for sights than they have for sounds. "How curiously one remembers things from childhood: a few scraps very vividly, unforgettably, and all the rest

¹ Lord Conway, *A Pilgrim's Quest for the Divine*, London 1936.

² Quoted in *The Eugenics Review*, July 1946.

sunk into the dark background. It is as if everything were strangely out of perspective."³ The vividness of images differs greatly with individuals. The vividness of the memory images was one of the many subjects investigated by Galton, who sent a questionnaire to a hundred people or so, to find out from them how clear were their mental pictures under particular conditions. He concluded that women and young people formed the clearest images to themselves. But it was a pioneer investigation of limited scope.

When we have recaptured some event in the past of our experience by the use of memory, how untrustworthy this re-picturing may be. "Memory . . . the recollection of past occurrences . . . is so notoriously fallible that every experimenter makes a record of the result of his experiment at the earliest possible moment: he considers the inference from written words to past events less likely to be mistaken than the direct beliefs which constitute memory."⁴

In fact we all know how uncertain and treacherous our unsupported memory may be, and how, with the best will in the world, memory may play us false. Let me give an example from my own personal experience. A good many years ago I happened to be the chairman of the Research Committee of the Royal Geographical Society and as such used to preside at the small friendly dinners which were arranged by Keltie at the Royal Societies' Club after the meetings of the Committee. Sometimes also I presided when I was no longer chairman and the chairman could not attend. Now, on one occasion, we had as guests the two very well-known travellers, Sven Hedin and Aurel Stein, who sat on either side of the chairman. During the dinner Stein produced a small measuring tape in a metal case which he had found near the desolate shores of Lop Nor, in Central Asia. Sven Hedin at once recognized it as a tape which he had lost some years before. So far, all are agreed. Now, my memory is to the effect that I was presiding, at the head of the table, on that occasion, with the two distinguished travellers on my right and left. But Major Leonard Darwin was sure that he, as President of the Society, sat at the head of the table. My belief is that he was mistaken,

³ A. L. Rowse, *West Country Stories*, Macmillan 1946.

⁴ Bertrand Russell, *An Outline of Philosophy*, London 1927.

and I think so for the following reasons. It was the chairman of the Research Committee who presided on those occasions, not the President of the Society ; I remember that Stein handed the measuring tape to Hedin, who then handed it to me ; and I remember very well the feeling which I had at the time " Why does he give it to me," and then the immediate reflection, " Why, of course, it is for the Society." Well, I believe that Leonard Darwin was quite certain that he received the re-discovered tape, and I can say that I am equally certain that I received it, and both cannot be right, so that in one case the memory must be at fault. The incident is trivial in itself ; it is quite unimportant who presided at that small dinner party, but the uncertainty may serve to show how unreliable memory may be unless it is fortified by some written words.

Another instance of the unreliability of memory may be found in the recently printed *History of the Sussex Archaeological Society* by Mr. L. F. Salzman.⁵ He relates how, on the 28th October 1845, Mr. C. L. Prince was watching the excavations on the site of the Priory of Lewes, when the workmen discovered a leaden cist. He sent for a well-known antiquary, Mr. M. A. Lower, and further search, after the arrival of Mr. Lower, revealed another cist. One of these cists bore the name WILLELM and the other the name GUNDRADA. Now, Mr. Lower, in a contemporary account, says that the first cist found was that of Gundred ; but Mr. Prince, in 1896, was " quite confident " that William's was the first to be found. In this case we should be inclined to say that, as Mr. Prince's statement was made half a century after the event, the contemporary account of Mr. Lower is to be preferred. But, anyway, one memory was at fault.

The moral of these two stories is clear. It is unwise to rely upon unsupported memory, however clear the remembrance may seem. But we cannot very well do without some reliance on memory ; for even if we write down an account of an event of which we have first hand knowledge, there is still a gap between the event and the account. Even when the gap is small, there is still room for some slight inaccuracy and uncertainty. But if we go on in this vein much

⁵ *Sussex Archaeological Collections*, LXXXV, 1946.

longer we shall embark on a metaphysical discussion as to what truth is, and it will, perhaps, be best simply to admit that memory is fallible and requires support and verification.

Let us consider for a moment to what extent the history of events could be communicated by word of mouth, from man to man, without the use of writing. It will probably be agreed that most lads of 15 to 20 years of age have had the opportunity of talking with old men of 75 to 80, or thereabouts, and that the old men could have described events which had been described to them some sixty years previously. If these gaps of 60 years can be imagined to have been bridged by a series of conversations leading back into the past, then ten of such periods would, in 1946, carry us back to 1346 in the middle of the reign of Edward III, in fact, to the battle of Crécy, and we might have descriptions of that famous encounter transmitted to us by word of mouth.

As to the accuracy of any such verbal transmission, we may make a few reasonable assumptions, such, for instance, as that each teller of the tale would lose some of the facts of the story as told to him, and that there would be a loss of accuracy at each transmission; we might, for convenience, assume that such losses would be substantially the same at each transmission. Thus, if there are p people who transmit the story at various intervals, and if each person loses $1/n$ of the story as told to him, then what remains of the truth, assuming that the first teller of the story told the truth, will be $(1 - \frac{1}{n})^p$ where p is the number of people after the first teller. If we assume, as an example, that one tenth of the story as told is lost on each occasion, and that there are 8 tellers after the first, then the story told by the 8th person will only be $\frac{43}{100}$ of the original. If, as in the example of Crécy, there are 10 tellers, then the story told by the 10th person will contain about $\frac{35}{100}$, or say one-third, of the truth. However long the series, there would always remain a small residuum of the original story, but it might be very small.

If it should be thought that 60 years is too long an interval between successive relations of the same story, let us suppose that the story is told from one generation to another, at the rate of three a

century. Then, in the case of the battle of Crécy, we shall have 18 generations, and at the end, about one-seventh will remain of the original tale.

The ancients were, no doubt, well aware of the tendency towards a loss of the truth, even when unintentional, and used to provide some safeguard in the shape of rhythm for easy memorizing. In such a case the loss at each transmission might be small and we know that Eastern peoples may have tremendous power of committing recitations to memory. With regard to a celebrated instance, Professor Gilbert Murray has remarked that the earliest text of Homer is perhaps to be taken as dating "to the latter part of the VIth century B.C. and Troy fell at the beginning of the twelfth. There must have been, during those centuries of oral transmission, uncontrolled by any fixed record or any learned class, much reshaping of the poetry and much transformation of the historical facts."⁶

When the story was short and dealt with a single incident in the history of the tribe, if it was then enshrined in a poem, the chance of its surviving unchanged was, of course greatly increased. Let us take the famous example of the Song of Deborah, perhaps the earliest specimen of Hebrew poetry that has come down to us. This might have been uttered by the tribal prophetess and may be dated at about 1125 B.C. Professor S. H. Hooke remarks that

"It is very probable that the Song is a fine example of the tribal lays, composed spontaneously, as Arab tribal songs still are, to commemorate victories, and handed down orally from generation to generation. It may have been such songs as those that the wandering bands of Nebi'im sang to rouse the Hebrews to resistance in Samuel's time."

We read of a company of the prophets, coming down from the high place with a psaltry, and a timbrel, and a pipe and a harp, before them, prophesying.

It is to be noted that it is doubtful if we get undiluted fact even in this song, for there are some differences between the account given in the song and that given in the prose version of Judges 4. In the latter, Sisera is called "the captain of Jabin's army," Jabin

⁶ *Encyclopaedia Britannica*, 14th Edition, Art., Homer.

being the king of Hazor. In the Song, Sisera is mentioned alone as the commander of the enemy. But there is a general similarity in the two accounts: both mention Barak son of Abinoam; both mention the river Kishon; both mention Jael and her killing of Sisera with a hammer and tent-pin. One may say that the two accounts generally confirm each other.

Can ancient memories originally in the mind of a person now long dead, be transmitted in the form of vivid visual images to other minds? This is one of the problems raised by that celebrated book, *An Adventure*, by Miss C. A. E. Moberly and Miss E. F. Jourdain. The first edition of this book was published by Macmillan in 1911; in this edition the writers used assumed names. In 1938 Mr. J. R. Sturge-Whiting published an adverse criticism entitled *The Mystery of Versailles*. And in 1945, Mr. Landale Johnston published an answer to this criticism in a book called *The Trianon Case*. The problem has also been discussed by the B.B.C. Brains Trust, so that anyone interested has plenty of material to digest.

I believe that most people who have time to study the matter will come to the conclusion that the ladies in question did their best to describe accurately what they had seen, or thought that they had seen; that there was no attempt to build up a case; and that there was no conscious heightening of any of the incidents.

The story is briefly this: In August 1901 the two ladies walked from the palace of Versailles, through the grounds, to the Petit Trianon, passing the Grand Trianon on the way; an enjoyable walk. During their walk they passed two men, "dignified officials, dressed in long greyish-green coats with small three-cornered hats." Miss Moberly said that, at this juncture, an extraordinary depression came over her, "everything suddenly looked unnatural, therefore unpleasant . . . there were no effects of light and shade . . . it was all intensely still." They came across another man sitting close to a kiosk; he had a large cloak and a large, shady hat; his face was repulsive and its expression odious. A fourth man suddenly appeared, close to them, distinctly a gentleman, young, excited and vehement, who insisted on their walking along a certain path leading to a small rustic bridge

over a tiny ravine. They crossed the little bridge and arrived near the terrace of a small country house. Miss Moberly saw a lady, seated on the terrace ; she seemed to be sketching. Her dress was " old-fashioned and rather unusual."

Three months afterwards, in November 1901, Miss Moberly found that Miss Jourdain had seen no lady on the terrace. They then resolved, as their experiences were not quite the same, to write independent accounts. Like Miss Moberly, Miss Jourdain had seen the two men in the greenish dress, the evil-looking man whose face was marked by small-pox, the other man who suddenly appeared, young, good-looking, with rather dark hair. She remembered crossing a small bridge and following a narrow path to the " English garden " front of the Petit Trianon. But there were some other features which only Miss Jourdain saw.

Miss Jourdain paid a second visit to the Petit Trianon on the 2nd January 1902 and wrote an account of this visit immediately. On this occasion, also she had some curious experiences and " the old feeling returned in full force." Afterwards, on the many occasions on which she went to the Trianon, she could never find the kiosk or the little bridge. Both ladies went again, together, on the 4th July 1904, but found everything changed. The kiosk was gone, so was the ravine and the little bridge. They resolved to discover " whether our vivid recollections of the people and the place tallied with any ancient reality or not." They say that they " were entirely ignorant of the history and traditions of the place, and (on the first occasion) continued our conversation about other things after every interruption. We did not know that we were in the ground of the Petit Trianon until we saw the house."

They found out by subsequent researches that, as regards the men in long greyish-green coats, green was a royal livery. The man by the kiosk was identified as probably the Comte de Vaudreuil, " the Queen's henchman in matters theatrical," who was a creole marked by small-pox. The kiosk of their experience was a small circular building, having pillars and a low surrounding wall. Repeated searches during seven years failed to discover this building.

A tradition was mentioned by French friends that on the 5th October 1789, which was the last day on which Marie Antoinette went to Trianon, she was sitting there in her grotto when a page ran towards her, bringing a letter from the palace to say that the mob from Paris would be at the gates in an hour's time. The page begged her to go to the "maison" and wait for a carriage. The first visit of the two ladies had been on 10th August 1901. They remark that the Tuileries was sacked on 10th August 1792, and "we wondered whether we had inadvertently entered within an act of the Queen's memory when alive, " though the memory may have been chiefly occupied by the events of the 5th October 1789.

An abstract such as the above does little justice to the many curious details related, in perfect good faith, by the two ladies, both of whom occupied important positions in the academic world, both of whom are now dead.⁷

If it does nothing else, the *Adventure* serves to throw light upon the stress of mind of Marie Antoinette in that brutal and tragic time. In this way it is allied to the more striking works of historical imagination. Let us call to mind, as an example of this kind of presentation, Rudyard Kipling's *Finest Story in the World*, in which Charlie Mears tells, half willingly and half automatically, some account of his former lives, first as a Greek galley-slave and then, later, as one of the crew of a Viking sea-serpent, when they landed on an island in the west and killed some of the natives, whose ghosts "followed the galley, swimming and choking in the water." A vivid piece of writing, bringing to the surface old human emotions, making the past as it were part of the present. Such fiction may serve a useful purpose as

⁷ Since the above was written, another instance of a possible re-captured memory has come to my notice. The story is as follows: About the year 1933, my sister was in her own house and sat in one of the arm-chairs in a sitting-room. She closed her eyes, and, at once, had a very vivid mental impression of witnessing a scene in which she clearly saw an angry, hard, yellow-brown faced man sitting at a table. Behind the table there were men in red and blue uniforms, and on the near side of the table the men wore blue coats. She was particularly impressed by the angry and contemptuous look of the sitting man.

She knew the history of the chair in which she had been sitting; it was the chair of the Dutch Governor of Banda Neira in the Dutch East Indies. Seated in this chair the Governor surrendered the island to Captain Christopher Cole, R.N., who captured the island on the morning of the 9th August, 1810. Captain, afterwards Sir Christopher Cole, brought the chair home, and it is now the property of my sister, who is the great-grand-daughter of Captain Francis Cole, R.N., Sir Christopher's brother.

a handmaid to archaeology, not, indeed, to take its place, but to increase our sense of the reality of the past, always a difficult sense to cultivate.

In whatever way the historic past may be preserved, our knowledge of it is ultimately based upon that fallible thing, the human memory.

"The minds of individuals, as they come to be, are socially conditioned. I do not say they are made by society. There is interaction. Every individual brings in something and is not a purely passive recipient, but makes his own personality as he grows. . . . The continuing social tradition is carried by men. If the men were exterminated the tradition would vanish, and its existence might only be recoverable by the future investigator as we recover the fabric of pre-dynastic Egypt."⁸

Documents and inscriptions reflect the minds of those who wrote and composed them. Such records are partly what their authors remembered, and partly what they wished us to believe; all is in a framework formed by their race and period. No record is necessarily objectively accurate, but should be taken as conditioned by race, period and the object of its composition. Sometimes we have the means of comparing rival accounts of the same event, as in the celebrated case of the Stela of Mesha, King of Moab. Here we find that Mesha naturally emphasizes his victory over Israel and the allies, but does not mention his sacrifice of his eldest son to gain the favour of Chemosh. In the Hebrew account the Moabite victory can only be inferred, and so on.

Every student of antiquity is grateful for the bringing to light of ancient written records, for it is when we leave the literary region that we grope about in the semi-darkness. But, even here there are some compensations. The material relics of the distant past do not lie. We may sometimes be mistaken in our interpretation of them, but they remain for study by succeeding generations. That is, they may so remain if all the museums are not destroyed by some future cataclysm. It has been said that "We live in a kind of vast antique shop stocked with broken or degraded fragments of what were once

⁸ L. T. Hobhouse, *Sociology in The Mind*, 1927, 299.

magnificent wholes"—all very well if applied to classical antiquity, but we may doubt if there was much magnificence about primitive man!⁹

Is any authentic memory of the past to be gleaned from legend or tradition? The *Concise Oxford Dictionary* defines a legend as a traditional story popularly regarded as historical, and tradition as opinion, or belief, or custom handed down from ancestors to posterity. Clearly, legend and tradition must vary much in usefulness as a guide to the past. In this field of enquiry we are apt to meet with dragons, wizards, giants and other fabulous creatures, whose existence might make the world more interesting but would certainly make it more uncomfortable! But there may happen to be a small element of truth embedded in a fabulous story, and a legend may provide a clue to the revivifying of a long forgotten event. But "legends are often the decorations by which later ages have sought to give meaning to events long passed out of memory."¹⁰

Let us take three examples of legends that differ somewhat in character. And first, the legend of La Hougue Bie in Jersey. In this we have a medieval legend of a dragon and a knight, the Lord of Hambye, who crossed the water from Normandy to Jersey, slew a dragon, but was himself slain by his servant, who afterwards married the widow. The servant's crime was discovered and he was executed, whereupon the widow raised the huge mound of the Hougue Bie to the memory of her first husband. This great prehistoric burial mound, which is one of the most striking monuments of the megalithic period in Europe, would naturally attract to itself stories of the sort. The word Bie, which is stated to be a contraction of Hambye, does apparently enshrine the memory of the family of Paisnel, Seigneurs de Hambye, one of whose members became the Seigneur of a Fief in Jersey, and it is thought that the fight with the dragon may be "the remembrance of some battle in which the invading forces were led by a Seigneur de Hambye."¹⁰

A second example may be found in the well-known story of Geoffrey of Monmouth about Stonehenge. He tells how this great

⁹ Conway, *A Pilgrims Quest for the Divine*, London 1936.

¹⁰ *La Hougue Bie*. Publication of the Société Jersiaise, 1925.

monument was erected by Ambrosius Aurelianus as a memorial to British chieftains massacred by Hengist, and how, on the advice of Merlin and with his help, the stones were moved from "the Giants' Dance which is in Killaraus, a mountain in Ireland" and how "giants of old had brought them from the farthest coast of Africa and placed them in Ireland, while they inhabited the country." The stones were believed to possess magical healing properties.¹¹

In 1923 Dr. H. H. Thomas established the fact that the "blue" stones at Stonehenge were derived from the Presely Mountains in Pembrokeshire, where the rocks are identical petrologically with them. This mountain range is some 140 miles to the west-north-west of Stonehenge, across the Bristol Channel. Mr. W. F. Grimes has discussed, in an Ordnance Survey publication, the question of this transfer by land and sea. Here we have a rather remarkable correspondence between legend and recently ascertained fact. It is true that the "blue" stones were not brought from Ireland but from Pembrokeshire. But they were brought over that great distance from a country in the west. There is a valuable and thorough study of the matter in *Antiquity* for December 1941, by Mr. Stuart Piggott. He discusses the question as to whether "there is a link between an event which took place between 2000 and 1500 B.C. and a legend first making its written appearance in A.D. 1136." He thinks that there is a possible continuity of transmission in the "use of a certain type of ritual structure or temple" with an accompanying tradition and sacred legend. The article should be studied.

For a third example of a legend we may take the story of Lyonesse, "a legendary country off the south coast of Cornwall . . . the legend may be a greatly exaggerated version of some actual subsidence of inhabited land."¹² On this subject there appeared an important article in *Antiquity*, for March 1927, from the pen of Mr. O. G. S. Crawford. He gives strong evidence for the theory that Lyonesse was the Scilly Islands. At low spring tides there can be seen, round the coasts of the Islands, lines of submerged boulder-hedges and walls of an early type, and it may be looked upon as certain that, in a distant

¹¹ E. H. Stone, *Stonehenge*, London, Robert Scott, 1924.

¹² *Encyclopaedia Britannica*, 14th Edition, Vol. XIV.

past, the present isolated fragments of land formed part of a larger unit. The article is illustrated by a chart which shows the shape of the ten-fathom line in the sea round Scilly. If the sea surface, in the distant past, had been 60 feet lower with reference to the land, this line would enclose one large island some thirty square miles in area. It may be accepted as a fact that the sea level has been rising for a long period. The author remarks, "The Legend of Lyonesse may, then, be true; but is it a direct traditional inheritance of the sunmergence? I think not. It is more likely that it has arisen in later times, through the acute observation of fishermen and other unlettered folk."

Here are three legends and each of them has some foundation in fact, but the survival of the legend has, in each case, its own special reason. In the first, the name only is a link with the medieval past, and there is no connection with the origin of the monument. In the second, the legend does hand down the memory of the transport of the stones from a distant land in the west. And, in the third, there is no memory but an inference from observation. If these three instances may be taken as fairly typical, then it may be said that legends may preserve ancient memories and will usually deserve investigation, though the main result of such investigation will probably be to explain how the legend arose rather than to throw light on the circumstances of the past.

Let me end by the mention of possible musical survival of a distant past, a memory preserved, perhaps, through a hundred generations. Harry Johnston, that clever artist, musician, and adventurous traveller, thought that the Baganda may have derived their ideas of music from ancient Egypt. "From Egypt came . . . the designs for musical instruments of a more complicated nature than the drum, the antelope-horn trumpet, or the bowstring. The Uganda harps are exactly like those depicted on Egyptian monuments."¹³ And he said, I believe, elsewhere, that he thought that some of the songs of the races of that part of Africa may have come down from the same ancient source. I remember that when I was in

¹³ Sir Harry Johnston, *The Uganda Protectorate*, London 1902.

Central Africa, fifty years ago, I was struck by the dignity of the traditional carriers' songs and used to reflect that we were perhaps hearing the songs of old Egypt, a wordless memory preserved for thousands of years.

MEROE AND INDIA

By A. J. ARKELL

IT is a privilege to an admirer of Crawford's achievements to share in the tribute that is paid to him in this volume ; and it is especially fitting that this volume should contain something about the Sudan, where Crawford began his archaeological career by excavating for Sir Henry Wellcome at Abu Geili near Sennar on the Blue Nile in 1912, and where his latest effort in the field has been to tour (in 1950) a number of sites between Roseires and Dongola, particularly in order to get background for his forthcoming study of the Fung.

When therefore I saw the list of other contributions it seemed that it would not be out of place if I were to try to draw attention in this chapter to a phase in the history of the Sudan which has not, I think, been noticed before.

Meroe succeeded Napata as the capital of the Kingdom of Cush, which gave Egypt its Twenty-Fifth Dynasty (c. 750-660 B.C.), and which throughout the thousand years of its duration preserved a great deal of its Egyptian heritage. For many centuries its culture was purely Egyptian, but later other influences including those of Greece, Rome and Negro Africa affected it, before an expedition from its trade rival Axum sacked Meroe about 350 A.D.

Herodotus (III, 106) knew that cotton was grown in India and cloth made from it ; and he mentions its use in Egypt in the breast-plate of Amasis (c. 566-525 B.C.). Cotton cloth was found in the Western Cemetery at Meroe in graves that date from the Graeco-Roman period.¹ Although there is a wild cotton in Africa, it is probable that the spinning and weaving of cotton was an Indian invention, and that the cloth first reached the Nile Valley from India. It may also one day be established that the carnelian and agate beads made in Cambay, which have been coming to Africa from

¹ R. E. Massey, "A Note on the Early History of Cotton," *Sudan Notes and Records* VI, 231. These graves will soon be more accurately dated when Dows Dunham's *Royal Cemeteries of Kush*, now in the press, is published.

India since medieval times at least,² actually reached the Nile Valley through the hands of middlemen in the days of ancient Egypt.

It was however Alexander the Great who brought India into direct contact with the western world, of which Meroe, at least during its more prosperous periods, formed part. Under the Ptolemies trade between India and the Mediterranean grew up with Alexandria as the entrepôt between east and west. Under the Roman empire this trade increased considerably, but was still largely in the hands of intermediaries such as the Greeks of Alexandria and the Axumites. Augustus tried to make trade with India easier, and it was no doubt with this end in view that the not entirely successful expedition of Aelius Gallus was sent to Arabia in 25 B.C., with the intention of crushing the Himyarites, who were the chief barrier to direct trade with India. It was they who stopped Indian ships at the Bab el Mandeb and refused to let them enter the Red Sea.³ About this time the Habashat, who were Mahri incense-gatherers from southern Arabia and who had for some centuries held Socotra, Cape Guardafui and the Somali coast, were deprived by Hadramaut of the incense lands of S. Arabia. They had probably already lost the incense lands of Guardafui as a result of the expedition of Ptolemy Euergetes, which is said to have reached Mosyllon. They therefore sought a new home, building Axum in the Tigre highlands. This town, first mentioned in the *Periplus*, was situated on a natural overland trade-route from India to Egypt; from Adulis the seaport to the River Atbara was not far, and the route to that river was not a desert one like those between the Red Sea and the Nile in Egypt. Before its conversion to Christianity about 330 A.D. the strongest outside influence in Axum may have been Buddhism.⁴ James Ferguson (*History of Architecture*, I, 142-3) quoted by Schoff notes that the great monolith of Axum is of Indian inspiration :

"the idea Egyptian, but the details Indian. An Indian nine-storied pagoda, translated in Egyptian in the 1st century of the Christian era."

² A. J. Arkell, "Cambay and the Bead Trade," *Antiquity*, 1936, 292 ff.

³ For much of this I am indebted to E. H. Warmington, *The Commerce between the Roman Empire and India*, Cambridge, 1928.

⁴ *The Periplus of the Erythraean Sea*, translated and annotated by Wilfred H. Schoff, New York, 1912.



Fig. 1. The Meroitic lion god Apezemek, from the west wall of temple A at Naga built by King Netekamāni and Queen Amānitēre, c. 15 B.C.-15 A.D.
Reproduced from Lepsius, *Denkmäler*, V, Bl. 75a

He notes its likeness to such Indian temples as Bodh-Gaya,⁵ and says it represents

“that curious marriage of Indian with Egyptian art which we would expect to find in the spot where the two people came in contact, and enlisted architecture to symbolize their commercial union.”

Such an alliance, says Schoff, was of advantage to the Hindu traders. Instead of handing over their cargoes to the Himyarites, Axum allowed them to trade to Adulis, and even to travel overland and take their wares to Egypt themselves.

It was probably thus that Indians came to Meroe in the reign of Augustus or his successor. On the outside of the west wall of the temple at Naga, about 55 miles south-south-west of Meroe as the crow flies and about 20 miles from the Nile, built by King Netekamāni and his queen Amānitēre (c. 15 B.C.-15 A.D.)⁶ the Meroitic lion god Apezemek is represented with three heads and two pairs of arms (Fig. 1.) Such a representation of a god is unique in the Nile Valley but commonplace in India. Many-armed and many-headed types of Siva appear on coins for the first time in the IInd century; Siva is then four-armed and sometimes three-headed, the latter type being very popular and spreading early to Gandhara and Central Asia, where it occurs in sculpture and painting.⁷ Despite the apparent slight discrepancy in date, there can be little doubt that this three-headed, four-armed Apezemek is due to Indian influence, and that we have here another example of the “marriage of Indian with Egyptian art.”

At the neighbouring Meroitic site of Musowwarat es sufra there is a small and now almost completely ruined temple built on the edge of a very large artificial reservoir (*hafīr*). In this temple were visible in Lepsius' day a number of sandstone column drums decorated with strange semi-Egyptian scenes in relief. Weather and man have continued their work of destruction since then, and only a small piece remains visible of the relief (copied by Lepsius)⁸ which depicted

⁵ See the striking photographs in Schoff, *op. cit.*, 59, 60.

⁶ This temple was called A by Lepsius (*Denkmäler* I, Bl. 144-5) and B by Caillaud. For the scene see *Denkmäler* V, Bl. 59-60.

⁷ *Encyclopædia Britannica* (14th ed.), Vol. 12, 215.

⁸ *Denkmäler* V, Bl. 75a.

a king wearing the crown of Upper and Lower Egypt riding bareback on an elephant (Fig. 2). True, this is not the way in which elephants are ridden in India, but the idea of riding elephants at all is an Indian one, while entirely foreign to the Nile Valley, and it seems probable in view of the obviously Indian form of Apezemek at Naga, that this representation of a Meroitic king riding an elephant was inspired by an Indian recalling how in his country kings rode elephants. The date of the temple in question has not yet been decided, but judging by the style it is probable that if it was not also built by King Netekamāni, it was built by one of his immediate successors.

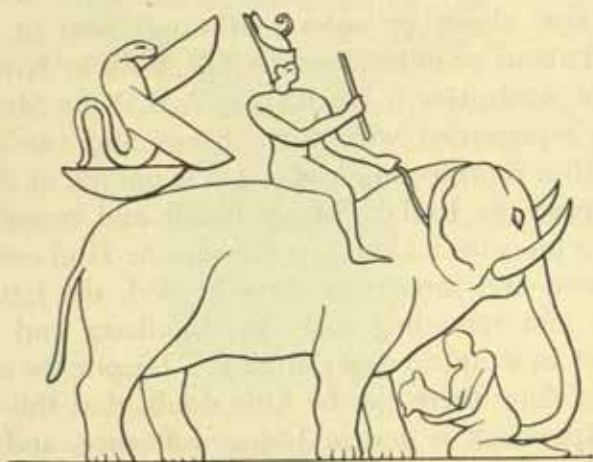


Fig. 2. A Meroitic king riding an elephant bareback—scene from a column drum in a ruined temple at Musowwarat es sufra
 Reproduced from Lepsius, *Denkmäler*, V. Bl. 59-60

It is probable that, when the influence of India on Meroe at this period is realized, other traces of it will be recognized. Indeed I would suggest that it is not unlikely that to these Indian visitors is due the idea of the rainwater reservoirs (Arabic *hafīr*) which were first constructed at this period, and which may well be the descendants of the "tanks" long constructed for the same purpose in India. This was the century in which the final decline of the Meroitic kingdom began. One of the many reasons for this decline was the desiccation

and erosion which then set in and which may have been due in part to climatic change, but was probably mainly due to overgrazing during the previous centuries of prosperity, when herds increased beyond the ability of the country to support them. Hafirs between the latitude of Meroe and Sennar are numerous ; several of the largest are associated with small temples and are obviously Meroitic in date (Naga, Musawwarat, Basa, etc.) ; none of them are apparently older ; and it may well be that the first hafirs were constructed at the suggestion of an Indian by that energetic pair, King Netekamāni and Queen Amānitēre, who built several temples in the Sudan including that at Naga with the Indian form of Apezemek.

Another possibility is that Indian influences were brought to the upper Nile Valley about the 1st century A.D. by Tuareg nomads employed as camelmen, and perhaps first so employed by Indian merchants. In *JRAI*, LXV, pp. 299 ff. ("Some Tuareg ornaments and their connection with India") I have drawn attention to the fact that the Tuareg wear an elaborate ear ornament (*tsagūr*) which is also found in the Garo hills of Assam. The homeland of the Tuareg is as yet unknown, but it seems highly probable that they have an Asiatic origin and are not indigenous to Africa. Still today the Tuareg carry a peculiar kind of short sword slung from the left shoulder, just as a similar sword is worn in the massacre scenes on the south side of the pediment of the Sun Temple at Meroe.⁹

The Tuareg of Aïr also still wear on special occasions sets of silver finger rings with impractically large bezels remarkably like those worn for example by King Netekamāni, his queen and the crown prince on the south and west walls of the temple of Apezemek at Naga. The earliest representation of a camel in the Sudan comes from the grave of this crown prince (a small bronze figurine). It is likely that the Tuareg first came to the upper Nile Valley as camelmen about this time. Their ear ornament (the *tsagūr*) points to India, but I must leave it to others with a greater knowledge of that country to say whether the remarkable finger rings and peculiar swords which occurred at Meroe about the time that Indian influence was

⁹ Cf. Rennell Rodd, *The People of the Veil*, Plate 2, with J. Garstang, *Meroe, City of the Ethiopians*, pl. xxxiii, 2. See also *Sudan Notes and Records*, XXVII, 93 ff.

being felt there and which are used today by the Tuareg, also have their origin in India. It is at least remarkable that a sword slung from the left shoulder and a peculiar crescent-bladed axe not unlike that carried by the man next to one with a sword slung from his shoulder in the scene from the Sun Temple at Meroe mentioned above occur among ancient Indian arms.¹⁰ A Mongolian type of archer's loose (stone thumb ring) was in use at Meroe between 15 B.C. and 200 A.D.¹¹ It is possible that the Tuareg, who seem to have reached the upper Nile Valley in the 1st century A.D., may have left their home on the Asiatic steppes as a result of the extensive migrations of peoples set on foot by the expulsion of the horde of nomads called the Great Yueh-chi from western China between 174 and 160 B.C., some of whom settled in the valley of the Oxus and gave northern India its Kushan dynasty. The chronology of this dynasty is apparently still uncertain, but it is of interest to note that four-armed representations of Siva occur on the coins of Kanishka, a king of this dynasty, who reigned at Peshawar probably in the 1st century A.D.¹²

¹⁰ Vincent A. Smith, *The Oxford History of India* (2nd ed.), Oxford, 1933, 64 and 83.

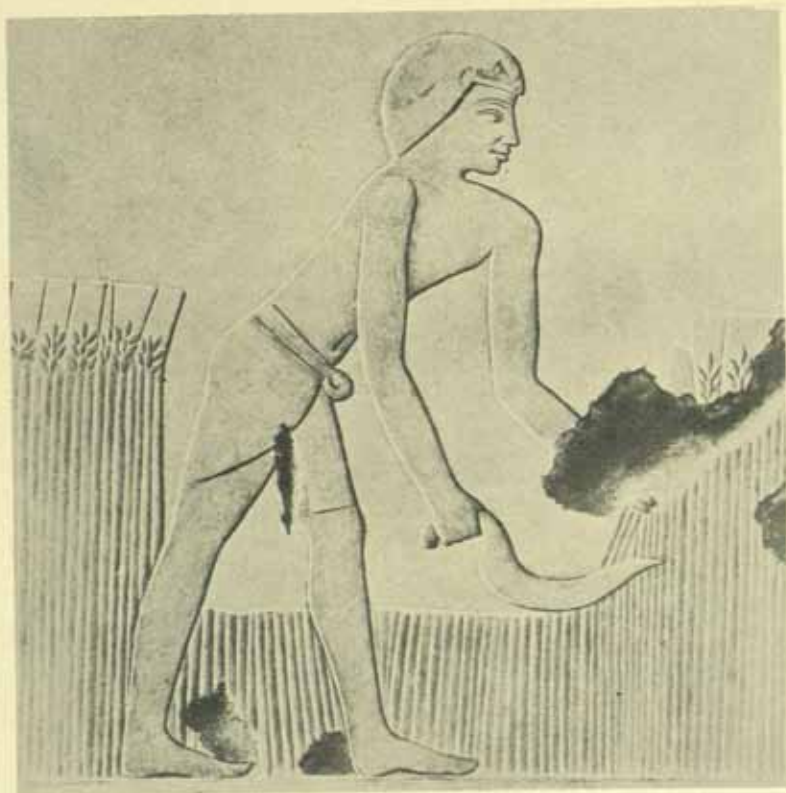
¹¹ See A. J. Arkell, *Early Khartoum*, Oxford, 1949, 121-4.

¹² Vincent A. Smith, *loc. cit.*, 126-132.

PLATE I



A



B

Egyptian reapers of the Old Kingdom using (A) angled and (B) balanced sickles

- A. Mastaba of Mereruka (VIth Dynasty): after University of Chicago, Oriental Institute, *Publication XXXIX*, 1938, Pl. 160.
 B. Tomb of Urarna (Vth Dynasty): after N. de G. Davies, *The Rock Tombs of Sheikh Said*, Egypt Exploration Society, 1901, frontispiece.

THE BALANCED SICKLE

BY V. GORDON CHILDE

CRAWFORD'S field studies and his epochal discovery of archaeological air photography have contributed so largely to the early history of agriculture, that a note on an important agricultural tool might be appropriate to a volume in his honour.

One striking result of Dr. Steensberg's practical investigations, published in his recent book, *Ancient Harvesting Implements*,¹ has been to emphasize the importance of what he terms the balanced sickle. In Europe from his survey this variety seems to appear as a revolutionary innovation in the Iron Age, and Steensberg is at a loss to explain its origin². This is no fault of the author's, since an intensive study of European, and especially northern, sickles, cannot be expected to deal exhaustively with oriental types, housed mainly in distant museums or published in scattered periodicals and excavation reports. Yet in the Ancient East the balanced sickle, as I hope to show, is attested as early as any other type more specialized than the simple harvesting knife. The earliest specimens are formed of flint teeth set in wooden hafts just as with all other types of sickle. And, as with them, the flint-armed wood version was eventually translated into copper when metal became cheap enough for such use. Hence to define more closely the cradle of the balanced type, it is desirable to survey briefly the distribution of all main types whether of flint or metal.

For convenience of description and classification it is helpful to imagine an evolution of sickles from the simple straight reaping knife that is certainly *not* historical. Let us assume that the evolution took place in the following way though historically it almost certainly did not do so. We begin with the straight reaping knife in which the

¹ Copenhagen, 1942.

² *op. cit.*, 206.

"blade" Oa , continues the line of the handle AO (Fig. 3). The blade could be bent inwards to the position b forming an arc of a circle to which the line of the handle, AOB is a tangent at O . I propose to call the result a *tangential sickle* though Steensberg would treat it as a case of the *angled sickle*. I shall restrict that term to the form obtained by continuing our imaginary process of bending inward the blade till it reaches the position, c . The tangent to the arc OC now makes a re-entrant angle COA with the line of the

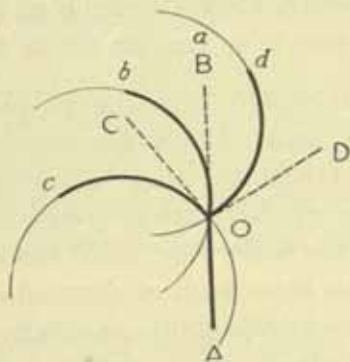


Fig. 3. Diagram to explain the classification of sickles

handle. But instead of bending the curved blade further inwards to c , it might theoretically be bent backwards to the position d so that the angle DOA is obtuse. This produces what Steensberg terms the *balanced sickle*. Admittedly this is a fictitious process, but its hypothetical results can all be illustrated by flint sickles whose handles have survived as well as by metallic versions.

My tangential sickle is happily illustrated by the recently discovered reaping knife from Karanovo in Bulgaria³ with a horn handle. If used for reaping, a curved knife, published by Vayson,⁴ from Los Murcielagos in southern Spain would belong to the same group, but Steensberg justly remarks that the projecting teeth of this implement would seem to exclude such a use. Hence it may be left out of account provisionally though we shall see later that there is some other evidence for the use of tangential sickles in southern Spain.

³ *Antiquity*, 1939, 34.

⁴ *L'Anthr.*, xxix, 1920, 412.

The angled sickle in flint is well attested. In Egypt it is represented by a hieroglyphic sign, by pictures from Old Kingdom tombs (Plate Ia)⁵ and by the celebrated complete specimen from Kahun⁶ of Middle Kingdom age. An equally celebrated complete example comes from the lake-dwelling of Barca-Solferino in Upper Italy⁷ that belongs to the Polada culture of the Copper or Early Bronze Age. The Egyptian and Italian examples are strikingly similar. A rather different version, unambiguously "angled," is represented by the clay sickles of the al'Ubaid culture from Mesopotamia.

Finally the bending back of the blade to form the balanced sickle is superbly exemplified in four wooden sickles found replete with their flint teeth in the recently excavated tomb of Hemaka⁸ who lived under Dynasty I. The handle has a total length of only 9.5 cm. and terminates in an attached guard so that only about 4.5 cm. of its length is available as a grip to be encircled by the fingers of the reaper. This type too is seen in use in several tomb paintings of the Old Kingdom (Plate Ib).⁹

During the IInd millennium the flint sickle was often translated into metal and then the tang generally indicated the position and direction of the handle relative to the blade. We have therefore more abundant material to illustrate the distribution of the several types.

In Egypt indeed the flint sickle was not translated into metal, but continued in use to the end of the New Kingdom and probably much later. In this old form the angled sickle is repeatedly depicted on the walls of tombs under the XVIIIth and XIXth Dynasties as under the XIIth.¹⁰ In Mesopotamia the local version of the angled sickle was being translated very literally into metal even before the end of the IIIrd millennium.¹¹ Finally the European *grooved sickles*

⁵ E. G. Wreszinski, *Atlas*, "alten Reiches," Taf. 47 (Mereruka); 49 (Tiy).

⁶ Petrie, *Tools and Weapons*, pl. LV, 7.

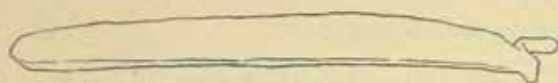
⁷ *L'Anthr.*, xxix, 395.

⁸ Emery, "Tomb of Hemaka" (*Excavations at Saqqara*), pl. XV.

⁹ e.g., Urarna, Vth Dynasty (N. de G. Davies, *Tombs of Sheik Said* (1901), frontispiece); Ptahetep (id., *Ptahetep II*, pl. 7). Cf. Klebs, "Die Reliefs des alten Reiches" (*Abh. Heidelberg Akad.*, phil. hist. Kl., 3), 48.

¹⁰ E.g., Wreszinski, *Atlas*, Nos. 61, 83, 142, 177, 188, 192, 233, 385, 422; Klebs, "Die Reliefs des mittleren Reiches," 72.

¹¹ Andrae, *Die archaischen Ischtartempel*, 83 (Assur G); Oriental Institute of Chicago, *Communications*, No. 17, Fig. 81 (Shensi—Early Dynastic).



SIALKI

LENGTH 16.5 CMS

Ghirshman, Fouilles de S, I



KARANOVO

LENGTH 31 CMS

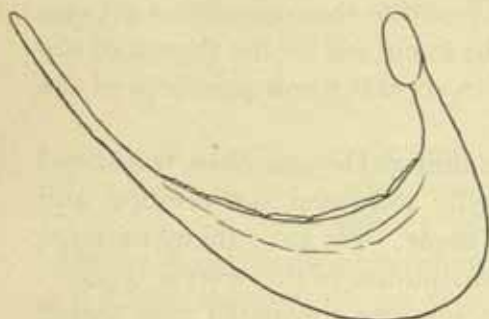
Antiquity 1939



ZYGOURIES

LENGTH 19.5 CMS

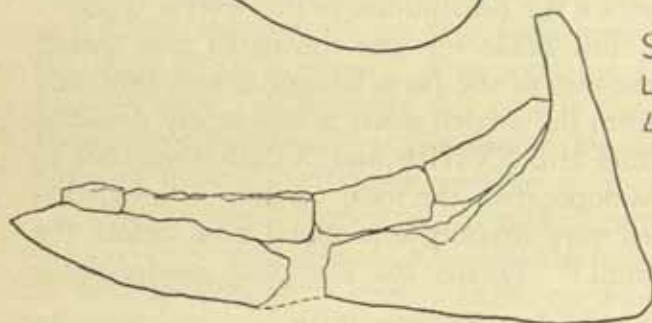
Blegen, Zygouries, p199



KAHUN

LENGTH (max) 42 CMS

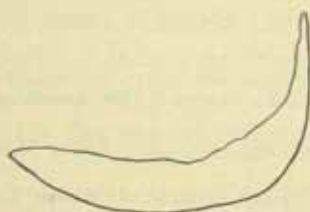
Petrie, Tools and Weapons, 5



SOLFERINO

LENGTH 25.2 CMS

L'Anthropologie XXIX, p385



ASSUR G

LENGTH 15.4 CMS

Andrae, Die archaische Ischtar-tempel zu Assur, Fig 63

Fig. 4. Straight reaping-knife and examples of tangential and angled sickles

of Schmidt's type Ia can very well be regarded as translations of the local flint angled sickles represented at Solferino. Schmidt gave good grounds for seeking the origin of the type in the Po valley just where its precursor is attested. Since the type had reached Punto del Tonno in the heel of Italy before Mycenaean pottery of the latest type (Furumark's L.H.IIIC) was imported there, it must have originated before 1200 B.C. The British and Sardinian *socketed sickles* (if correctly described) can only belong to the angled class. The most reasonable reconstruction of the north European *button sickle* would put it too in this group. But it is derived not from a composite flint sickle like that of Solferino, but from a variety armed with a single flint blade such as those found abundantly, particularly in the Eastern Alps. The transition to the button sickle may be illustrated by copper copies of the flint blades found in the lake dwellings of the Attersee¹² and a bronze implement from the hoard of Smedrov, Bohemia¹³ that is attributed to the Middle Bronze Age. Hence, if the button sickles have been correctly interpreted, their flint precursors of the Copper Age must equally represent angled sickles.

The tangential sickle of Karanovo, translated into metal, would yield the typical Mycenaean sickle. If any doubt exist as to how this were hafted, it should be set at rest by the miniature example from Enkomi, where the tang is socketed¹⁴. Mycenaean tangential sickles are recorded all round the Aegean in Cyprus, Crete, the Peloponnese, Attica and Troy¹⁵. To the same family belong the sickles from Chtetkovo on the Ukrainian Bug¹⁶, significantly associated with double axes of Aegean form. Some of the Transcaucasian sickles, illustrated by Kuftin,¹⁷ should likewise be regarded as tangential though others are explicitly angled¹⁸ and one from a late bronze age

¹² Franz, *Materialien z. Urgeschichte Österreichs*, iii (1927), 19; Willvonseder, *Oberösterreich in der Vorzeit* (1933), Fig. 20.

¹³ Rýchly, *Bronzezeit in Böhmen*, pl. XXXIII, 13.

¹⁴ Murray, Smith, etc., *Excavations in Cyprus*, No. 1483.

¹⁵ BSA., *Palaikastro*, pl. XXV; Blegen, *Zygouries*, 283; Dorpfeld, *Troja u. Ilion*, 396; Montelius, *La Grèce préclassique*; *Ath. Mitt.*, lv (1930), 136 (iron; from Tiryns hoard).

¹⁶ ESA., ii, Fig. 95.

¹⁷ Kuftin, "O drevneishikh kornyakh Gruzinskoi Kultury na Kavkaze" (*Vestnik, Gos. Muzeia Gruzii*, XII B), Tbilisi, 1944, T. IX, XI.

¹⁸ *ibid.*, 325, pl. X.



TOMB OF HEMAKA
LENGTH 45.9 cms
J.R.A.I., 1944, Pl. II A



NUZI LENGTH 20 cm
Starr, Nuzi.



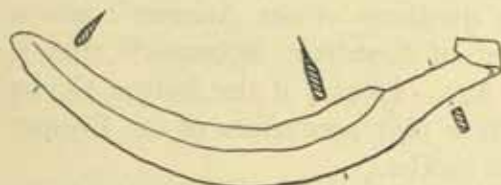
ANAU
LENGTH 18.2 cms
Pumpelli, Anau, p. 154
no. 274



MINET EL BEIDA
B.S.P.F., 1931, p. 5, fig. 3



KOSTROMSKAYA
Jessen, Iz istorii drevnei metal-
lurgii Kavkaza, IGAIMK, 1935



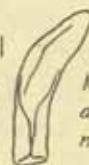
MINET EL BEIDA
B.S.P.F., 1931, p. 473, fig. 3



GOZLU KALE
LENGTH 26 cms



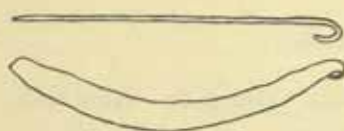
ENKOMI
LENGTH 11 cms



Murray, etc. Excav-
ations in Cyprus.
no. 1483



ATCHANA
LENGTH 22.4 cms
J.H.S. 1936, p. 130, fig. 3



MERSIN
L.A.A., LX, 12



UGARIT
LENGTH 15 cms.
Syria, XVI, 143,
fig. 2

Fig. 5. Examples of balanced, tangential and looped sickles.

tomb in Trialeti looks from the photograph¹⁹ of the grave as if it had been mounted as a balanced sickle though the blade conforms to the Georgian form here taken as "tangential." Finally in Central Europe during the Late Bronze Age the grooved angled sickles of Schmidt's type Ia gradually relapse into Type Ib which is really more a tangential sickle. If the latter type be proper to the Balkans as suggested by the Karanovo specimen, this transformation is only a reversion to a native pre-metallic form.

Early metal versions of the balanced sickle are less easily found. In Egypt the Hemaka form was never translated into metal and practically went out of use after the Old Kingdom. I know no examples till one in the XIXth Dynasty²⁰. But certain metal sickles from Asia must be assigned to this class.

It seems natural to infer that in sickles with a flat, tapering tang, the wooden handle would continue the line of the tang that would have been inserted into the end of the handle. Admitting this, we at once find a group of sickles from Nuzi²¹, from Minet el-Beida²² and even from Kostromskaya, north of the Caucasus²³ that must be classed as balanced sickles. But the vast majority of Asiatic sickles of the IIInd millennium belong to the group "with a bent-over tang", or for short, of *looped sickles*. How these were mounted is a controversial but crucial question.

Obviously the bent-over tang cannot have been simply fitted into the end of a handle as a tapering tang presumably was. The simplest hypothesis is to assume that the tang was stuck transversely through the shaft so that its end projected through, and could be bent back round, the handle. In this case the line of the metal tang will have been at right angles to that of the missing wooden shaft. Hence in calculating the angle of blade to handle, 90° must be added to that formed by the blade's tangent and the line of the tang. If the latter angle be obtuse, the sickle would have been angled. But when

¹⁹ *Trialeti*, T. XLII, cf. T. XLIV and p. 69.

²⁰ Wreszinski, *Atlas*, No. 14.

²¹ Starr, *Nuzi*, pl. 124.

²² *BSPF.*, 1931, 75.

²³ Yessen and Degen-Kovalevskii, "Iz istorii drevnei metallurgii Kavkaza," *IGAIMK*, 120 (1935), 97, r. 5.

it is acute the result is a balanced sickle. A clear example of the latter class is provided by a well-preserved specimen found by Miss Goldman at Gözlu Kale, Tarsus (Fig. 5). If the tang went through the handle, the result must have been a balanced sickle. Some blades from Troy VI and Minet el-Beida²⁴ can most conveniently be imagined as hafted in the same manner. But in the vast majority of Asiatic looped sickles²⁵ the blade could only have been mounted as an angled sickle if the tang were really stuck through the haft and bent round it.

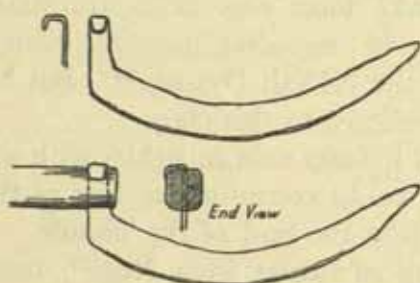


Fig. 6. The suggested hafting of looped sickles

If on the other hand the tang rested in a longitudinal groove in the back of the handle and the loop were accommodated in a lateral slot, a very secure attachment would have been provided. In that case the majority of Asiatic sickles would have been balanced. But in fact there is no evidence for such an elaborate method of hafting. In some there is hardly any straight tang at all²⁶; the butt of the blade itself must have been embedded in the haft and such a procedure would be most intelligible if the bent projection went round the back

²⁴ Dorpfeld, *Troja und Ilion*, 379; *BSPF.*, 1931, 473, Fig. 3, B.

²⁵ Notably in those from Mersin, *LAAA.*, xxv, pls. LXXII, 9 ("Cilician Hittite"); LX, 12 (Imperial Hittite). If, as Steensberg, following Christian, supposes, "blade axes" like Woolley, *Ur Excavations; the Royal Cemetery*, pl. 225, S 17-18, were really sickles, the Sumerian examples and that from Chagar Bazar (*Iraq*, iii, 27, Fig. 8, 3) would belong here and would apparently illustrate the oldest version of the looped sickle.

²⁶ The following list of looped sickles without claiming to be exhaustive will give some idea of their distribution: Anau III (Pumpelly, *Anau*, Fig. 379); Sialk, Necropole A (Ghirshman, *Sialk II*, pl. XXXVIII, etc.); Kish, Babylon I (Langdon, *Kish*, i, pl. XXV); Lagash, pre-Sargonic, doubtful (de Genouillac, *Fouilles de Telloh* (1934), i, pl. 11, 3 b.); Atchana (*JHS.*, 1936, 130); Minet el-Beida (*BSPF.*, 1931, 75); Mersin (note 25 above); Tarsus (Adana Museum); Alishar (van den Osten, *Alishar 1930-32*, *Oriental Institute Publications*, XXIX, 1937, Figs. 289-290 (Hittite), 495 ("Phrygian"); Alaca and Karaoglan (Ethnographic Museum, Ankara); Troy VI (note 24 above).

of the handle of an angled sickle. On the other hand in a few cases²⁷ the tang is 10 or even 15 cm. long without the looped portion. Such a length would be irrelevant if the tang were to be simply stuck through an ordinary stick, but would be appropriate to a handle with short grip like those of Hemaka's sickles; the tang would lie in a groove in the grip, its end being bent round the butt of the handle.

In any case, however they were mounted, some looped sickle blades must have belonged to balanced sickles. Together with those with tapering tangs already mentioned they provide evidence of the survival in Hither Asia of the balanced sickle in the IIInd millennium. But reliable specimens are frankly exceptional; I know none at all from the Halys basin. If the balanced sickle had been so superior as Steensberg claims, it is surely surprising that it should have been ousted altogether from Egypt by the angled sickle and should have competed therewith so unsuccessfully in Hither Asia; at Minet el-Beida and Tarsus blades suitable for hafting as balanced and angled sickles respectively have been found side by side. Indeed, the earliest iron sickle blades²⁸ could be mounted more easily as tangential than as balanced sickles. Nevertheless Asia Minor seems the most likely resting place for the balanced sickle during the IIInd millennium and the best centre for its transmission to Europe in the first.

This assertion needs one qualification. From the cave of Los Letreros, Velez Blanco (Almeria) Breuil²⁹ has published a schematic painting representing a "sorcerer" holding what appear to be two sickles. That in his right hand is clearly tangential and recalls the reaping knife from Los Murcielagos. But that in the left hand, if it be a sickle, can only be balanced, according to Breuil's drawing. Since the accompanying photographs show the painting to be badly weathered and the classification of the sickles depends upon minute details such as are accurately reproduced in Egyptian tomb paintings, the Los Letreros sorcerer would be very poor evidence for early balanced sickles in south-eastern Spain if he stood alone. But he does not. The Museo de Prehistoria in Valencia possesses a flint-

²⁷ e.g. Atchana.

²⁸ e.g., Petrie, *Gerar*, pls. XXVI-XXVII.

²⁹ *Les Peintures rupestres schématiques de la Péninsule Iberique*, IV (1935), Fig. 3.

toothed sickle, complete with its wooden handle, secured during the excavation of the Argaric hill-fort of Mas de Menente, Alcoy³⁰. The whole strip of wood is just under 40 cm. long; after a straight section for the handle (with indents for the fingers) 5 cm. long, the rest is curved back towards the position appropriate to a balanced



Fig. 7. Balanced sickle from Mas de Menente, Alcoy, Spain. ($\frac{1}{4}$).

sickle, but so slightly that the arc is only 3.75 cm. high from the chord which continues the line of the handle. Hence it looks as if balanced sickles were in fact used at both ends of the Mediterranean³¹ in the IIInd millennium. But this tentative western group was never translated into bronze and is not at all likely to be the immediate ancestor of Continental specimens in iron.

³⁰ *Archivo de Prehistoria Levantina*, I (Valencia, 1928), 108, Lam. V, 3. The surviving piece of wood is not grooved to take the teeth, and these themselves are nearly 0.5 cm. thick with the back blunted by trimming perpendicular to the bulbar surface.

³¹ A single picture among the rock engravings in the Italian Maritime Alps published by Issel and reproduced by Almgren, "Hällristningar och Kultbruk," 1926-27, Fig. 152, c, also looks like a balanced sickle, but its age and interpretation are doubtful. All the sickles published by Bicknell, *Guide to the Prehistoric Rock Engravings in the Italian Alps Maritime* (Bordighera, 1913), pls. XII, 50, 52 and XIII, 25, 66, 67; and *The Prehistoric Rock Engravings*, 1902, pl. VI, a, are unmistakably angled; some look more like scythes!

FOLK-CULTURE AND THE STUDY OF EUROPEAN PREHISTORY

BY GRAHAME CLARK

WHEN the history of British Archaeology comes to be written, it is safe to say that the name of O. G. S. Crawford will bulk more largely than the record of his own substantial achievements in research. He is likely to be remembered both as an innovator and even more for the stimulus he gave to others.

Above all, Crawford has emphasised the unity of human history and the proper subservience of archaeology to that unity. In defining the scope of his new periodical *Antiquity*, he wrote :

“ Our field is the Earth, our range in time a million years or so, our subject the human race. . . . The past often lives on in the present. We cannot see the men who built and defended the hill-top settlements of Wessex ; but we can learn much from living people who inhabit similar sites today in Algeria. From such, and from traditional accounts of Maori forts we learn, by comparison, to understand the dumb language of prehistoric earthworks. Thus to see the past in the light of the present is to give it light and substance ; this is the old anthropological method of Tylor and Pitt-Rivers and it has too long been neglected by archaeologists. Some familiarity with the habits and outlook of primitive communities is essential. . . . ”¹

While the majority of his professional colleagues have necessarily been engaged upon the discovery, preservation and classification of the dry-bones of prehistory, Crawford has always hankered to restore the flesh and blood and to make the past a reality to the living generation. By so doing he has notably succeeded, more perhaps than is always realised, in attracting a wider audience for his colleagues, and on occasion he has even penetrated the reserve of experts hardened in the art of evading reality. He has dared to hint that archaeological evidence can only yield history when it has been interpreted, and to

¹ *Antiquity*, 1927, 1 and 3.

suggest that it can only be interpreted adequately by taking account among other things of survivals from the past. It is the purpose of the present essay to discuss how the study of Folk-Culture may be used to advance knowledge of the prehistoric past.

Archaeology, the science of reconstructing the past from its surviving material traces, depends upon essentially vestigial evidence. In this respect it has much in common with those natural sciences which have to do with the more or less remote past. All are compelled to interpret evidence about the past to some degree in terms of what may be observed in the present. Just as the student of the Pleistocene Ice Age turns to areas where glacial conditions still obtain, or the palaeontologist considers fossil bones in relation to living animals, so must the archaeologist strive to reconstruct the vanished world of antiquity by reference to existing societies. This point of view was well expressed more than a hundred years ago by a professional zoologist, Sven Nilsson of Lund, whose interests centred first on the victims of early man and only later shifted to the hunters themselves. Approaching prehistoric archaeology by way of natural science, he felt positive that :

“ If natural philosophy has been able to seek out in the earth and to discover the fragments of an animal kingdom, which perished long before man's appearance in the world, and, by comparing the same with existing organisms, to place them before us almost in a living state, then also ought this science to be able, by availing itself of the same comparative method, to collect the remains of human races long since passed away, and of the works which they left behind, to draw a parallel between them and similar ones, which still exist on earth, and thus cut a way to the knowledge of circumstances which *have been*, by comparing them with those which still exist.”²

Sir John Lubbock emphasised the same point when he claimed that :

“ If we wish clearly to understand the antiquities of Europe, we must compare them with the rude implements and weapons still, or until lately, used by savage races in other parts of the

² Quoted from the Introduction (p. lx) to the 3rd ed. (1868) of *The Primitive Inhabitants of the Scandinavian North*, originally published at Lund in 1843.



world. In fact the Van Diemaner and South American are to the antiquary, what the opossum and the sloth are to the geologist."³

Before considering more closely some of the implications of applying the evolutionary ideas of natural science to the study of the works of early man, it seems important to recall that analogies are seldom exact, more particularly when drawn from different fields of knowledge. As Professor Dorothy Garrod has recently stressed⁴, the archaeologist is necessarily concerned with factors distinct from and altogether more complex than those which control the organisms and processes of external nature: whereas the natural sciences deal with phenomena which conform to natural laws, archaeology is concerned with the results of human activities and with a multitude of unique events conditioned by cultural and even personal factors—in a word, with the phenomena of history. The task of reconstructing the life of prehistoric communities is therefore likely to be far more difficult and hazardous than deducing the behaviour of Pleistocene glaciers from observation of existing glaciers obedient to verifiable laws. It was doubtless an awareness of this inherent difficulty—an awareness not always shared by prehistorians—that prompted G. M. Trevelyan to exclaim in a recent lecture⁵ that he knew "of no greater triumph of the modern intellect than the truthful reconstruction of past states of society . . . by the patient work of archaeologists, antiquarians and historians."

When one passes beyond the range of recorded history the difficulty of understanding past ages is magnified, since one finds oneself deprived of that direct access to the thought of earlier generations which only the written word allows. On the other hand, the very magnitude of human progress gives the hope, if one studies mankind as a whole, of discerning, as it were, a sequence of economico-social states, and of identifying these as they outcrop on the surface of present time.

³ *Prehistoric Times, as illustrated by Ancient Remains, and the Manners and Customs of Modern Savages*, London, 1865, 336.

⁴ *Environment, Tools and Man*, Cambridge, 1946, 8ff.

⁵ *History and the Reader*. The third annual lecture of the National Book League (Cambridge, 1946), p. 17.

Long ago, Edward B. Tylor taught that, since civilization has been attained by way of earlier stages of savagery and barbarism, the study of "primitive" cultures surviving in areas remote from civilization, and of survivals from earlier stages incapsulated in civilized societies, offered a most promising source of knowledge about remote antiquity. General Pitt-Rivers went so far as to write⁶ that :

"The existing races, in their respective stages of progression, may be taken as the *bona fide* representatives of the races of antiquity. . . . They thus afford us living illustrations of the social customs, forms of government, laws, and warlike practices, which belong to the ancient races from which they remotely sprang, whose implements, resembling, with but little difference, their own, are now found low down in the soil. . . ."

Stated dogmatically this doctrine is open to the objection that there are in fact no really primitive peoples living today. Modern savages have a history precisely as long as that of the most highly civilized peoples, only it does not happen to have been written down. It is inconceivable that even savage communities would have retained their culture substantially unmodified over the immense periods of time which have elapsed since the Old Stone Age. Not only must they have been subject to changes in their natural environment, but, even more important, they must have been influenced directly or indirectly by the emergence and expansion of groups at progressively higher stages of cultural evolution. Again, while on the one hand they must often have acquired elements of higher culture, on the other they must frequently have been driven into less desirable habitats and sustained cultural impoverishment or even loss. So far as the acquisition of culture is concerned, this must have applied, as we shall see, with even more force to those barbarous communities, which actually provided the foundations of civilization itself. Primitive man in the strict sense lived in the remote past and so can only be studied directly by prehistoric archaeology. The greatest caution is needed in using existing savages as sources for reconstructing primeval savagery. There is a real danger of setting up a vicious circle and of assuming what one is trying to discover.

⁶ J. L. Myres (Ed.), *The Evolution of Culture and other Essays*, Oxford, 1906, 53.

Yet, as the earlier anthropologists led by Tylor insisted, much can still be learnt by the comparative method. The more weight is attached to the operation of historical factors in the building of individual cultures, the more significant become the broad fields of agreement between distinct social groups at analogous stages of development. When, for example, such widely separated groups as the Bushmen, Vedda, Andamanese and recently extinct Tasmanians are compared, they are all found to be limited by what Thurnwald termed a common "cultural horizon."⁷ Fundamentally, such limitations relate to the degree of control attained by social groups over external nature and to the scope of choice implicit in such control ; they mark significant stages in the evolution of culture.

It follows that we ought to be very careful to interpret the material traces of extinct societies by reference to recent ones at the appropriate stage of development. To assess Upper Palaeolithic art in terms of Bond Street, or even of the values current among the barbarian societies responsible for Stonehenge or Maiden Castle, would be anachronistic. Mr. H. G. Wells may have exaggerated, but he was certainly pointing a useful moral, when he wrote⁸ of some popular writers on prehistory that :

"They made out the early savage to be a sort of city clerk camping out ; they presented the men of Ur and early Egypt as if they had been the population of Pittsburgh or Paris in fancy dress. They minimized or ignored the fact that these people were not only living under widely differing stimuli, but reacting to them in ways almost as much beyond our immediate understanding as the mental reactions of a cat or a bird."

Granted that the cultures of the past ought to be considered in terms of existing ones at a comparable stage of development, it is inevitable that in studying the men of the Old Stone Age recourse should be made to those remote areas, where alone savage communities have survived until recent times. Already in 1865 Tylor had compared the stone implements of the Tasmanians with those of palaeolithic man⁹, and it was under his influence that W. J. Sollas delivered his

⁷ R. Thurnwald, *Economics in Primitive Communities*, Oxford, 1932, 36-7.

⁸ *The Work, Wealth and Happiness of Mankind*, London, 1934, 31.

⁹ *The Early History of Mankind*, London, 1865, 195.

famous course of lectures on "Ancient Hunters and their modern representatives" before the Royal Institution in 1906¹⁰, in which he compared successive stages of the Old Stone Age respectively with the Tasmanians, Australians and Bushmen. In the last edition of his book published under the same title¹¹, he compared the Mousterians with the Tasmanians, the Aurignacians with the Bushmen and the Magdalenians with the Eskimo. After what has been said about the danger of accepting living groups as genuinely primitive, it is interesting to note how Sollas characterized the stone industries of the Australians as comprising "a heterogeneous collection to which almost all the Palaeolithic and even some of the Neolithic industries have made their several contributions."¹²

If few have chosen to follow in the footsteps of Sollas, this may in part be a symptom of the divergence between archaeological and ethnological studies, which grew more pronounced as each began to specialize, the one on the classification and dating of the relics of extinct cultures, the other on the functioning of living communities. But Sollas' approach was not only unfashionable; it was also over-daring. Not content with pointing analogies, he tried to establish genetic relationships between fossil and living cultures at the level of savagery. He maintained the hypothesis that successive groups of Palaeolithic hunters have

"one by one been expelled (from Europe) and driven to the uttermost parts of the earth: the Mousterians have vanished altogether and are represented by their industries alone at the Antipodes; the Aurignacians are represented in part by the Bushmen of the southern extremity of Africa; the Magdalenians, also in part, by the Eskimo on the frozen margin of the North American continent. . . ."¹³

As to the latter, he claimed:

"The evidence could scarcely be more definite; the osteological characters of the Eskimo, which are of a very special kind,

¹⁰ *Science Progress*, 1909 (III, 326-353; 500-533; 667-686).

¹¹ *Ancient Hunters*, 3rd ed., 1924, Oxford, *passim*.

¹² *ibid.*, 258.

¹³ *ibid.*, 599.

are repeated by the Chancelade skeleton so completely as to leave no reasonable doubt that it represents the remains of a veritable Eskimo, who lived in southern France during the Magdalenian age."¹⁴

Claims which go so far beyond the available evidence often daunt rather than stimulate, but at least they make one conscious of the stupendous gaps in knowledge even of the bare bones of prehistory. Again, Sollas was surely right to imply that remains of extinct cultures can only be interpreted with any certainty through modern analogues, if a continuous historical sequence can be demonstrated between them. So far as possible, also, it is desirable that the cultures under comparison should share a common environment, or at least that they should be adjusted to similar physical conditions.

For both these reasons, it may be suggested, prehistoric archaeologists—and more especially those concerned with barbarous communities based on farming and consequently rooted to the soil of a particular homeland might well pay more attention to the Folk-Culture of the area in which they happen to be working. This is not to say that analogies drawn between the prehistoric farming cultures of Europe and existing cultures in more distant areas are without value. One remembers how instructive to students of Iron Age hill-forts were the articles on Maori and Algerian hill-forts in the first volume of *Antiquity*¹⁵, or again how valuable was the light thrown on our Neolithic camps by those of the pastoral Beni Mguild of Morocco, to which attention was drawn by Crawford in one of his stimulating notes¹⁶. Yet analogies between phenomena torn from their historical contexts may be very deceptive. In the case of palaeolithic archaeology it is inevitable that comparisons should normally be made with remote areas, to which the old hunters in some cases migrated and where alone the old mode of life survives. Since neolithic and to some extent since mesolithic times, however, it is possible to trace continuity of settlement down to our own day. The peasant basis, prehistoric in origin and incorporating even

¹⁴ *ibid.*, 591.

¹⁵ *Antiquity*, 1927, 66-78 and 389-401.

¹⁶ *ibid.*, 1933, 344-5.

elements from the old hunter-fisher way of life, persists in the Folk-Culture of the highly civilized parts of Europe.

Folk-Culture is the term generally applied to the way of life of the rural element in civilized communities, "those who are mainly outside the currents of urban culture and systematic education."¹⁷ Such a limitation is regarded by some as a temporary expedient—Iorwerth Peate claims, for instance, that "Folk-Culture must ultimately include the study of every class and element in the human community"¹⁸—but the term will be used here in its normal connotation. At the same time no consideration of the rural elements of a modern civilized community can be worth much which fails to take urban culture into account. It is the rural substratum which preserves continuity with the prehistoric past, but it would be quite wrong to imagine that this has not itself been affected, often profoundly, by the urban superstructure. Just as culture is diffused from more to less highly civilized regions, so within a society is it devolved from a higher to a lower stratum, using the term "higher" in the sense, not of "superior," but of "historically more advanced." That men look upwards for their fashions, however much it may offend the egalitarian, has been true of past-ages, as it remains more than ever true in this Century of the Common Man.

To the student of Folk-Culture this is often sufficiently evident, as in the case of the Barvas pottery of Lewis, which, in addition to pots of prehistoric character, comprises "crude imitations of tea-pots, tea-cups, sugar-basins, etc., in the local unglazed fabric."¹⁹ Another familiar instance is provided by the Welsh turnery products which include such genteel forms as candle-sticks and egg-cups²⁰, as well as bowls and dippers of Neolithic ancestry. Before assuming that any particular element of Folk-Culture is in fact a survival from ancient times, therefore, it is essential to be sure that continuity has in fact been established between the features under comparison. By

¹⁷ *Encyclopaedia Britannica*, 14th ed., Vol. 9, 444.

¹⁸ *Antiquity*, 1938, 321.

¹⁹ E. C. Curwen, *Antiquity*, 1938, 282.

²⁰ *Guide to the Collection of Welsh Bygones*, National Museum of Wales, 1929, pl. XXXIV (top, middle) shows a candlestick.

means of a critical historical method, it should be possible to strip away the civilized accretions and reveal the essential barbarian core.

Wherever civilization has developed, there are liable to be survivals from earlier times in the culture of the countryside, from which the prehistorian can profit. The felaheen of Egypt continue to go about many of their daily tasks as their forefathers did in the days of the Pharaohs, largely unaffected by the cosmopolitan life of Alexandria or Cairo. Again, as Leonard Woolley and other excavators in Mesopotamia have been quick to recognize and turn to profit, the Iraqi peasant continues to build with mud and reeds in much the same fashion as in the days of Al'Ubaid. In Europe, the evidence has survived best in areas least affected by the Industrial Revolution, such as the Celtic fringe of Britain, the Scandinavian countries, the Alps, the Balkans and the Mediterranean basin. Although it has been studied most systematically in Scandinavia,²¹ we have vigorous schools of Folk Culture today in these islands,²² where indeed the tradition goes back to Martin Martin (1655/60-1719), an observer of the first rank, whose book, *A Description of the Western Isles of Scotland*, attracted Boswell and Johnson to the Hebrides and still remains of value to the student.²³ The subject has also been intensively studied by German scholars, to whom we owe many valuable works on special

²¹ The study of Scandinavian folk-culture, of which Olaus Magnus (*Historia de gentibus septentrionalibus*, Rome, 1555) was the pioneer, is now based on a broad popular following, thanks to the well-known folk-museums—Skansen, Bygdöy, Lyngby, etc.—and to such museums as the splendid Nordiska Museet at Stockholm. It is also taught at the universities and is the subject of intensive research. The most telling symbol of Scandinavian leadership in this field is the periodical *Folk-Liv*, founded in 1937, and edited by Dr. Sigurd Erixon, Professor at the *Institutet för Folk-livs-forskning* in Stockholm, on behalf of the Gustavus Adolphus Academy for Ethnological and Folklore Research at Uppsala.

²² Notably in Wales, where the policy first pursued by T. H. Thomas, John Ward and others has been developed under the leadership of Sir Cyril Fox, Director of the National Museum at Cardiff, and of Iorwerth C. Peate, Keeper of the Department of Folk-Culture in the same museum (*Guide to the Collections of Welsh Bygones*, Cardiff, 1929; *The Welsh House*, London, 1940), and in Ireland, where after an abortive start (A. C. Haddon and C. R. Browne, *P.R.I.A.*, Vol. 2, ser. 3, (1893, 768-830), the task has recently been resumed under Scandinavian stimulus and notable work done, especially by E. Estyn Evans (*Antiquity*, 1939, 207-222; *Irish Heritage*, Dundalk, 1942). The Western Isles have attracted attention since the XVIIIth century, in recent generations from F. W. L. Thomas (*P.S.A.S.* III, 127-144), Dr. Arthur Mitchell, whose *The Past in the Present* (Edinburgh 1880), evidently influenced the future editor of *Antiquity*, and, among others in our own day, Dr. E. C. Curwen (*Antiquity*, 1938, 261-289). Important studies based mainly on material from England and Wales, but related to a wider background, have been made by R. U. Sayce.

²³ Martin was born in Skye, graduated at Edinburgh, and as a young man acted as governor to the heirs of leading families on the island. He travelled extensively collecting information, which he communicated to the Royal Society in 1697. His book first appeared in 1704. It has recently been reprinted with other items by Mackay of Stirling (1934).

fields. In the south of Europe, on the other hand, archaeologists have for the most part been obliged to study the local Folk-Culture for themselves.

The most obvious way in which a study of Folk-Culture can help prehistorians is by interpreting objects otherwise enigmatic. One may first quote an example from the Aegean, where, as Stanley Casson once wrote in *Antiquity*²⁴:

"The economic condition of peasant and small-town life . . . particularly among the islands, hardly differs in simplicity or complexity from what it was either in the Bronze Age or in Classical Greek times. The average islander and coast-dweller still lives on the same food, and in similar houses to those of his ancestors."

When the excavators of the Minoan sites of Gournia, Phaistos, Hagia Triada, Tylissos and Knossos in Crete, came across discs of clay and rarely of marble, they classified them summarily as "tables either sacred or otherwise, or else as the lids of pithoi"²⁵; only when Stéphanos Xanthoudides came to enter them in the inventory of the Candia Museum did he recognize them for what they were—the upper discs of potter's-wheels, made intentionally heavy to give momentum, like those still used on the island for the manufacture of pithoi. This example of the wheel-disc shows how comparisons with modern Folk-Culture will often yield information about the activities as well as the mere forms of the past. The correct identification of circular discs of clay or marble is certainly not to be despised, if only for improving the accuracy of museum labels: more valuable still is the insight it gives into the manufacture of the great storage jars which played so important a part in Minoan economy.

Another notable instance of the value of drawing on Folk-Culture is the way in which the mat impressions found on the bases of early hand-made pottery from Palestine, Greece and the Aegean Islands were explained. At first it was thought that the impressions were received while the pots stood drying on mats before being fired

²⁴ 1938, 466. cf. F. S. Xanthoudides, 'Some Minoan potter's-wheel discs,' *Essays in Aegean Archaeology*, Oxford, 1927, especially pp. 119-120.

²⁵ Xanthoudides, *op. cit.*, 111.

in the kiln,²⁶ but J. L. Myres maintained that the impressions were made through vessels being built up and rotated on mats, an explanation which was also favoured by Wace and Thompson²⁷ and which recent work in connection with the Jericho pottery has strongly confirmed. G. M. Crowfoot was able to show that, where coiled mats were involved, the centres of the mats normally coincided with the centres of the pot-bases, suggesting that the pots were in fact set firmly on mats and rotated on them. Even more decisive, to my mind, was her observation of the actions of a woman potter in the Palestinian village of Yabed near Jenin, of whom she wrote²⁸:

“The mat was moved round when the potter wished to give attention to another aspect of the pot. In this movement of the mat, short and discontinuous as it is, one may see, fossilized, one of the early steps in the evolution of the wheel.”

In this last connection it may be significant that mat impressions seem to occur on pot bases at just those points in the archaeological record immediately before the potter's wheel is introduced.

Archaeologists have found settlement sites, with their traces of house-forms, granaries and storage-pits, more informative about the economic and social life of antiquity than even the tangible products of handicrafts. Under such exceptional conditions as those in the Swiss Lakes or round the margin of the shrunken Federsee in Württemberg, the wooden floors of structures survive relatively intact and these will often provide a pattern, by means of which the form of buildings in less favoured areas can be reconstructed from wall-slots or post-holes. Even so, the significance of many features, especially the various pits and ancillary structures on prehistoric sites, will often escape the archaeologist who tries to interpret them in terms of his own limited experience, and only too often resorts to guess-work or adopts some conventional and arbitrary “explanation.” Of recent years there has been a strong move, particularly evident among German prehistorians, to tap the resources of European Folk-Culture in this field. Franz Oelmann led the way in his reconstruction of the

²⁶ C. C. Edgar in *Excavations at Phylakopi in Melos*, 1904, 94-6.

²⁷ A. J. B. Wace and M. S. Thompson, *Prehistoric Thessaly*, Cambridge, 1912, Fig. 136 and 187.

²⁸ *Liverpool Annals of Archaeology and Anthropology*, XXV (1938), 3-11.

Gallo-Roman farmstead at Mayen²⁹ and in the evidence he brought forward to support the view that the so-called house-urns were in fact models of granaries.³⁰ Following his example, Werner Buttler spent two months exploring peasant settlements in Hungary, Rumania and Yugoslavia, to equip himself for writing the report on the Köln-Lindenthal excavations.³¹ The danger of such an approach is of course that prehistorians are liable to select evidence from Folk-Culture which suits their own interpretations of the archaeological evidence, and having once found such confirmation to desist from further criticism of what is observed in excavation. The fact that Buttler was able to find Balkan gypsies living in huts with floors scooped out of the ground, for instance, confirmed him in the belief that the irregular hollows at Köln-Lindenthal and other sites were really dwellings. On the other hand, when Paret exposed the falsity of this and showed that the hollows were nothing more than quarries for the wall materials of long houses, he relied purely and simply on a critical evaluation of the archaeological evidence.³²

Yet there is no kind of doubt about the value of interpreting marks in the sub-soil in the light of what is known of the buildings and habits of communities available for study at first hand. It was by regarding the hollows in the chalk revealed by the excavations of the Prehistoric Society at Little Woodbury,³³ near Salisbury, in this way that Gerhard Bersu was able to interpret pairs of post-holes as traces of the frames still used in the wetter parts of the Continent for drying hay and corn, and deep hollows, the "pit-dwellings" of some British archaeologists, as storage-pits, used for a few years and hurriedly filled in with tips of rubbish and spoil. One effect of reducing dwellings to the status of temporary cellars has been to alter our ideas radically as to the role of hill-forts in the life of Iron Age Britain.³⁴

²⁹ "Ein gallorömischer Bauernhof bei Mayen," *Bonner Jahrbücher*, hft. 133 (1938), 51-140.

³⁰ "Hausurnen oder Speicherurnen?", *ibid.*, hft. 134 (1929), 1-39.

³¹ "Gruben und Grubenwohnungen in Südosteuropa," *ibid.*, hft. 139 (1934), 134-144; also in *Antiquity*, 1936, 25-36 (transl.).

³² O. Paret, "Vorgeschichtliche Wohngruben?," *Germania*, Vol. 26 (1942), 84-103.

³³ "Excavations at Little Woodbury, Wiltshire, Part 1," *Proc. Prehist. Soc.*, 1940, 30-111.

³⁴ Grahame Clark, *Prehistoric England*, London, 1940, 88.

More fundamental even than settlement sites to an understanding of economic and social realities is the mode of subsistence of prehistoric communities. Observation of existing societies of similar status is of the first importance in making possible a correct interpretation of the archaeological and biological evidence revealed by excavation. But we ought not to rely upon mere analogy : economic and social life, despite ethnic movements and technological "revolutions," in fact underwent a continuous development down to modern times, and it is important when collating the data of prehistoric archaeology with that of modern Folk-Culture to remember that Economic History forms a true connecting link.

First and foremost the study of European peasant life should assist in interpreting the evidence relating to farming in antiquity. But it is also the case, especially in areas marginal to the main farming zones, that activities originating from an earlier stratum of economic life have also survived in the peasant culture. In areas such as Scandinavia and the Baltic States the peasants have been obliged for the last 3,000-4,000 years or so to supplement the inadequate returns from farming by practising various forms of hunting and catching : here the same rhythm of ploughing, sowing and harvesting, interspersed with hunting and catching the same land and sea mammals, the same fowls and fishes, has persisted since prehistoric times.³⁵ Locally, even, as with the islanders of Kihnu and Ruhnu in the Gulf of Riga, who specialize in seal-hunting and exchange fats and skins for the grain, iron and salt of the Esthonian mainland,³⁶ there are still exhibited conditions like those on the margins of farming culture during Neolithic times, when hunting and fishing activities were stimulated among survivors of the northern Mesolithic groups by the development of a market among the encroaching peasants. Study of such activities not only throws light on the balance of economic life in earlier times, but may also yield important information on methods. As I have shown in detail elsewhere,³⁷ usages still sur-

³⁵ This has been well brought out by Prof. A. W. Brögger in *Antiquity*, 1940, 163-181.

³⁶ F. Leinbock, *Die materielle kultur der Esten*, Tartu, 1932.

³⁷ "Seal-hunting in the Stone Age of north-eastern Europe ; a study in Economic Prehistory," *Proc. Prehist. Soc.*, 1946, 12-48.

viving in northern Europe, or which have been described by observers during recent centuries,³⁸ have given us a deep insight into the methods used by the men of the Stone Age for catching seals. Similarly in studying methods of fishing or fowling practised in antiquity much can be learnt from recent practice in the area concerned.

As for farming itself, practices still survive in our own continent, which illustrate the processes involved in domesticating plants. The role of women is exemplified by the fact, noted by Maurizio,³⁹ that the collection and preparation of the wild cereal *Glyceria fluitans*, which flourishes in marshy areas and until recently was widely used for groats in eastern Europe, was, at least in East Prussia, entirely in their hands. Brockman-Jerosch⁴⁰ has further shown how in the case of certain plants, such as the alpine sorrel (*Rumex alpinus*), which until recently was used as human food, often in the form of a kind of *sauerkraut*, in Scandinavia and the Alps, it is possible to observe different stages between the gathering of the wild form and its domestication. Since, like several other plants, including the nettle, the fibres of which were used as early as the Late Bronze Age for textiles,⁴¹ the alpine sorrel flourishes on the manure and offal which naturally collects around farmsteads, it could easily be gathered wild: the first step taken towards ensuring a plentiful supply came with fencing off the natural crop to prevent its being trodden and soiled by cattle, as is done today by Swiss farmers who use it for fodder. In areas where the soil discourages growth and where in consequence sorrel does not colonise farmsteads, Alpine farmers will often take spontaneously the trouble to plant it and so ensure a supply of what is now in some senses a domesticated plant. The symbiosis between men

³⁸ e.g. by Olaus Magnus in his *Historia de gentibus septentrionalibus*, Rome, 1555. Book 20, cap. 5; L. J. Debes, *Faeroe et Faeroa reserata*, London, 1676, 166-171; Martin Martin, *op. cit.* (1934 ed.), 133-134.

³⁹ A. Maurizio, *Die Geschichte unserer pflanzennahrung von den Urzeiten bis zur Gegenwart*, Berlin, 1927, 44-48.

⁴⁰ H. Brockmann-Jerosch, "Die ältesten Nutz- und Kulturpflanzen," *Vierteljahrsschrift d. Naturforsch. Ges. in Zürich*, 62 (1917), 80-102.

⁴¹ A good description of the use of nettles by European peasants in recent times has been given by M. Hald, "The Nettle as a Culture Plant," *Folk-Liv*, 1942, t. VI. 28-49. Cf. Manninen, *Die Finnisch-Ugrischen Völker*, Leipzig, 1932, 185 and 352-3, for a useful account of the methods used by the Mordwins and Ob-Ougrians. For the occurrence of textiles made from nettle fibres in the Late Bronze Age of Denmark, see *Aarbøger*, 1943, 99-102.

and plants, based on the qualities of the excrement and midden material associated with human settlement, may well explain how domestication developed by easy transition from collecting: it has for instance been observed that the Chukchi will not only utilize the vegetation which flourishes on the organic matter in their refuse, but that they will also save the seeds of favoured plants and sow them around their habitations,⁴² a practice which could easily arise by insensible gradations from discarding the débris of food-plants. The lack of any clear demarcation between the gathering and cultivation of plants and the hunting and herding of animals, which appears when real life is studied, should not only make us critical of dogmatic writing on the subject of "economic revolutions" in the remote past, but will also help us to interpret correctly the organic remains from such sites as the Swiss lake-villages. Again as has been shown elsewhere,⁴³ it is still possible to observe among the Finno-Ougrian peoples studied by Manninen⁴⁴ and others, every stage in the transition from the hunting of wild-bee honey to a developed apiculture.

Many of the actual processes of early farming and most of the associated forms of material culture still survive in parts of Europe to edify the prehistorian. Thus the system of burning successive areas of forest (*brandwirtschaft*), which has recently been traced back to the Stone Age in Denmark⁴⁵ and in many parts of Europe is attested by history, still survives among the Finno-Ougrians.⁴⁶ The implements of tillage, and especially the plough, which have in their development affected so profoundly the history of agriculture and the organization of rural society, have as a rule survived from antiquity only in representations, frequently difficult to decipher, or in fragmentary form. As Paul Leser and many others have shown,⁴⁷ it is only when considered in relation to the wooden ploughs still in use in parts of Europe and to illustrations and descriptions from historic times that

⁴² A. Maurizio, *op. cit.*, 17-18.

⁴³ "Bees in Antiquity," *Antiquity*, 1942, 208-215.

⁴⁴ I. Manninen, *op. cit.*, 215-217, 243-244.

⁴⁵ J. Iversen, "Land Occupation in Denmark's Stone Age," *Danmarks Geologiske Undersøgelse*, II R., nr. 65, Copenhagen 1941. See also *Antiquity*, 1945, 61 and 67-8.

⁴⁶ Manninen, *op. cit.*, 30.

⁴⁷ P. Leser, *Entstehung und Verbreitung des Pfluges*, Münster 1931.

one can interpret satisfactorily the indications which have come down to us from prehistory. The same applies in varying degrees to devices for harvesting, threshing, storing and grinding grain, as well as for securing fodder for livestock. Means of transport, both on land and water, are another aspect of material equipment represented very unevenly in the archaeological record, but commonly surviving in primitive form in modern peasant cultures. In their work on the development of skis and sledges in Finland and Sweden from the Stone Age to the present day, Sirelius and Berg⁴⁸ have given outstanding demonstrations of the value of collating archaeological finds with more recent material in the same area.

So far it has been shown how it is frequently possible, by taking account of the Folk-Culture of a region, whether still existing or described by earlier observers, to throw light upon the material culture forms of antiquity, or upon the economic activities which gave rise to them, even when the archaeological evidence is incomplete or obscure. What also needs to be emphasised is that only by comparison with existing peasant cultures can one easily appreciate just how vestigial the archaeological record normally is. It is true that exceptionally well preserved finds give us an occasional insight into this, but it is only by contemplating the equipment of a living peasant group at a more or less comparable level that one understands it fully. The importance of wood-work and of even less durable substances, such as basketry, wicker-work and bark can hardly be overrated, and yet all of them are sparsely or capriciously represented in the archaeological record of prehistory. Conversely, it is seldom realized how provisional must be conclusions, even about the material culture of a community, when drawn from such a narrowly limited range of evidence as that upon which archaeology has normally to rely. The very concentration on the material evidence, which distinguishes modern archaeology, the careful scrutiny, the accurate description and illustration, the circumstantial method of publication, all tend to make us feel that the conclusions reached are more valid and more firmly based than they often can be.

⁴⁸ For many references, see G. Berg, *Sledges and Wheeled Vehicles*. Nordiska Museets Handlingar : 4, Stockholm 1935.

Even more far-reaching is the reflection that even if a complete range of the material equipment of a prehistoric group could be recovered—and the focussing of research on sites capable of yielding organic materials, together with advances in archaeological technique, encourages the hope that great advances may be made along this road—the problem of interpreting this correctly would still remain more complex than is always allowed. When one reflects upon the part played even by such a characteristic “fossil” as pottery in a living culture, one realises how false some of the conventional assumptions made by prehistoric archaeologists are liable to be, unless checked by a knowledge of other aspects of life. One has only to imagine how the great expansion in the distribution of the black hand-made ware of Jutland⁴⁹ during the XVIIIth and early XIXth centuries, when it found its way by pack-horse and water as far afield as Holland in the west, Livonia in the east and Vienna in the south, might have been misinterpreted, had it occurred a couple of thousand years earlier! So far from reflecting a period of prosperity in Jutland, this actually co-incided with a time of acute depression, during which farmers had to lean heavily on the products of domestic industry: with the return of prosperity after 1864 the hand-made pottery of Jutland declined so rapidly that it was necessary to save it from extinction. This shows how essential it is to study material culture in relation to general economy, the evidence for which in the case of prehistoric communities must come largely from biological studies of the remains of animal and plant life. Beyond this, of course, it is necessary in studying any community, to consider the prevailing ideas and concepts which in the long run determine its behaviour. Observation of living communities stresses not only the complexity of economic life, but also its limitations as a source of information about prehistoric times.

⁴⁹ Axel Steensburg, “Hand-made Pottery in Jutland,” *Antiquity*, 1940, 148-153.

THE ROMANO-BRITISH BUILDINGS AND ENCLOSURES IN EDLINGTON WOOD NEAR DONCASTER

BY PHILIP CORDER

EDLINGTON WOOD is situated on a limestone hill 3 miles south-south-west of Doncaster, and a mile south-east of the presumed line of the Roman road that ran thence from Templeborough.¹ The wood is about a mile long from north to south, and, at its widest, about $\frac{3}{4}$ miles wide. Its highest point, some 300 ft. above O.D., is at the west side, and, but for modern pit-heaps, it would command an extensive view towards Doncaster (Fig. 8). At the north-east corner the limestone outcrops to form a low cliff known as the Craggs. In all probability the site has never been under cultivation. The larger trees having been felled some years ago, the wood now consists of sycamore, beech, chestnut, yew, hazel, ash, elder and scrub oak, with a dense undergrowth of brambles. This hampers the examination of the numerous ancient structures that lie within its boundaries, and has caused the majority of them to remain unobserved and unrecorded.

In January 1935, Thomas Cameron, the thirteen-year-old son of Mr. Colin Cameron, woodman, of Edlington Wood House, discovered two fine trumpet brooches (p. 89 and Fig. 17) lying some distance apart on the surface of the ground, and not long afterwards two hoards of *denarii* and *antoniniani* (Hoards 1 and 2) a few feet apart within an oval enclosure (Site 1). At an inquest, held in Edlington village on 5th April 1935, by Mr. W. H. Carlile, coroner of the West Riding, at which the writer was a witness, the coins were declared Treasure Trove, and, after examination at the British Museum, were purchased by the Doncaster Museum, where they now are.

In the months which followed Mr. Cameron and his sons made further discoveries of Roman pottery and other objects in the wood, in the neighbourhood of Site 1 and other ancient enclosures and

¹ O.S. 6 in., Yorks., W.R., CCLXXXIV, SE.

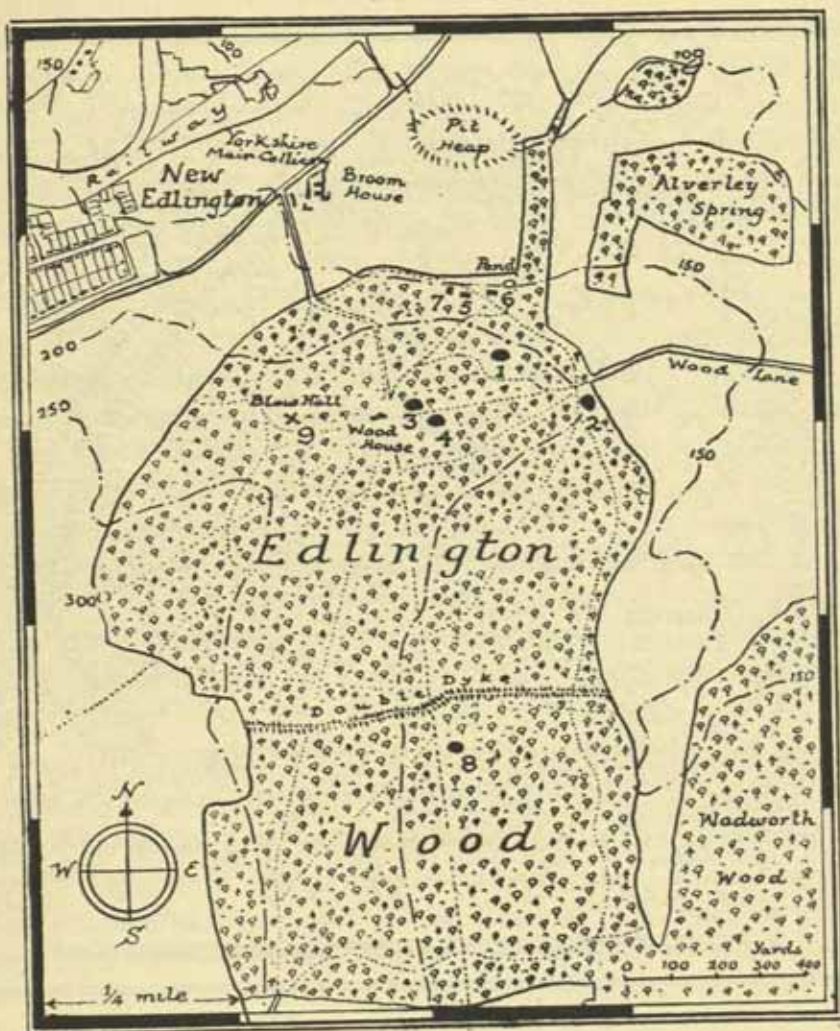


Fig. 8. Map of Edlington Wood showing sites

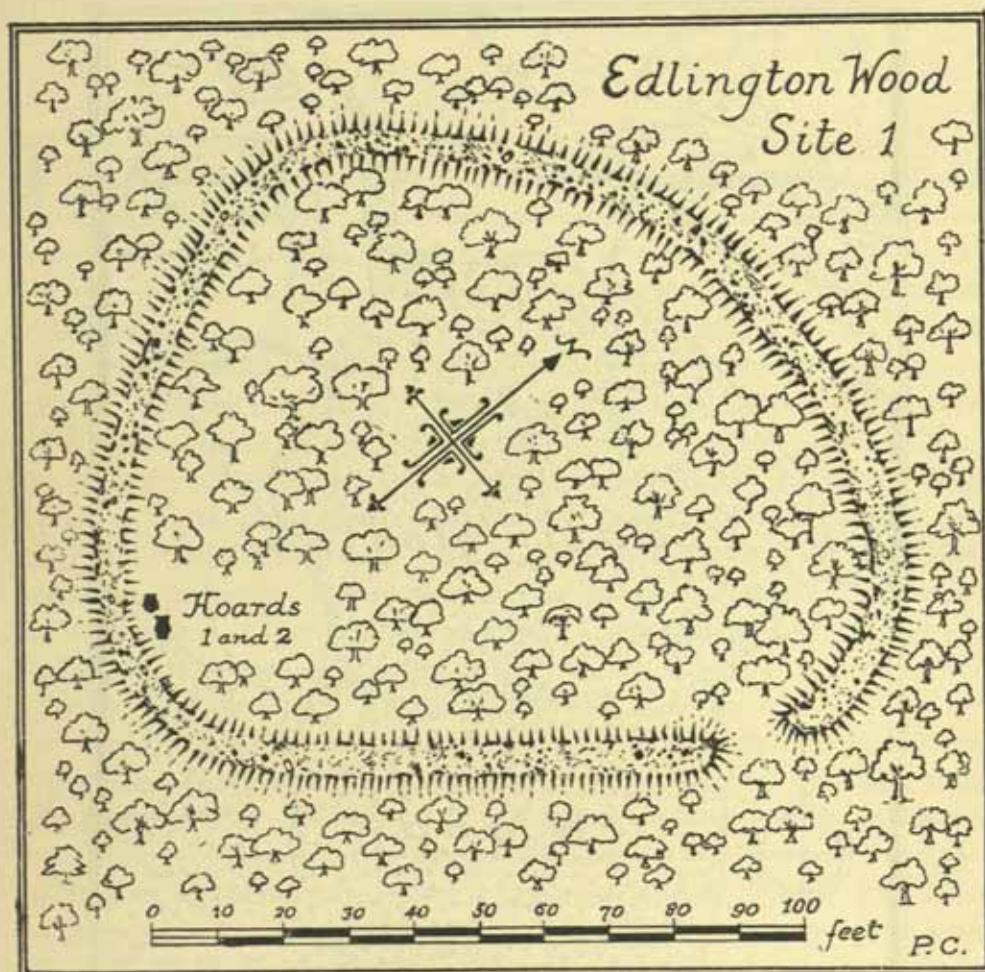


Fig. 9. Edlington Wood : plan of Site 1

buildings to be described below, and the same boy found yet another hoard, this time of 59 *antoniniani* (Hoard 3), among the rocks of the Craggs (pp. 73-4).²

The writer is much indebted to Col. J. W. B. Landon, secretary and agent to Earl Fitzwilliam's Estates Company, for reporting the finds to him at the time of their discovery, and for granting him every facility for their study and for visiting the site. Great credit is due to Thomas Cameron for the acuteness of his observation and the keen interest he evinced in the remarkable series of finds here recorded. The writer received much kindness from Mr. and Mrs. Cameron and their sons, who kept him informed of the finds as they were made, and he is indebted to them for valuable information as to their provenance.

On 21st August 1935 the writer, accompanied by Miss M. Kitson Clark, F.S.A. (now Mrs. Derwas Chitty), Rev. T. Romans, F.S.A., and Dr. Kenneth Steer, F.S.A., made as complete a survey of Sites 1, 2, 5, 6 and 7 as conditions and time allowed. It was then hoped that some excavation might have been possible, but local conditions were unfavourable, other commitments supervened, and the war followed. A further visit in November 1945 served to confirm various details. The outstanding interest of the structures in Edlington Wood, and the finds of 1935, make it advisable now to put on record what is known of them.

Site 1 (Fig. 9) is an irregular oval enclosure situated in the north-east corner of the wood on high ground, 120 ft. south-west of the Craggs. It is 122 ft. long and 95 ft. wide at its widest point, measured from the middle of the rampart in each case. This, now much overgrown, is 6 ft. to 7 ft. wide and still stands in places to a height of some 4 ft. 6 in. It is faced with orthostats, large slabs of undressed limestone averaging 2 ft. 6 in. to 3 ft. in width having been set on edge, and the space between the two faces being filled with piled stones. No mortar had been used, nor were dressed stones noted anywhere. A similar type of rampart construction was noted at Site 4, and it may safely be assumed to be common to all the other

² Hoard 3, the brooches and other Roman objects, together with the containers of Hoards 1 and 2 (pp. 70-1 and Fig. 10) were in 1947 at Wentworth Woodhouse in the possession of the owner, the late Earl Fitzwilliam.

oval enclosures. There is no trace of a surrounding ditch either here or at any of the other enclosures. The use of orthostats and the absence of a ditch characterize many, if not all, of the hut-villages in the north,³ and has been studied in detail by Prof. I. A. Richmond at Castle Folds, Great Asby,⁴ which is situated on a bare limestone plateau, lacking, in modern times at any rate, any covering of soil. For a reconstruction of such a surrounding rampart as may well have existed at our Edlington sites see Fig. 2, p. 235 in Prof. Richmond's account.

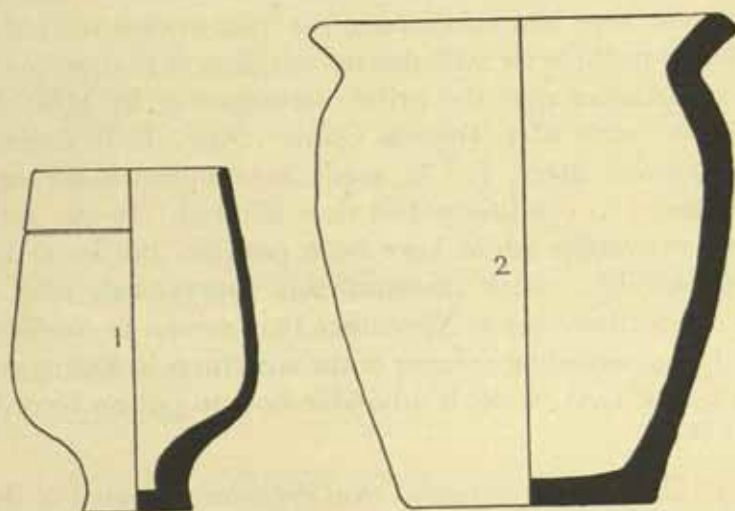


Fig. 10. Pots containing Hoards 1 and 2, Site 1 (½)

There is now no trace of structures within the enclosure, but Hoards 1 and 2 were found a few feet apart in the southern corner, close to the inner face of the rampart, and here, one must suppose, traces of a habitation are to be sought (Fig. 9).

Brooches 1 and 3 (p. 89 and Fig. 17, Nos. 1, 3), the first finds made by Thomas Cameron, were found lying upon the surface within the enclosure, and Roman sherds, mostly of IIIrd century type, have been picked up, together with a worn illegible radiate.

³ *R.C.H.M., Westmorland*, xxxii-xxxiv.

⁴ *C. & W.A.A.*, n.s., XXXIII (1933), 233-237.

Hoard 1, consisting of 80 *denarii* and one *antoninianus**, had been contained in a small Castor ware beaker, $3\frac{1}{2}$ in. high, of yellowish paste, having a dark green bronze slip glaze that had almost completely perished (Fig. 10, No. 1). It was found in fragments, but the coins were all around it, and one of Elagabalus was still inside. A detailed classification of the coins by Miss Anne S. Robertson of the Hunterian Museum, University of Glasgow, appears in *Numismatic Chronicle*, XV, ser. 5, no. 59, p. 203: they were distributed over imperial personages as follows:—

Antoninus Pius	...	...	...	1
Commodus	...	...	...	1
Septimius Severus	...	...	...	16
Julia Domna	...	...	...	4
Caracalla	...	...	...	10
Geta	...	...	...	2
Macrinus	...	...	...	1
Elagabalus	...	...	...	15
Julia Maesa	...	...	...	8
Julia Soaemias	...	...	...	3
Severus Alexander	...	...	...	17
Orbiana	...	...	...	1
Maximinus Thrax	...	...	...	1
Philip II	...	...	...	1*
				Total 81

Included with the coins was a small piece of silvery metal. Dr. J. A. Smythe, of King's College, Newcastle-upon-Tyne, who kindly analysed it, reported that it was a lead-tin alloy of S.G.9.81 composed of lead 66.97% and tin 33.15%—plumber's solder, in fact.⁵

Hoard 2 was found close to Hoard 1 and had been contained in a native pot, 5 in. high, of soft reddish brown ware, charged with large pieces of calcitic grit. It appeared to be hand-made, but its diameters were fairly constant, that of the rim, $4\frac{3}{8}$ in., being just greater than its maximum girth (Fig. 10, No. 2). It is strongly reminiscent of the jars made at the Knapton pottery, near Malton, in the IIIrd century,

* The hoarders clearly mistook this for silver. As Prof. I. A. Richmond points out to me, this is evidence that they were not metal workers.

and it is possible that it came from there, though, if so, the distribution of Knapton ware was wider than I should have expected. The hoard was composed of 356 *denarii* and 172 *antoniniani* distributed over imperial personages as follows :—

			<i>Denarii</i>	<i>Antoniniani</i>
Septimius Severus ...	...	...	14	—
Julia Domna ...	...	...	2	—
Caracalla ...	...	...	13	—
Geta ...	...	...	2	—
Elagabalus ...	...	...	86	2
Julia Maesa ...	...	...	29	1
Julia Soaemias ...	...	...	14	—
Julia Paula ...	...	...	3	—
Aquilia Severa ...	...	...	2	—
Severus Alexander ...	...	...	150	—
Julia Mamaea ...	...	...	27	—
Maximinus Thrax ...	...	...	10	—
Maximus ...	...	...	1	—
Gordian III ...	...	...	3	62
Philip I ...	...	...	—	37
Otacilia Severa ...	...	...	—	5
Philip II ...	...	...	—	6
Trajan Decius ...	...	...	—	10
Herennia Etruscilla ...	...	...	—	5
Herennius Etruscus ...	...	...	—	2
Hostilian ...	...	...	—	2
Trebonianus Gallus ...	...	...	—	5
Volusian ...	...	...	—	8
Valerian ...	...	...	—	12
Mariniana ...	...	...	—	1
Gallienus ...	...	...	—	11
Salonina ...	...	...	—	3
			356	171
			Total 528	

I am entirely in agreement with the view put forward by Miss Robertson that the two groups really represent a single hoard which overflowed from the small beaker into the larger jar. She adds: "The unlikelihood of the contents of the beaker forming an independent hoard is suggested by the fact that the ten years subsequent to the reign of Severus Alexander are represented not by common issues of Gordian III and Philip I but by three comparatively rare coins which were probably forced in after the beaker was already full." She assigns the deposit in all probability to the year A.D. 259.

Subsequent to the inquest the following coins were picked up by the Camerons near the spot where the hoards were found: they add nothing to their significance and do not affect Miss Robertson's conclusions:—

				<i>Denarii Antoniniani</i>	<i>Reference</i> ⁶
Commodus	...	...	1	—	C719
Septimius Severus	...	...	1	—	C641
Caracalla	...	...	1	—	C62
Macrinus	...	...	1	—	C147
Elagabalus	...	...	—	1	C39
Julia Maesa	...	...	2	—	C36, 45
Julia Soaemias	...	...	1	—	C8 or 14
Severus Alexander	...	...	1	—	C249
Philip II	...	...	—	1	Rev. illegible
Valerian	...	...	—	1	C6
				8	3
				Total 11	

In addition a much worn, beautifully patinated *sestertius* of Marcus Aurelius was picked up in the wood, in Enclosure 1 near the site of the hoards.

Hoard 3⁷ was found at a point 40° E. of N. of Hoards 1 and 2, and 77 yards from them. The coins were tumbled about among the rocks at the foot of the Crag, and may have been disturbed in digging out foxes. Some fragments of a native calcite-gritted jar, found near

⁶ References are to Cohen, *Description historique des monnaies frappées sous l'Empire Romain* (2nd. Ed.).

⁷ *Num. Chron.*, ser. 6, V, 155-8.

them, may have formed their container, but this was too fragmentary for its form to be reconstructed. The hoard was submitted to Mr. W. P. Hedley, F.S.A., to whom I am indebted for the following list :—

Gallienus	...	...	...	5
Salonina	...	...	...	1
Claudius II...	...	...	...	3
Postumus	...	...	...	1
Victorinus	...	...	...	25
Tetricus I	...	...	...	13
Tetricus II	...	...	...	10
Probus	...	...	...	1
				Total 59

Mr. Hedley has suggested to me that the single coin of Probus with which this hoard ends may indicate that it was put away consequent upon the devaluation of the *antoninianus* under Carus, some twenty-three years later than the probable date of deposition of Hoards 1 and 2.

Site 2 lies about 150 yards south-east of Site 1 on lower ground close to the eastern boundary of the wood. It is an egg-shaped enclosure (Fig. 11), slightly smaller than Site 1 and less well preserved, but in other respects closely similar. Its maximum length is 129 ft., and its width about 70 ft. at the western end, measured as before from the crest of the rampart, while it narrows almost to a point at the eastern end. The surrounding rampart is a bank, now averaging 6 ft. 6 in. to 7 ft. in width, comparatively little stone being now visible. A roughly rectangular mound, about 36 ft. long, lies along the southern rampart and projects 13 ft. from it. This may prove to be the site of a hut. Brooch No. 2 (p. 89 and Fig. 17, No. 3) was found within the enclosure, as were Roman sherds.

Sites 3 and 4 are similar enclosures near Edlington Wood House. Site 3 lies east of the orchard on nearly level ground. It is much less well preserved than those just described, and its rampart can only just be traced. No. 4 is south of the track that runs eastward from the house, separating it from No. 3, and it lies rather further to the east. It is covered with dense undergrowth, and its outline is difficult to distinguish. A bank or wall of dry limestone blocks

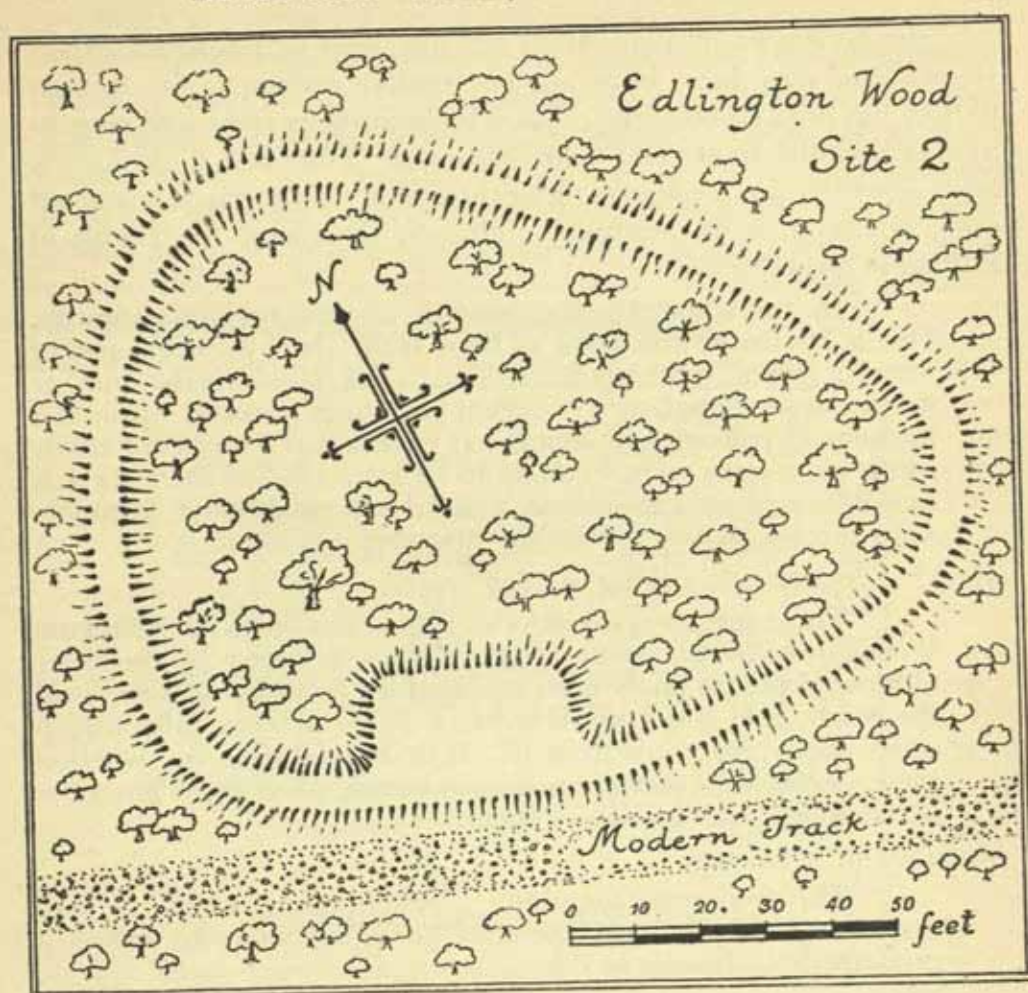


Fig. 11. Edlington Wood : plan of Site 2

appears to join Site 4 to Site 1. In one place the orthostatic structure of the rampart of No. 4 was noted.

Site 8, another oval enclosure of similar nature, was identified, but not examined, among the trees in the thickest part of the wood much farther to the south. Its western end lay 60 paces east of the north-south track through the wood at a point 140 paces south of the Double Dyke. The Camerons assure me that there are other similar enclosures in this part of the wood.

Site 9, known as Blow Hall, lies due west of Edlington Wood House, and may have been another similar enclosure, for Roman pottery has been found there ; but it is obscured by trees, and consists now of irregular banks and heaps of stones. From it a sunken track leads down to the level ground to the north. Formerly it attracted some attention as an antiquity. Hunter, describing the Parish of Edlington wrote⁸ :

“ In the wood are the remains of very remote antiquity. One is known by the name of Blow Hall. It is a conical pile of unhewn stones, evidently an artificial work, of which the number is very large, though many of them have been removed within the memory of persons now living. It is said that a species of apartments or caverns were formerly to be seen. But of these there is certainly now no appearance, and I have not been so fortunate as to meet with any particulars descriptive of them.”

Mrs. E. S. Armitage, writing in 1897⁹ noted :

“ There are several circles of stones and earth in Edlington Woods near Conisborough ; one, which was known by the name of Blow Hall, has lately been removed by the woodman to mend the roads, and the same fate has befallen a large cairn which stood about 250 yards from it. It is impossible to say whether these circles were defensive or sepulchral, since there has been no adequate examination of them.”

She adds in a footnote :

“ The woodman found no bones in those which he had destroyed ; but he told me that he found what he called a properly built hearth in one.”

There are then certainly five, and probably several more, of these oval enclosures within the wood, four of which have produced evidence indicating occupation in the Roman period. But even more interesting are three other structures now to be described. Lying on the lower ground north of the limestone outcrop known as the Craggs are no less than three small rectangular buildings around all of which the Camerons have found Roman sherds.

⁸ Rev. Joseph Hunter, *South Yorkshire. The History of the Deanery of Doncaster in the Diocese and County of York* (1828), I, 4.

⁹ Mrs. E. S. Armitage, *A Key to English Antiquities with special reference to the Sheffield and Rotherham District* (1897), 36.

Site 5 is a rectangular barn-like structure (Fig. 12), lying approximately east and west, its northern wall being 121 ft. from the northern boundary hedge of the wood. It is 38 ft. long and 21 ft. wide, measured from the middle of the mound which marks its walls, and it has a single doorway, 6 ft. wide, in its north wall. Its walls, which are about 3 ft. thick, are constructed without mortar of large, very roughly dressed stones, averaging 18 in. long and some 6 in. deep, the space between the faces being packed with stones. No floor was found by Mr. Cameron, who dug a hole to test the point.

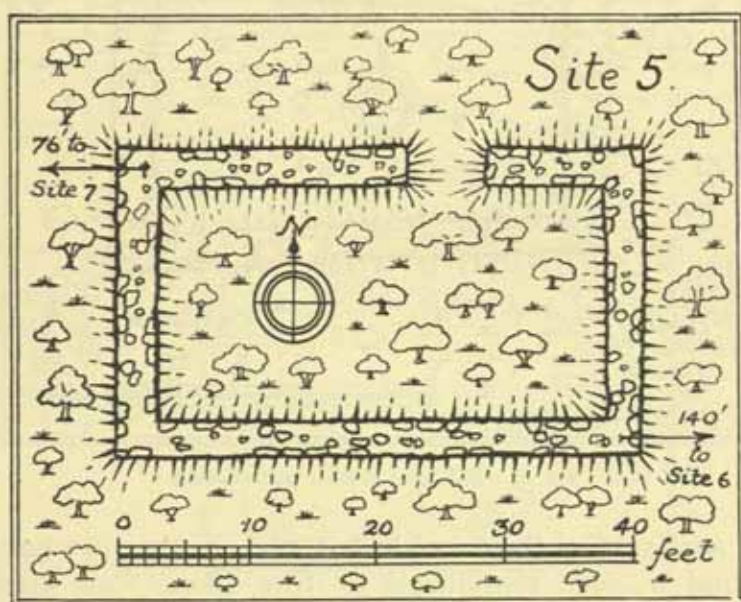


Fig. 12. Edlington Wood : plan of Site 5

Site 6 is in every way similar, though rather more irregular in plan (Fig. 13). It is situated 141 ft. east of Site 5, close to the oblique track that drops down from above the Craggs near Site 2. It is 35 ft. long, but varies in width from 22 ft. at the east end to 18 ft. at the west, measured as before from the crest of the mound that now marks its walls. It also has a single doorway in its north wall.

Site 7 lies 98 ft. west of Site 5 and is similar in construction to the others, though it lies roughly north and south, its south-west

corner being 72 ft. from the modern hedge (Fig. 14). Its dry stone wall, 2 ft. 10 in. thick, stands, at its south end, four courses high. It is 41 ft. long, and about 22 ft. wide, but its east wall has been almost all removed for repairing the adjacent track.¹⁰

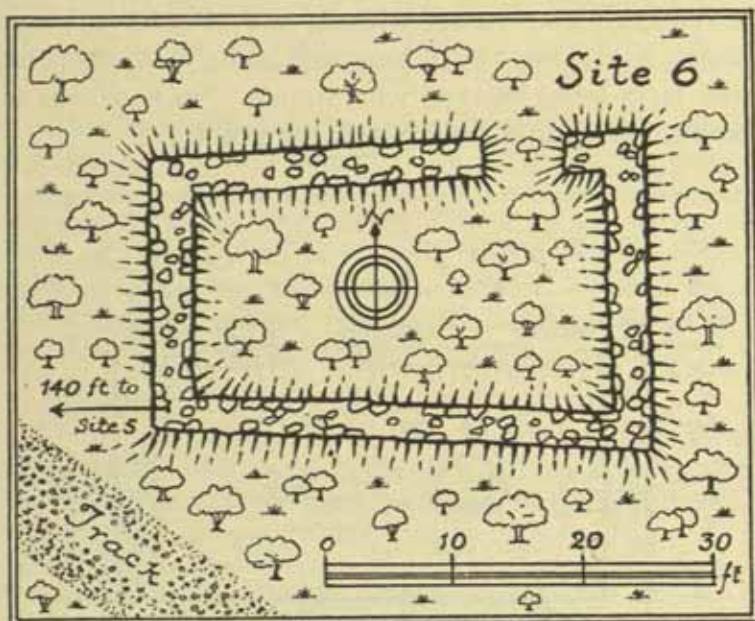


Fig. 13. Edlington Wood : plan of Site 6

The similarity of these rough, but solid, rectangular buildings to those found in such hut-villages as Ewe Close, Cow Green, and elsewhere must be immediately apparent, but here they are found standing free and entirely dissociated from the oval enclosures described above. Yet their Roman date can be presumed. The complete excavation of one of them is highly desirable.

The Double Dykes (Fig. 8) is the only antiquity that is scheduled as an ancient monument in Edlington Wood, presumably on the recommendation of local antiquaries. It is an insignificant *single* (not double) embankment of stones and earth, about 6 paces overall, standing some 3 ft. high, which traverses the wood from east to west.

¹⁰ Cf. p. 76. What the woodman told Mrs. Armitage in 1897 is confirmed by Mr. Cameron.

Local tradition states that it was a boundary mark dividing the wood into two equal parts between two sisters who were joint heiresses to the property. Mr. O. G. S. Crawford, who inspected it in December 1932, was of the opinion that it is an old hedge line, and notes that several old yew trees are now growing upon it. It is certainly too

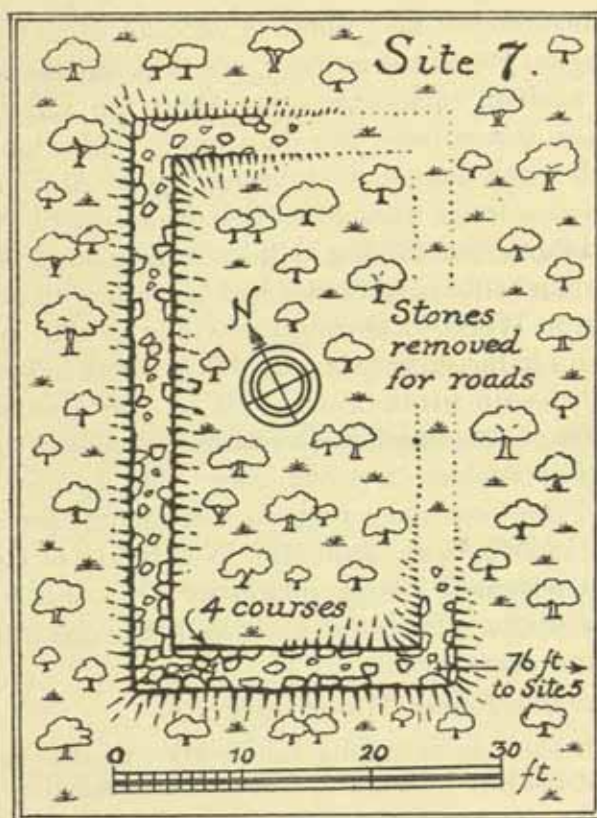


Fig. 14. Edlington Wood : plan of Site 7

slight to be classed as a "Grim's Ditch," and, even if it be an ancient boundary mark, it hardly deserves the distinction accorded to it as a scheduled ancient monument. It is emphatically not claimed here as associated in any way whatever with the ancient enclosures and buildings just described for the first time.

It should be noted that there is a boundary ditch and bank, in places at any rate showing signs of dry stone walling, surrounding the wood. In the north corner, beyond Sites 5, 6 and 7, it includes an ancient pond surrounded by old yew trees.

EARLIER FINDS IN EDLINGTON WOOD

I have encountered no published account of any Roman finds made in Edlington Wood before 1935, nor does any account appear in print of the ancient enclosures other than the references already quoted earlier in this paper. But that finds of coins have been made is certain. After the Treasure Trove inquest of April 1935, Colonel Landon received a letter from Mr. H. E. Baker of Brookfield House, Swinton, Yorkshire, mentioning a tale, remembered from his boyhood, that "a bucketful of old coins had been dug up near the Lion's Den in Edlington Wood." During the winter of 1881 or thereabouts he recalled a visit to the surgery of a Dr. Hills, where he saw "a tumbler three parts filled with silver coins." He records also that somewhat later one Clarkson was fined at Doncaster for selling "lucky balls" some of which contained a silver coin. He names four persons, "Dr." Colley, the veterinary surgeon, Ferdinand, the schoolmaster, the Reverend Wood, vicar, and Mrs. Woodyear of Crookhill Hall, each of whom possessed "large quantities" of coins from this find. Local enquiry might still bring to light some coins from this lost hoard of seventy years ago.

The Reverend Joseph Hunter writes¹¹ :

"It is scarcely deserving notice that hoards have been discovered at Alkley, Edlington, Clifton and elsewhere".¹²

The village of Clifton is 1 mile south-west of Edlington. The hoard was found "at the east entrance to the village" prior to 1704, for it is discussed by Ralph Thoresby in the *Philosophical Transactions of the Royal Society*, Vol. 24 (1704-5), pp. 2145-51. Of more than 200 coins "not one before Gallienus or after Quintillus," he lists the

¹¹ Hunter, *loc. cit.*

¹² I am indebted to the late Mr. Harold Copley of Rotherham for this and other references to finds in the neighbourhood.

reverse types of the following out of the 60 in his possession :

Gallienus	...	...	...	...	13
Salonina	...	...	...	...	1
Postumus	...	...	...	...	1
Victorinus	...	...	...	...	5
Tetricus I	...	...	...	...	9
Tetricus II	...	...	...	...	3
Claudius II...	...	...	...	...	8
Quintillus	...	...	...	...	2
					Total 41

The coins were described as "copper," and were found in two urns, both broken up by the workmen in their scramble. The larger of the two "might contain two gallons." The composition of this hoard of what must, to judge from their reverse types, have been *antoniniani*, is closely similar to our Edlington Hoard 3. Hunter's reference to a hoard from Edlington is more likely to be yet another find that has escaped record altogether, than the source of the tradition recalled by Mr. Baker, for coins from it are hardly likely to have survived in the possession of five local residents half a century later.

Yet another hoard of the same period as Edlington Hoard 3 and this Clifton hoard came to light in 1945 on Folds Farm, Tickhill, some 4 miles south-west of Edlington Wood. This contained 1,220 *antoniniani*, ranging from a single coin of Otacilia Severa, wife of Philip I, to two coins of Aurelian, but consisted principally of coins of Gallienus, Postumus, Victorinus and the Tetrici. In view of the fact that the coarse pottery strewn upon the Edlington sites indicates an occupation ceasing towards the end of the IIIrd century, these hoards in the Doncaster neighbourhood seem to reflect the serious economic disturbances soon after A.D. 270.¹³

CONCLUSIONS

In type of construction the oval enclosures in Edlington Wood may be paralleled from almost any of the native villages of prehistoric and Roman date in the North. For the orthostatic structure of their walls parallels are too numerous to be quoted. In plan, however,

¹³ *Num. Chron.*, ser. 6, VI, 69-72 ; VII, 85.

they differ entirely from the well-known highland hut-villages in Westmorland¹⁴ and from many of those in Northumberland also¹⁵. In these the groups of hutments "melt into a continuous outside wall which encloses the main area of habitation."¹⁶ They are, in short, villages or large farms, consisting of a farmhouse and barns, cattle-pens and retainers' hovels grouped together. In general they are much larger than our Edlington enclosures. Ewe Close, the best known of the western group, excavated by the late W. G. Collingwood in 1907-8¹⁷ is some 200 yards long, and clearly includes small garths and cattle-pens in addition to farm buildings. Burwens, perhaps the best preserved example,¹⁸ is a rough rectangle 70 yards square. Many of the Northumbrian villages are similar to these in size and complexity. West Greaves Ash, for example,¹⁹ contains some 25 huts in a circular enclosure about 100 yards in diameter.

Smaller settlements do, however, occur in Northumberland, and it is among these that closer parallels are to be sought. The circular Ingram Hill²⁰ is about 150 ft. in diameter, though it contains at least eight houses, several of which appear to belong to the same class as our rectangular buildings. The small oval enclosure of Hartside Hill²¹ contains only two or three circular huts, and has only one entrance in its rampart, like our Edlington enclosures. Gunnar Peak²² contains within its quadrangular ramparts, 175 ft. long and 130 ft. wide, a central rectangular house and 5 circular huts, one of which is built on to the end of the rectangular house. Within this was found a trumpet brooch similar to our No. 1 and a few scraps of Samian and other Roman pottery probably of Hadrian-Antonine date. Most significant of all is Milking Gap²³ a sub-rectangular enclosure having

¹⁴ *R.C.H.M., West. passim* : *C. & W.A.A.*, n.s., XXXIII, 201-232.

¹⁵ *Antiquity*, No. 67 (1943), 138.

¹⁶ *R.C.H.M., West*, xxxii.

¹⁷ *C. & W.A.A.*, n.s., VIII, 355 ; IX, 295.

¹⁸ *ibid.*, XXXIII, 213 : *R.C.H.M., West.*, 86.

¹⁹ *Berwick N.C.* (1856-62), 294-316 ; *Antiquity*, No. 67, Fig. 1.

²⁰ *Arch. Ael.*, ser. 4, XX (1942), 110-33 : *Antiquity*, No. 67, Fig. 1.

²¹ *Antiquity*, *loc. cit.*, Fig. 1.

²² *Arch. Ael.*, ser. 4, XX (1942), 155-73.

²³ *Arch. Ael.*, ser. 4, XV (1938), 303-41.

a proved Romano-British occupation lasting some fifty years between A.D. 122 and A.D. 180.

The Westmorland villages "are commonly found on upland ledges or plateaux within measurable distance of the 1,000 ft. contour and frequently in the vicinity of a beck,"²⁴ whereas our Edlington enclosures form a group of lowland homesteads. Far from being in remote situations they must, in the IIIrd century, have been in close contact with Roman civilization. The road from Templeborough to Doncaster was barely a mile distant from them, and DANVM itself, on one of the main highways of the province, was but 3 miles away. Samian ware, abundant coarse pottery, fine trumpet brooches and other small metal objects were among the gear of the inhabitants. The savings (Hoards 1 and 2) of those who lived in Site 1, surely derived from their peaceful occupation, whatever that may have been, were substantial. These folk cannot then be dismissed as remote survivors of an Iron Age culture, denizens of a Celtic fringe almost untouched by Romanization. Yet the planning of their homesteads shows no trace of the rectangular lay-out or of the Roman technique of building that has been so frequently detected, or alleged, in the remote hut-villages of the less civilized highlands. Milking Gap, it is true, shows little Roman influence in its structure, though it lies between the Vallum and the Wall, but the Edlington sites were occupied for more than twice as long, and their Roman equipment is far more abundant.

The period covered by the occupation of most of the upland hut-villages is still unknown, though several have produced sufficient relics in the form of Roman sherds and odds and ends to prove that they continued to be inhabited during the Roman period. At Edlington nothing so far has been found to suggest that the enclosures were built earlier than the second century, when the stream of finds begins.

The three rectangular buildings (Sites 5, 6 and 7) are of particular interest, for they are unconnected structurally with the oval enclosures, and differ entirely from them in their method of construction. Yet

²⁴ *R.C.H.M., West.*, xxxii.

Roman sherds, mainly of the IIIrd century, have been found in them as in the oval enclosures, and there seems no reason to doubt that they are contemporary. Such rectangular huts are of fairly frequent occurrence in northern hut-villages. They occur, for example, at Ewe Close,²⁵ Cow Green,²⁶ Ewe Locks,²⁷ Burwens,²⁸ and perhaps Severals²⁹ among the Westmorland villages, and at Ingram Hill and Gunnar Peak (*supra* p. 82) in Northumberland. In all of these, except Cow Green, which is much overgrown and has never been excavated, they are involved in the complex of huts, pens and ramparts, so that their dating is fraught with special difficulty. Some of them have been deemed to be medieval shielings,³⁰ as some of them may well be.³¹ Only careful excavation, such as few have received, could decide the point, and where they have been excavated, the absence or paucity of finds has left the matter in doubt. At Ewe Close four fragments of coarse brown pottery were actually found in the rubble of the wall of the rectangular building,³² as Mr. C. E. Stevens has pointed out to me. If these scraps were Romano-British, as seems probable, they provide direct evidence, ignored by R. G. Collingwood, of its Romano-British date, for W. G. Collingwood, the excavator, was of the opinion that they might "have been dropped during its building."³³ The IInd century date of the rectangular house at Gunnar Peak is "highly probable" even if the earlier remains there are "almost certainly pre-Roman."³⁴ There is then some direct evidence in support of a Roman date for these rough rectangular houses in other native villages on both sides of the Pennines. The importance of the three Edlington buildings lies in the fact that they are unassocia-

²⁵ *loc. cit.*

²⁶ *C. & W.A.A.*, n.s., XXXIII (1933), 210-1.

²⁷ *ibid.*, 208.

²⁸ *R.C.H.M.*, *West.*, 86.

²⁹ *ibid.*, 76.

³⁰ Collingwood, *loc. cit.*, 206-7.

³¹ A recent note by Mr. A. H. A. Hogg tentatively suggests the identification of the rectangular house at Cow Green with Llwyfenydd, the 6th century dwelling of Urien of Reged, see *Antiquity*, No. 80, 210-1.

³² *C. & W.A.A.*, n.s., IX (1908), 307.

³³ *ibid.*, 302.

³⁴ *op. cit.*, 164.

ted with other structures, while the pottery found lying about in and around them establishes their Roman date as a virtual certainty.

The function of both oval enclosures and rectangular buildings at Edlington must remain uncertain. Field boundaries have not been observed in connexion with them—indeed the dense undergrowth of Edlington Wood would make their identification and planning, did they exist, extremely difficult. Ploughing for centuries in the fields surrounding the wood has long obliterated all traces of ancient agriculture. That Enclosure 1 contained a habitation of some kind is indicated by the finding of Hoards 1 and 2, of brooches Nos. 1 and 3, numerous pot-sherds, and some odd coins within it. Had a Romanized farmhouse been known in the immediate neighbourhood, one might have suggested that these enclosures were the quarters of native farm labourers rather than the homes of independent peasants. But no such villa is known, and the economic status of the settlements remains dark.

APPENDIX : THE FINDS FROM EDLINGTON WOOD

All the finds described below are unstratified and have been collected from the surface by members of the Cameron family. They are recorded here as an indication of the duration of the occupation of the various structures in the wood.

A. POTTERY

SAMIAN WARE

Decorated

1 (Fig. 15, 1). Two pieces of a large bowl, Drag. 37. The break between the two fragments appears to be ancient.

Large double ovolo with thickened plain tongue, as used by APOLAVSTER, CASVRIVS and CINNAMVS, above a large bead-row. The decoration consists of double plain demi-medallions or festoons conjoined by large astragali, as used by CASVRIVS and others, and containing small animals and birds. On left an unidentified object, perhaps part of an animal. Centre, a cock to left (Oswald 2350) as on a 37 stamped ID at Cirencester. Right, a small lion (Oswald 1404) as used frequently on Trajanic pottery in the style of DONNAVCS. It is used by DOCILIS and CASVRIVS with the tail broken off. A large ring fills the space between the festoons. For the ovolo, astragalus, lion and ring, see Stanfield, *C. & W.A.A. n.s. XXXV*, 182-205, for the work of APOLAVSTER and CASVRIVS. Trajan-Hadrian.

2 (Fig. 15, 2). Part of the side and foot-ring of a large bowl, Drag 37. Decoration in panels demarcated by large bead-rows terminating in large beads. In centre panel Triton (Oswald 19), as used by LIBERTVS, PATERNVS, MOXIVS and DOECCVS, as also by APOLAVSTER (Stanfield, *loc. cit.*). Beneath the Triton are two large rings, as on No. 1 above. To left part of what may be the plinth for a standing figure or panel ornament, like Stanfield 15. To right uncertain, but perhaps a straight leaf ornament. Trajan-Antonine.

Two small chips of Drag. 37 are too small to identify or illustrate.

Plain

Several sherds, two of them rims, probably of form 18/31. Part of the flange of a 38.

Potter's stamps

1. /TIMA in large letters on the base of a form 31. Possibly the stamp of SEXTVS of Lezoux. Trajan-Antonine.

2. PIIRPII/ on form 31 (Fig. 15, 3) PERPETUS of Rheinzabern stamps PIIRPIITVS on 31 (Sb) at Trier and on 32 at Colchester and elsewhere. Hadrian-Antonine.

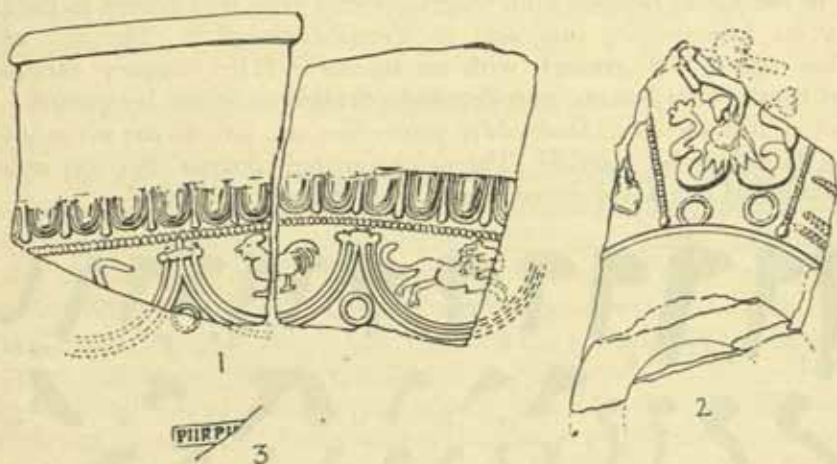


Fig. 15. Decorated Samian and potter's stamp from Edlington Wood (4)

COARSE WARES (Fig. 16)

The profiles here illustrated are a selection from the considerable collection of sherds gathered from the surface and from different sites by members of the Cameron family. As such it might be expected to be of little significance or to indicate prolonged occupation. But this is not the case. The Samian ware just described is mainly Antonine. Hoard 1 begins with Antonine *denarii*, and two worn *sestertii* of Marcus Aurelius were also found. The brooches (*infra*, p. 89) are early IInd century, though allowance should be made for the survival of such ornaments as heirlooms among humble folk. There seems then ample justification for assuming a IInd century occupation. The collection here illustrated includes the IInd century mortar rim (No. 17), found in 1945 near the site of Hoard 3, and rims of dishes (Nos. 8-11), which might be Antonine in date, though the type has a long life in the IIIrd century. The rest of the collection probably falls into the IIIrd century. With the exception of the mortaria (Nos. 17, 18, 19) and the characteristic calcite-gritted cookpots represented by No. 31, the ware is, with few exceptions, very hard, often of light blue-grey or silvery-grey colour. Occasionally pink (No. 21), orange-red (No. 7), or brick-red (No. 15) bowls occur, and one or two vessels have a black polished surface (No. 25), but in general the ware is unpolished, very hard, and rather heavy. No sherd from the collection certainly requires

a IVth century date. Such flanged bowls as Nos. 14, 15, 16, which predominate in the IVth century in the north, though they occur in the IIIrd century also, are relatively infrequent. Signal Station wares are entirely absent. The heavy rimmed large bowls (Nos. 1-4) may well be the product of the second period of the Little London kilns³⁵ and are of a type that occurs in the IIIrd century on Lincolnshire sites and at Templeborough.³⁶ The rest of the collection agrees well enough with an intensive IIIrd century occupation attested by the coin hoards, and detailed parallels need not be quoted. The presence of two sherds of Derbyshire ware (Nos. 29, 30), in the main of IIIrd century date, is to be noted.³⁷ The calcite-gritted cookpot (No. 31) is now a well-established late IIIrd century type, as is the mortar (No. 19).



Fig. 16. Coarse pottery from Edlington Wood (†)

LARGE BOWLS :

1. Coarse hard grey. 2. Hard blue-grey. 3, 4. Gritty grey. 5. Pale red inside, with light grey interior. 6. Hard pale grey. 7. Pale orange-red.

SMALL BOWLS AND DISHES :

8. Hard grey. 9. Hard grey, polished inside. 10. Coarse grey. 11. Coarse pale grey. 12. Hard grey. 13. Hard coarse grey.

STRAIGHT-SIDED FLANGED BOWLS :

14. Coarse grey. 15. Brick red. 16. Smooth grey.

MORTARIA :

17. Hard yellowish buff, with mixed medium grit. 18. Grey core, with pale pink slip. 19. Gritty white.

LARGE JARS :

20. Sandy drab. 21. Sandy salmon-pink to grey.

³⁵ Oswald, *The Roman Pottery Kilns at Little London, Yorksey, Lincs.* (1937), pl. V.

³⁶ May, *The Roman Fort at Templeborough* (1922), pl. XXXIII A, type 215.

³⁷ *Antiq. Journ.*, XIX, 429-37.

SMALL WIDE-MOUTHED BOWLS :

22. Pale grey. 23. Hard gritty grey.

JARS AND COOKPOTS :

24. Coarse grey. 25. Sandy grey, with black polished surface. 26. Pale grey. 27-29. Hard grey. 30. Gritty black, with reddish core. 31. Coarse calcite-gritted ware.

B. SMALL FINDS

BRONZE

1. Brooch 1 (Fig. 17, 1) was found within Enclosure 1 on the surface. It is a good example of the graceful trumpet brooch (Collingwood R ii) with a well-executed central acanthus moulding. The type is dated by Collingwood³⁸ to the 2nd quarter of the IInd century A.D., and was manufactured in northern Britain, probably at Brough-under-Stainmoor and Kirby Thore.

2. Brooch 2 (Fig. 17, 2) was found on the surface in Enclosure 2. It is also of north British manufacture and is to be placed in Collingwood Group R iv, with half-round acanthus moulding. It retains the graceful lines of the brooches of Group R ii, has a spring pin and a well-formed foot, indicating an early date in its class, which is thought by Collingwood to fall later in the IInd century A.D. than brooches of Group R ii.

3. Brooch 3 (Fig. 17, 3). A heavier and less graceful version of No. 2, with similar though less delicate half-round acanthus moulding. The head-loop is cast in one piece with the brooch, and the pin is hinged. Worn and rather twisted.

4. Brooch 4 (Fig. 17, 4). Small oval disc brooch, 0.9 in. long by 0.7 in. wide. It has a brightly gilt surface, with a raised flat oval setting, 0.6 in. long, containing remains of dark purplish glass. Around the edge of the plate is a line of tiny stamped triangles. It is complete with hinged pin and catch-plate. (Cf. *B.M. Guide R. Britain*, Fig. 76, p. 61). Such brooches are usually assigned to a date not earlier than A.D. 250 (Collingwood, *Arch. R. Britain*, No. 104, p. 259).

5. Brooch 5 (Fig. 17, 5). Small penannular brooch with flat pin. Knob terminals with 4 collar mouldings.

6, 7. (Fig. 17, 6, 7). Penannular brooches similar to No. 5, but pins lost. Each has plain knob terminals with a single moulding.

8. (Not illustrated). Remains of a disc brooch, with boldly scalloped edge, originally about 1.5 in. in diam. It has had a hinged pin, now lost. It is now much burnt and twisted and fused to a mass of bottle-green glass, probably as a result of the burning of undergrowth in the wood.

³⁸ *Arch.*, LXXX, 45.

9. Nail cleaner (Fig. 17, 8) from a toilet set. It is unusually elaborate with its circular head and pierced decoration. The divided end is slightly spooned.

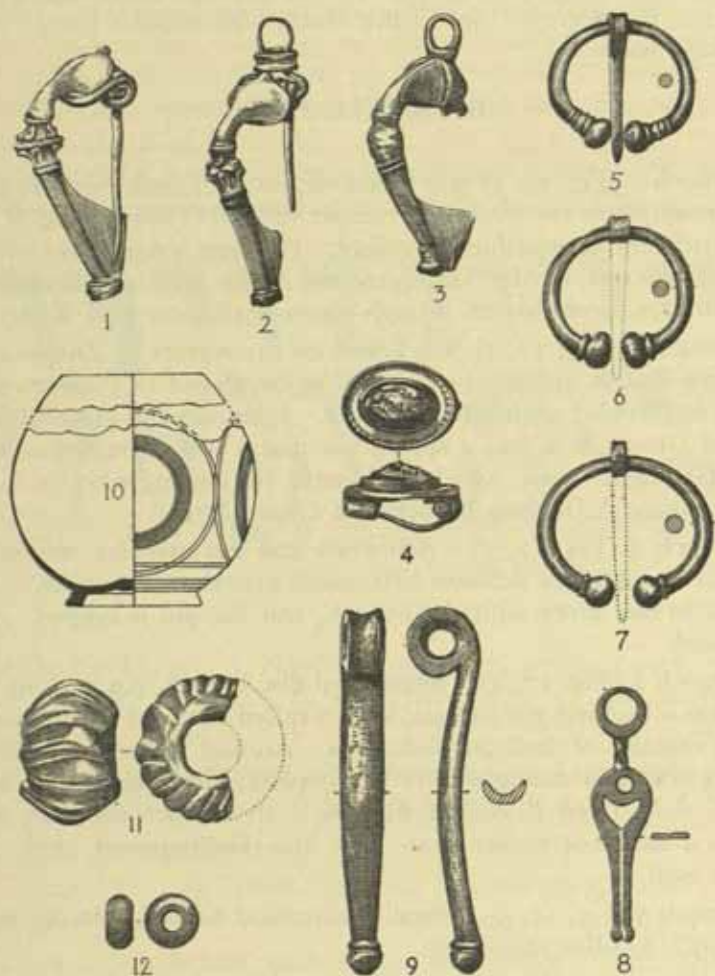


Fig. 17. Small finds from Edlington Wood (†)

10, 11. (Not illustrated). Plain bronze rings, 0.8 in. and 1.0 in. in external diameter.

12. Bronze object (Fig. 17, 9) of a type usually described as a charm or amulet. It is $2\frac{7}{8}$ in. long with one end curved round into a loop $\frac{1}{4}$ in. in

internal diameter and the other terminating in a collar and ball resembling the foot of a brooch. It is shaped like a canoe in section, the U-shaped groove being continued round the loop, but terminating behind the knob foot. The late Reginald Smith described 14 of these objects in 1918 (*P.S.A.* 3rd ser., XXX, 54-63) and traced their supposed development from the iron nose-band, cavesson or barnacle, for a horse (*ibid.*, Fig. 1), concluding that they were pendants and charms. The later series of these canoe-shaped objects (*ibid.* Figs. 12-15) has the loop in the middle of the bow instead of at one end. A further group from Colchester published in 1930 (*Col. Mus. Rep.* 1930, pl. 1, Fig. 2, and pl. XIA, pp. 41-43) includes two examples with a medial loop but terminating in bull's heads. As Mr. Hull points out, this fact seems to dispose of the suggestion that they were suspended by the loop, as in that case the bull's heads would hang upside down. Moreover these two Colchester examples are too heavy for pendants. Our example is better finished than any of the type with end loops that I have seen. Its purpose must remain obscure.

13. Small globular bronze pot (Fig. 17, 10) $1\frac{7}{8}$ in. maximum diameter with a foot-ring 1 in. in diameter. The rim, if rim it be, is plain and is now detached from the body, which is paper thin. The vessel is decorated by a series of four lightly incised double circles, $1\frac{5}{12}$ in. in diameter containing each eight or nine concentric circles $\frac{7}{8}$ in. to $\frac{5}{8}$ in. in diameter. There is also a series of fine lines around the base.

GLASS

14. Half a melon bead (Fig. 17, 11) of dark blue glass, 1.2 in. maximum diameter and 0.8 in. deep, with central hole 0.4 in. diameter (cf. *Newstead*, pl. XCI, 8, 10).

15. Small circular bead (Fig. 17, 12) of dark blue glass like that of No. 14, 0.4 in. diameter.

SHALE

16. (Not illustrated). Piece of a bracelet in brown shale of semi-circular section, 2.0 in. internal diameter.

STONE

17. (Not illustrated). Spindle whorl, 1.5 in. diameter, 0.4 in. thick.

18. Sling ball.

IRON

19. (Not illustrated). A small key found at the Craggs is perhaps of Roman date.

C. MISCELLANEOUS FINDS

In addition to these finds of Roman date a number of others should perhaps also be recorded.

COWBELLS

No less than four iron cowbells have been collected by Mr. Cameron in the wood. The largest of these was found at the Craggs in 1946 near the find-spot of Hoard 3, lying among the bones of a cow. Mr. Cameron received the impression that the animal had been trapped and buried by a fall of rock. But bones of sheep and pig were also found in the same place. I was able to examine the bell and some of these bones in March 1947 and do not think they are of sufficient antiquity to be accounted Roman. The bell, which is in the form of a wedge, 4 in. high with a rectangular base $2\frac{1}{2}$ in. by $3\frac{3}{8}$ in., is simply constructed of sheet iron rivetted at the ends. Attachment has been by two small loops at the ends of the apex ridge 2 in. long. The tongue, which is missing, was suspended from a small transverse iron loop in the interior.

Three smaller bells of rather different pattern were found on Site 1 in 1936 and are now at Wentworth Woodhouse. All are much rusted and constructional details are difficult to distinguish. They are all oval in section and pyramidal in shape, like a modern Swiss cowbell, the largest being 4 in. high, including the semi-circular flat loop attached to the ends of the apex ridge, which formed the mode of attachment of all three. Remains of the tongues, now much corroded, indicate that these were longer than the depth of the bell in each case and were attached to a longitudinal loop within the bell.

I know of no means of determining the date of these bells, as such may have been in use until quite modern times, as they are in Wyre Forest to this day.

NUREMBERG COUNTERS

In 1939 Colonel Landon sent to me two Nuremberg counters of XVIth century date that had been picked up in the wood. They were identified by Mr. Derek Allen, F.S.A. as :

1. Gothic lettering :

Obv. + **VIVE : LE : BON : ROI : DE : FRANCE**

Rev. + **VOISIE : LA : SALLE : DE : FRANCE**

with a ship (Barnard, *The Casting-Counter and the Counting-Board* (Oxford, 1916), p. 210, No. 3).

2. Obv. ⌘ **EGIDI * KRAVWINCKEL * NVR**

Rev. ⌘ **RECHEN PFENING NVRNE.**

CROSS-RIDGE DYKES IN SUSSEX

BY E. CECIL CURWEN

THERE is perhaps no class of prehistoric earthwork more difficult to understand than those curious short ditches, usually bivallate,¹ which are found cutting across the ridges of the chalk Downs, generally from one steep slope to another. As far back as 1918 the late Dr. Eliot Curwen and I published a detailed description of sixteen examples occurring in Sussex,² describing them as "covered ways"—a term which had been used by Colt Hoare. In the present article I am using the non-committal term "cross-ridge dyke" which was, I believe, introduced by the late Dr. J. P. Williams-Freeman.³ Since those days little work has been done to solve the problems connected with these curious earthworks, which are too often dismissed with facile assumptions about their having served as boundaries, toll-bars and the like.

My excuse for reverting to a further consideration of the Sussex examples is not simply my greater familiarity with this county, nor the fact that additional examples have been discovered since the publication of our original paper. The geological peculiarities of Sussex—its division into a number of parallel belts of contrasting subsoils, including one of chalk—offer certain archaeological advantages over chalk plateaux such as those of Wessex, because they provide a series of controls for the study of human habitat at different periods. There is also a fairly uniform structure in the chalk belt throughout its length: it is some 50 miles long by 5 miles wide, attaining its greatest height along its northern edge, whence the slope falls by a steep escarpment to the north, and by gentle declivities to the south. The southern slopes are broken by valleys into a number of spurs, the general direction of which is more or less north and

¹ "Bivallate," i.e. a ditch between two banks; "univallate," i.e. a ditch with one bank.

² *Sussex Arch. Coll.*, LIX (1918), 35-75.

³ *Antiquity*, VI (1932), 24; *Proc. Hants. Field Club*, XIII (1935), 55.

south, though many such spurs curve round to east or west before terminating. Some of these spurs swell up to form isolated heights situated about half-way between the main ridge and the southern plain (or sea) ; among these heights are Cissbury, Harrow Hill and Thundersbarrow Hill.

As a result of this configuration there was in prehistoric times one easy route of communication throughout the length of the chalk belt, and that lay along the main ridge at the top of the northern escarpment, interrupted only by the four rivers which cut right through the Downs. Branching off from this main ridge-way were branch ridge-ways which ran along the backs of the spurs in a more or less southerly direction, and where these latter passed through cultivated areas we find them canalized and defined, either by running along the back of the spur between two banks, or running along the flank of the spur between two lynchets—the so-called “double lynchet” form. It is a fact that the great majority of lynchet-groups are found on the spurs and not on the main ridge, and this is an important point to remember in connexion with the cross-ridge dykes, because the great majority of the dykes are found on the main ridge and not on the spurs.

In later prehistoric or at any rate Roman times, if not earlier, other tracks branched off from the main ridge-way to descend the steep north escarpment obliquely. There is evidence that in Roman times these tracks were not simply worn by use but were deliberately made in the form of carefully constructed terrace-ways.⁴

Such is the general picture of the topography of the chalk belt and of the prehistoric road-system which was conditioned by that topography ; how do the cross-ridge dykes fit into the picture? Before answering this question the main features of the dykes themselves must be described, and a word said on the evidence as to their date.

The dykes are usually bivallate, consisting of a ditch between two banks of approximately equal height ; less frequently they are univallate. Occasionally two or even three bivallates run parallel and

⁴ E. C. Curwen, *Prehistoric Sussex* (1929), 108–110.

close together, and when this is the case they may be screened by one or more univallates. The latter fall into two categories, viz. (1) those which appear to be the same in character as the bivallates, but which, owing to a fairly steep cross-gradient⁵ lack the bank on the upper side of the ditch, because the lip of this side of the ditch is nearly level with the bank on the lower side: in this class, therefore, the ditch is invariably *above* the single bank; and (2) those which appear to function simply as screens for bivallates, in which case the ditch is always found on the side of the bank which is remote from the bivallates, and as a rule this turns out to be the *lower* side of the bank. These two classes of univallates appear, therefore, to be distinct as regards function. Disregarding for the moment those which seem to have served only as screens, one of the most noticeable features of the cross-section of both the bivallate and the univallate cross-ridge dykes is that the crests of the two banks, or of the one bank and the upper lip of the ditch, as the case may be, are approximately at the same level. This seems to have been one of the objectives of the builders, and is well illustrated by a univallate example on Alfriston Down⁶ in which the bank changes from one side of the ditch to the other in order to keep to its lower side as the cross-gradient changes its direction: in the middle, where there is no cross-gradient, the two banks overlap for a short stretch which is therefore bivallate (Fig. 21).

Other features of the cross-section of the bivallates are as follows: (1) the overall width is usually between 30 and 50 ft., less frequently as much as 60 ft.; (2) the present height of the banks above the ditch is generally from 2 to 4 ft., exceptionally as much as 10 ft.; (3) on excavation the bottom of the ditch, which is flat, may be $1\frac{1}{2}$ to 3 ft. wide, and about 7 ft. below the present crests of the banks; (4) in the examples hitherto excavated no old turf-line was found under the banks, but a small subsidiary channel was found under or behind them, suggesting that the latter may have been planted with hedges or the like. The absence of an old turf-line may be significant if it

⁵ "Cross-gradient" is a convenient term to indicate a fall of the ground in a direction that crosses the line of an earthwork. There is thus a cross-gradient when an earthwork runs along the flank of a hill or obliquely up a hill-side.

⁶ 6 in. O.S., Sussex, 68 S.W.

indicates that these dykes were constructed across ground that was at the time woodland or scrub, and not open grass-land. In only two cases do they come into relationship with lynchets (see below).

As regards plan these earthworks run, singly or in parallel groups, across ridges from a combe in the northern escarpment to the head of a valley on the southern slopes, or else between two valleys separated by a spur projecting from the main ridge. Their course is usually rather short and straight; occasionally, as in the case of one near Chanctonbury Ring,⁷ a devious course may be followed for which there seems to be no very obvious justification in the lie of the land. In three cases, however, the dyke makes a double right-angled bend, apparently in each case at the point where the main ridge-way crossed it. This suggests that whatever the purpose of these dykes may have been they were not put up in uncompromising hostility to the users of the ridge-way, but that the existence of the latter was taken into account and allowed for. It is probably true to say that in no case does such a cross-ridge dyke occupy a position that has been chosen with an eye to defence, so that if they were thrown up to bar the ridge-way it can scarcely have been done with hostile intent.

One of the most curious features about this type of earthwork is that in a few instances terraced paths or tracks may be seen emerging from one or both ends of the ditch and descending the hill more or less obliquely. This feature is easily overlooked unless specifically sought for, since on the steep northern escarpment any such surviving path must often be narrow and faint if it has survived at all. The tracks which descend the gentler valleys at the southern ends of the dykes have more frequently been preserved, but in this situation they are peculiarly liable to be destroyed by modern agriculture. The fact that a few such tracks have survived these hazards suggests that other, perhaps all, cross-ridge dykes of this kind may have originally had similar paths emerging from both ends of their ditches. The significance of these tracks will be considered presently.

The evidence at present available for dating these structures is extremely slender, but what there is points to their having been

⁷ *Sussex Arch. Coll.*, LIX, 53; *Prehist. Sussex*, plate XXV (air-photo).

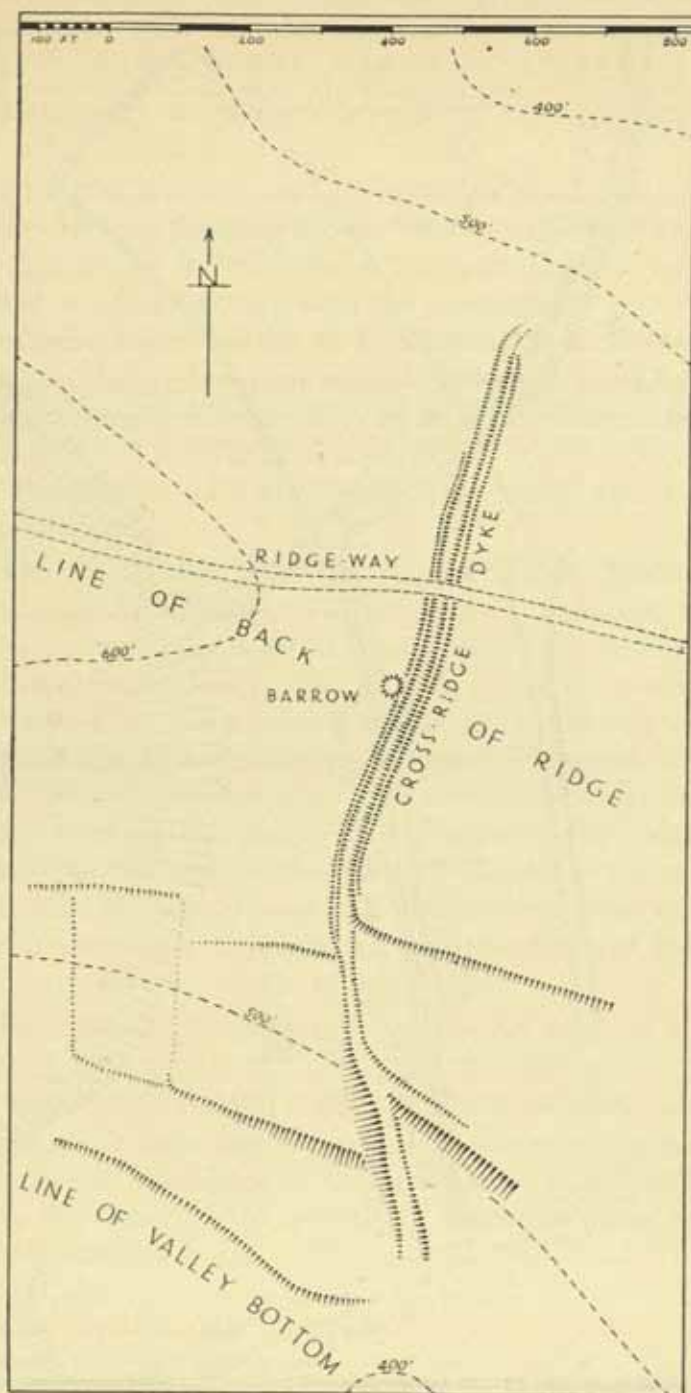


Fig. 18. Highden Hill, Washington : relation of bivalent cross-ridge dyke to Celtic field system
 (Note : Since this survey was made the bifurcation of the terrace-way at the south end has been destroyed by the construction of an anti-tank ditch which follows the line of the 500 ft. contour)

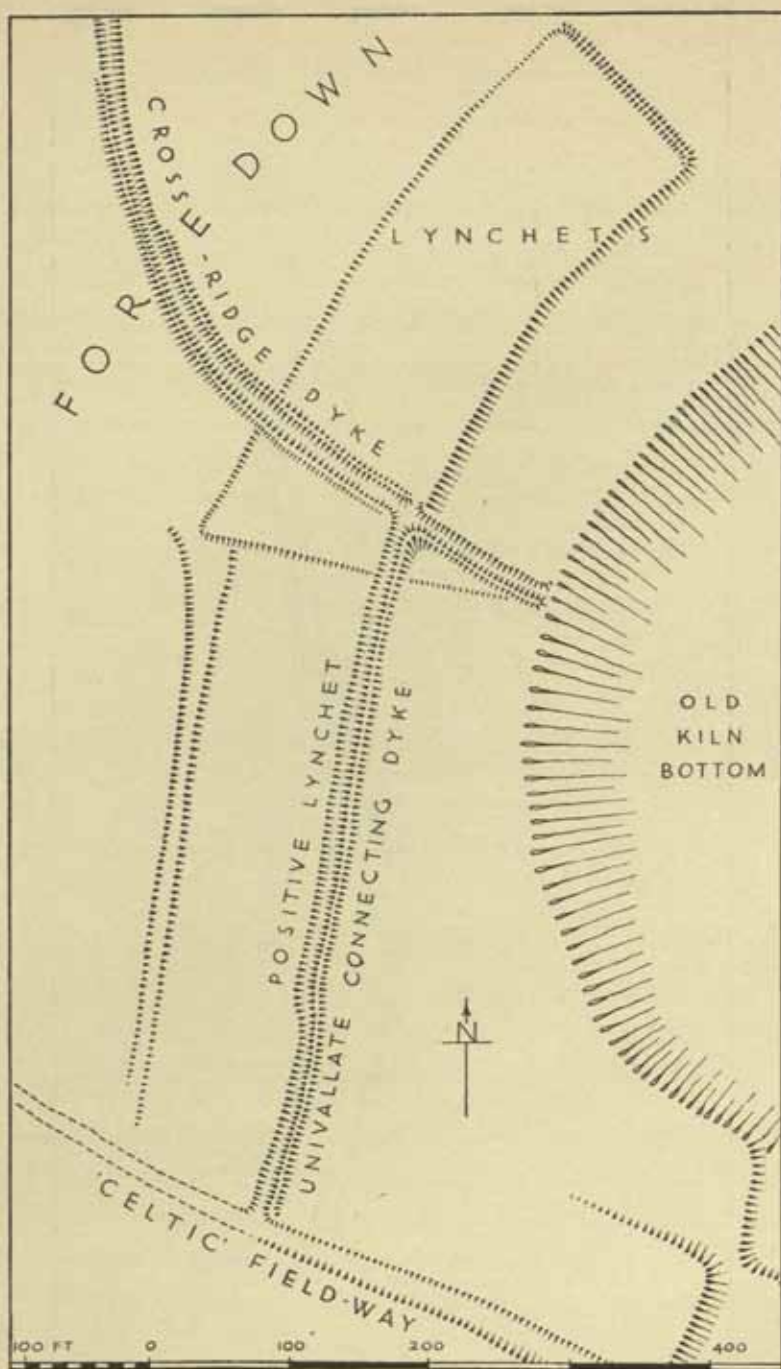


Fig. 19. Fore Down, Lullington : bivalent cross-ridge dyke connected with Celtic field-way by means of univalent dyke

contemporary with the Celtic field-system, i.e. Late Bronze Age to Roman period, inclusive.

(1) Part of a pottery vessel found by us low in the silting of the ditch of the dyke on Glatting Down,⁸ decorated with incised hatched triangles, appears to be referable to the Late Bronze Age, and must be regarded as contemporary with the earthwork. Pots with similar decoration were found by Dr. J. F. S. Stone in a Deverel-Rimbury settlement on Thorny Down in south Wiltshire.⁹ The Glatting Down earthwork is intersected by the full width of the Roman Stane Street, which is nearly 100 ft. wide in this part of its course. This example is therefore presumably of Late Bronze Age date, and must in any case be pre-Roman.

(2) The cross-ridge dyke on Highden Hill, Washington,¹⁰ a typical example of its class, both as regards situation, course and cross-section, comes into integral relationship with lynchets of Celtic type at its southern end (Fig. 18). In fact, one of the tracks alluded to above emerges from the southern end of the ditch and descends the hill-side obliquely as a double-lynchet track, between lynchets with which it is clearly contemporary. Not only so, but this track divides, one branch entering the corner of a lynchet field,¹¹ and the other making for the bottom of the valley. There is no escaping the conclusion that in this case not only is the cross-ridge dyke contemporary with the Celtic field-system, but the ditch of the dyke was used as a path-way for traffic of some kind.

(3) Fore Down, Lullington,¹² lies on the edge of a very large area covered by lynchets of Celtic type through which runs a long field-way that is contemporary with the lynchet-system. At one point a univallate ditch branches off from this field-way, runs for a short distance below a lynchet, and enters the side of a typical bivallate cross-dyke, the ditch of the univallate communicating with that of the bivallate through a gap in the bank of the latter. The bivallate,

⁸ *Sussex Arch. Coll.*, LIX (1918), 62-4; 6 in. O.S., Sussex, 49 N.E.

⁹ *Proc. Prehist. Soc.*, VII (1941), 118-9.

¹⁰ *S.A.C.*, LIX, 38; 6 in. O.S., Sussex, 51 N.W.

¹¹ This feature has unfortunately been destroyed by the construction of an anti-tank ditch during the war

¹² 6 in. O.S., Sussex, 79 N.E. See air-photo in *Antiquity*, I (1927), facing p. 278.

however, is actually later than two lynchet-fields which it intersects (Fig. 19). It appears, therefore, that the bivallate and presumably the univallate are late contemporaries of the field-system as a whole, and it would seem that the purpose of the univallate is to provide a passage between the field-way and the bivallate cross-ridge dyke. At its north end the latter terminates just above an old hollow-way that runs obliquely down into Deep Dene; it is possible that this hollow-way may follow the course of a terraced track that may have emerged from the ditch of the earthwork as in other examples, and that when the earthwork was no longer used the traffic that came up the track from Deep Dene continued eastwards past the north end of the cross-ridge dyke. At its south-eastern end the dyke terminates on the brink of a steep descent into Old Kiln Bottom; no trace of any oblique path can be seen emerging from the end of the dyke and descending this declivity.

It appears, therefore, that in the two instances in which cross-ridge dykes come into relation with lynchets of the Celtic field-system there is evidence that the ditch of the dyke served as a path or track of some kind. The possibility of such use being secondary is ruled out by the observation that four other cross-ridge dykes show evidence of similar use as tracks, viz. those on Harting Down, Glatting Down, Rackham Bank and Alfriston Down, and it would be too much of a coincidence to suppose that six specimens, scattered over 40 miles of downland, had all suffered the same rather peculiar secondary use.¹³

It is extremely difficult to picture the purpose of these dykes, and we must admit that we still lack knowledge of some important feature of the economy of the Celtic field-system which might provide the key to the problem. While individual examples could have served as barriers, toll-bars or boundaries, such purposes cannot be attributed to all cross-ridge dykes. They seem crazy, meaningless things—monuments of apparently purposeless energy—and the only clue to their use seems to be provided by the paths or terraces which are occasionally found emerging from the ends of their ditches. But

¹³ In addition to these the late Dr. Williams-Freeman noted two examples on the Hampshire portion of the South Downs with tracks emerging from the ditches, viz. at Twyford Down and Leydean (*Antiquity*, VI, 28-9).

the conclusion to be drawn even from this—that each dyke was constructed as some sort of screen to contain or even conceal a path which ran over a hill from one valley to another—seems equally crazy, but might be explicable if we knew more about the conditions of the period. This is the reason for introducing a picture of the topography of the chalk belt and of its prehistoric road system, for it helps us to see that the majority of the dykes lie away from lynchet areas and across the main ridge, on land which, it would seem, was covered by scrub rather than pasture at the time of their construction. These facts will need to be taken into consideration in any attempt to carry the elucidation of the problem further, but for the present what is needed is more field-surveys of similar dykes in other counties, and more cross-sections cut in order to determine the nature of the pre-dyke vegetation, the presence of original hedges or stockades on the banks, and the range of date. As things stand at present it looks as if the dykes may have been in some way connected with the movement of cattle or pigs from one valley to another or to and from the Wealden forest. The reduplication of dykes in parallel series would be more easily explicable on this view. The late Dr. Williams-Freeman concurred with this view, but his theory that the dykes actually served as cattle-pens does not seem, to me at any rate, to be so readily acceptable.

Meanwhile a few words must be said on some individual sites.

(1) The group of cross-ridge dykes on Harting Down consists of two parallel bivallates screened by two univallates to the west.¹⁴ The whole group is breached by a Roman road which, having ascended the escarpment from the direction of Harting village, is running along the ridge on its way into Beacon Hill Camp (Fig. 20). The two bivallate dykes have paths emerging from their ditches and descending the escarpment to the north, but the significant thing is that in both cases the paths leave the ditches at the point where the Roman road breaches them, though the western dyke also has a path emerging from its northern end. This must indicate that, while these dykes were pre-Roman in origin, they were still used as paths

¹⁴ *Sussex Arch. Coll.*, LIX, 50, with plan; 6 in. O.S., Sussex, 33 N.E.

across the hill during the Roman period. One of the univallate screens is breached by a barrow which may be Saxon.

(2) Rackham Bank, crossing the main ridge between Storrington and Amberley, is an unusually large and massive univallate with ditch up-hill (east), as usual. It is noteworthy for having very well-marked terrace-ways emerging from both ends of its ditch, one descending the northern escarpment, and the other running for some distance down the flank of a valley on the south.¹⁵

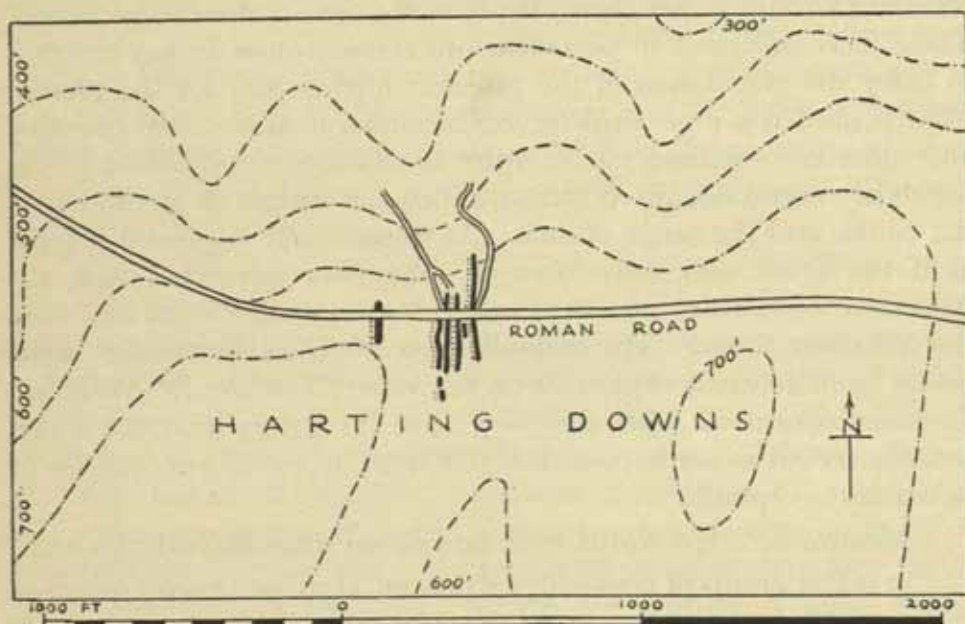
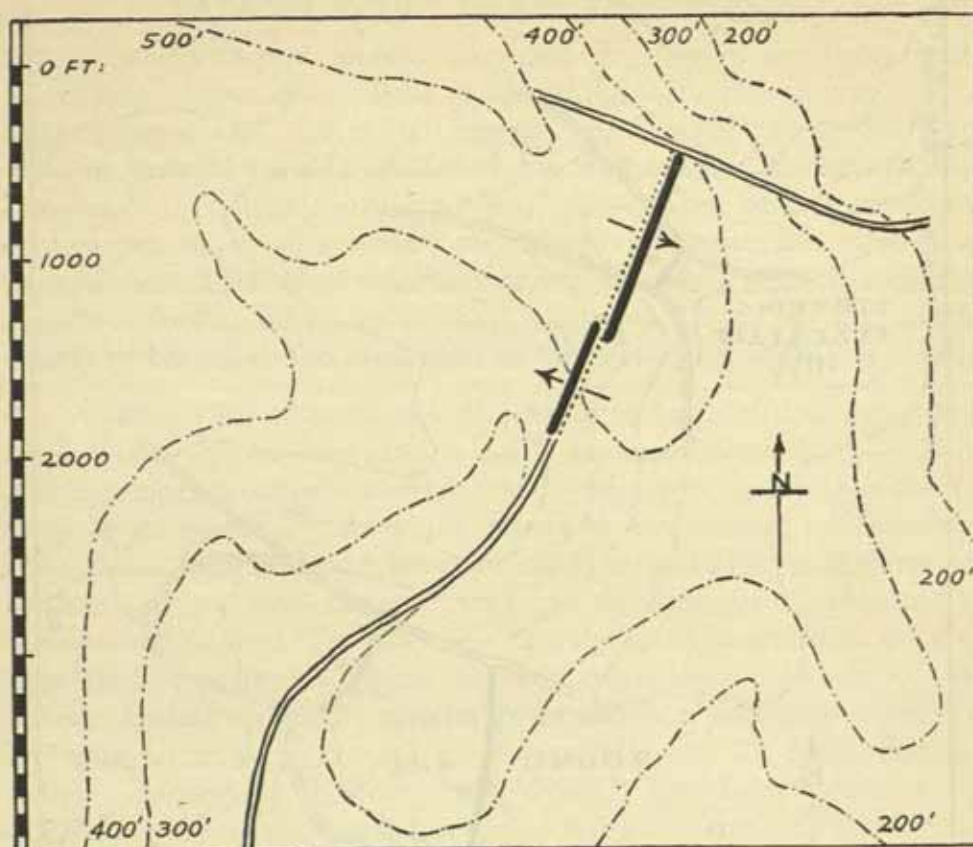


Fig. 20. Harting Downs: group of cross-ridge dykes cut by Roman road, with terraced tracks emerging from dykes at points of intersection
(For reference see Fig. 21)

(3) Reference has already been made to the univallate example on Alfriston Down, and to the way in which the bank changes from one side of the ditch to the other when the cross-gradient changes (Fig. 21). A very long terraced track emerges from the southern end of the ditch to run along the flank of France Bottom; at its northern end the dyke terminates just above an engineered terrace-way of Roman type that descends the escarpment obliquely towards Winton.

¹⁵ *Sussex Arch. Coll.*, LXIII, 45; LXXIII, 169; 6 in. O.S., Sussex, 50 N.E.



REFERENCE

- | | | | |
|--|--------------------------------------|--|---------|
| | BANK | | DITCH |
| | UNIVALLATE EARTHWORK | | |
| | BIVALLATE EARTHWORK | | |
| | TERRACE-WAY | | |
| | TERRACE-WAY, PROBABLE
(MUTILATED) | | CONTOUR |
| ARROWS INDICATE DIRECTION OF
FALL OF GROUND ACROSS E'WORK | | | |

Fig. 21. Alfriston Down : univallate cross-ridge dyke and terraced tracks ; position of bank changing as cross-gradient changes

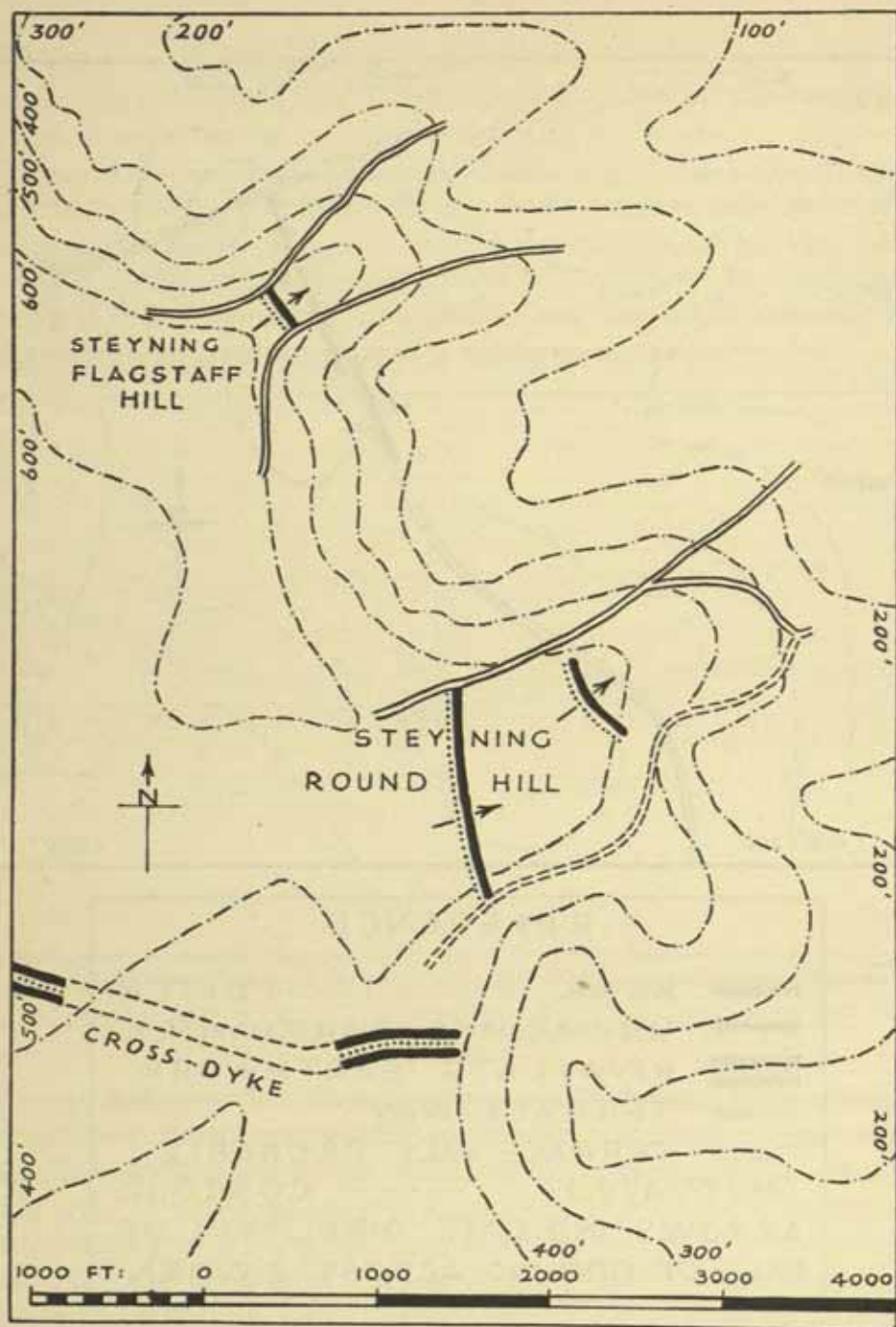


Fig. 22. Relation of univallate spur-dykes to terrace-ways ascending escarpment near Steyning
(For reference see Fig. 21)

Related in some way to the cross-ridge dykes are three long wandering ditches of bivallate or univallate form but of very much larger cross-section, viz. (1) on Rewell Hill, Arundel¹⁶; (2) the War Dyke in Arundel Park¹⁷; and (3) on the southern foot of Steep Down, Lancing.¹⁸ Though sometimes they take curious and unexpected courses yet, taken as a whole, no suggested function but that of a road of some kind seems adequate to explain them. Space does not permit of further discussion of these earthworks here, but they seem clearly to belong to the same class as the cross-ridge dykes.

Another class of earthwork that seems to be related to the cross-ridge dykes—or, at any rate, is easily confused with them—is one which comprises univallate dykes which run across the necks of short, steep spurs projecting from the northern escarpment. Ostensibly these dykes, which always have the ditch up-hill and on the side of the bank remote from the spur, look like the defences of promontory forts—which indeed they may be. But the spurs in question usually slope fairly rapidly down from the main ridge and would scarcely be tenable against an enemy attacking from thence, and they would in any case be unlikely, though not impossible, sites for habitation or refuge. Moreover, if these “spur-dykes” had been intended to defend the spurs one would have expected some kind of entrance to have been provided for access through the dyke to the spur, but such appears not to have been the case. Another curious feature is that the six spurs¹⁹ which are furnished with these dykes are not only limited to the 14-mile stretch of Downs between the River Adur on the east and the Petworth-Chichester road on the west, but they are divided into three groups of contiguous spurs—two above Steyning,²⁰ two near Storrington,²¹ and two near Bignor.²² In two instances a single spur has two dykes across its neck separated by a space, in

¹⁶ *Sussex Arch. Coll.*, LXI, 26.

¹⁷ *Sussex Arch. Coll.*, LIX, 40, with plan.

¹⁸ *Prehistoric Sussex*, 124.

¹⁹ Excluding Bow Hill, which may be a special case; see *Prehistoric Sussex*, 140-1.

²⁰ 6 in. O.S., Sussex, 51 S.E.

²¹ 6 in. O.S., Sussex, 50 N.E.

²² 6 in. O.S., Sussex, 49 N.E.

one case 250 yards, and in the other 500 yards. In each case the dyke that is higher up and nearer the main part of the hill is larger than the one which is lower down the spur. Another feature which may suggest a connecting link between some spur-dykes and the cross-ridge dykes is the fact that dykes crossing the necks of the two spurs near Bignor (Burton Down and Sutton Down) each have a small accessory ditch and bank, suggestive of a hedge-bank, placed immediately behind and below the main bank, while one of the

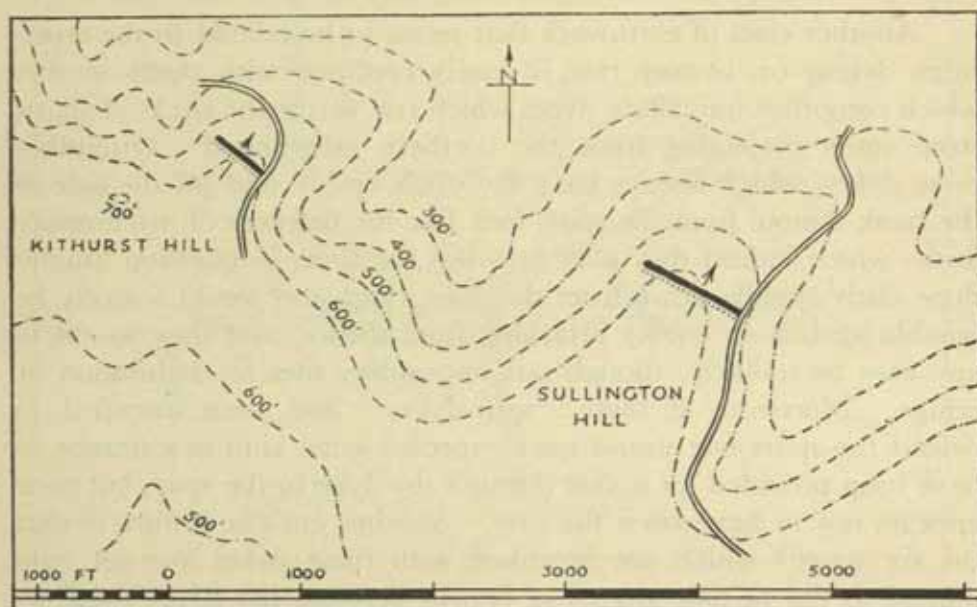


Fig. 23. Relation of univallate spur-dykes to terrace-ways ascending escarpment near Sullington
(For reference see Fig. 21)

cross-ridge dykes in the western group on Heyshott Down has just the same feature at the foot of its larger bank.²³ On the other hand, while it is possible that the spur-dykes crossing the relatively long spurs of Burton and Sutton Downs might have served as "covered ways" between three neighbouring valleys, such use is most improbable in the case of the other spur-dykes. Here the barrier or

²³ *Sussex Arch. Coll.*, LIX, 48 and pl. VI.

toll-bar theory may be more applicable, for these dykes might have been intended to control traffic ascending the escarpment by means of terraced tracks climbing the flanks of the spurs. In the four instances between Steyning and Storrington the spur-dykes end on ancient tracks of this kind (Figs. 22, 23).

This article has been written in order to draw attention once more to the chief features of these puzzling earthworks—perhaps the most puzzling element of that culture to which we owe the Celtic field-system. The solution will only be found after more work has been done on them in other counties, and it is my hope that this brief account may help to bring this about.

SOME ARCHAIC FORMS OF AGRICULTURAL TRANSPORT IN ULSTER*

BY E. ESTYN EVANS

THE methods by which people move themselves and their possessions provide a convenient measure of the complexity of their civilization. By this standard, if by no other, there are some Irish communities which must be classed as primitive, where the wheel has hardly penetrated and where woman, the bearer of children, was also the bearer of burdens until the ass came to her rescue during the course of the nineteenth century. While the little ass was conquering Ireland, apparently *via* Scotland,¹ the spoke-wheeled Scottish cart was invading the island from the same quarter,² slowly replacing the block-wheeled Irish car which seems to have become general from the late XVIIth century in all but the most backward parts and which, in turn, was preceded by the slide-car and the sled.

It seems a far cry from the humble Irish "wheel-car" to the legendary chariots of the conquering Celtic horsemen, but the wide gap was partly filled by successive intrusive cultures bringing other types of wheeled vehicles which equally failed to survive in the Irish environment. Arthur Young records that improving landlords tried unsuccessfully to introduce English waggons on their estates in the XVIIIth century.³ Social and economic conditions, as well as

* I have restricted the title to and drawn most of my examples from Ulster because I am most familiar with that province, but the general statements will apply to Ireland as a whole.

¹ J. P. Mahaffy, "On the Introduction of the Ass as a Beast of Burden into Ireland," in *Proc. Roy. Irish Acad.*, XXXIII (1916-17), 530-8.

² I. J. Herring, "The Scottish Cart and its Contemporaries, circa 1800," in *Ulster Jour. of Arch.*, 3rd ser., VII (1944), 42-6.
In Ulster, the Irish wheel-car first came into extensive use for carting linen to and from the bleach-greens. See R. J. Welch, "Primitive Transport in Ireland," in *The Irish Naturalists' Jour.*, I (1925), 34-5. Welch records a specimen in use on Black Mountain, within the city boundary of Belfast, as late as 1914. The wheel-car had apparently not reached north-west Donegal by 1837. See Lord George Hill, *Facts from Guvedore*, 5th ed. (1887).

³ A. Young, *A Tour in Ireland*, 1776-79 (1780).

PLATE II



A



B



C

A. Roller slipe carrying peats across a bog. Co. Antrim.

(Photo. : W. A. Green)

B. Block-wheeled car, slide-car for corn, and slipe. Glenshesk, Co. Antrim.

(Photo. : R. J. Welch)

C. Slide-car with turf-creel and straw-harnessed pony. Glendun, Co. Antrim.

(Photo. : R. J. Welch)

difficulties of terrain, have favoured small vehicles—the slide-car and its derivative the one-horse cart, which in various forms is universally employed for agricultural transport. Here and there, however, the slide-car precariously survives, side by side with other simple transport devices which will first be discussed.

The carrying net, to judge by its simplicity and wide distribution among the world's food-gatherers, is the most primitive of all transport agencies. Nowadays the reticule, like the shopping-basket, has urban associations, but the versatile basket has many agricultural uses, notably in handling Ireland's most typical products, turf and potatoes. Basket-making appears to be most vigorous along certain rivers, lakes and sea coasts where early settlement is archaeologically attested, and a hint of the mesolithic origin of the coiled baskets used in the Aran Islands to carry food to field-workers is to be found in the bone pin employed in their construction.⁴ Larger baskets or creels are to be distinguished from hand baskets both in their method of construction and in their uses. They are made in a fixed position, the standards being stuck in the ground, as for the framework of the Boyne coracle. The back basket, slung from the shoulder, is employed where conditions make animal transport difficult or impossible, for example in gathering sea-weed on rocky shores or carrying turf (peat) from the drying-fields to the stacks. This work is often done by women and children. The hand-barrow, crudely made examples of which serve with surprising efficiency on mountain farms, finds its most regular use among fishermen for transporting nets to the boats, but a special variety, fitted with a large creel, is utilized by turf carriers in Co. Armagh.⁵ Large hand-barrows carried by six men and capable of moving half a ton are said to have been employed by famine-wall builders a century ago in the Mourne Mountains, Co. Down.

An even simpler device is the burden rope used for carrying hay, rushes or whins (gorse). The ropes may be made of straw, tough grasses, rushes, tow, horse-hair, or the twisted fibres of bog fir. Under

⁴ E. E. Evans, *Irish Heritage* (1942), 128, Fig. 77.

⁵ *ibid.*, 140, Fig. 91.

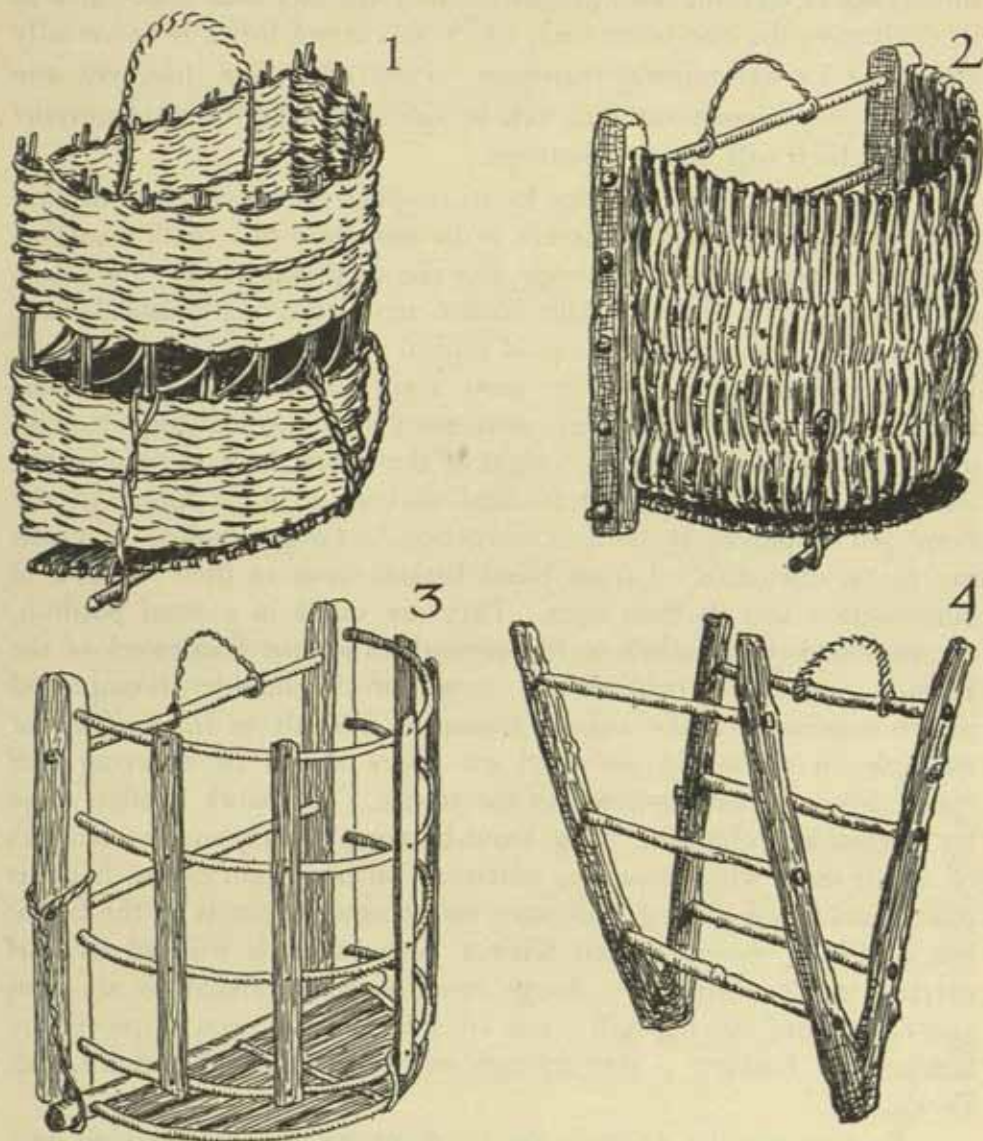


Fig. 24. Ass-creels with slip-bottoms (1-3) and wood-carrier (4)

- | | |
|---------------------------|--|
| 1. Co. Galway (for turf) | 2. Co. Fermanagh (for farmyard manure) |
| 3. Co. Down (for seaweed) | 4. Co. Cavan (for firewood) |

(The height in all cases is approximately 18 ins.)

the stimulus of the peasant practice of "striving" or "camping,"⁶ enormous loads are still sometimes transported in this way. One of the methods of lifting the burden has been described to me as follows: passing the looped rope around the load, the bearer will throw himself on his back on top of it, kick his heels into the air to jerk himself up, and stagger along almost completely concealed. Similarly harvest sheaves have been seen piled on a pony's back "so that they resemble walking straw-stacks."⁷ In Co. Fermanagh, and probably in other districts, a ring of straw analagous to the porter's carrying pad is placed on the back of an ass or pony to steady a sack of corn or a bundle of hay. The ring, some 15 in. in diameter, is known as a "suggan," a term more generally applied to the straw rope which serves a multitude of purposes about the farm.

Women have taken their full share of burden-bearing in spring, when the men were busy with spade and horse work; and the carrying of manure in back-baskets seems to have been their special task. So it was in the Scottish Highlands, where "square wickerwork panniers with slip-bottoms"⁸ were formerly employed. Similar creels with hinged bottoms, known in Co. Fermanagh as "bardogs," are nowadays hung in pairs from a donkey's straddle or crutch (Fig. 24). They are used not only for farm-yard manure but, around the coasts, for wrack also. Manure panniers of this type are recorded from XVIIIth century Devon.⁹ Turf creels, of much the same pattern, normally lack the hinged bottom. A specialized wooden frame for carrying faggots on the straddle is illustrated in Fig. 24, 4, from Co. Cavan. Devices for transporting cans of milk or water by pack animal are used in the same county. Water carrying in fact absorbs a good deal of woman's time, particularly in limestone districts where the well may be half a mile from the house. Where supplies must be trans-

⁶ These words are applied to the intense rivalry which was traditional among bands of workers engaged on a common task, such as reaping, flax-pulling or turf-cutting. It was associated in harvest with the custom of cutting the last sheaf, which, whatever its origin, had come to serve as a stimulus to the harvesters.

⁷ Browne, "The Ethnography of Inishbofin and Inishshark," in *Proc. Roy. Irish Acad.*, 3rd ser., III, 317-370.

⁸ Hugh Miller, *My Schools and Schoolmasters* (1857). Cf. (Captain Burt) *Letters from a Gentleman in the north of Scotland* . . . in 1730, 3rd ed. (1822), Vol. II, 44, where harvesting and manure-carrying in back-baskets are described.

⁹ M. E. Seebohm, *The Evolution of the English Farm* (1927). They are in common use in parts of Spain.

ported for livestock a barrel fitted on a sled is sometimes used, a contrivance found also in Sweden.¹⁰

The wheel-barrow in its most characteristic Irish form, without sides, is also pressed into service for conveying milk cans or supplies of water, but its chief function is to transport freshly-cut turf from the bog-face to the spread-field. This is the turf-barrow that Crawford photographed in Co. Monaghan some years ago and published in *Antiquity*.¹¹ Almost every bog has its own style of barrow, adapted in detail to varying surface conditions and to different methods of

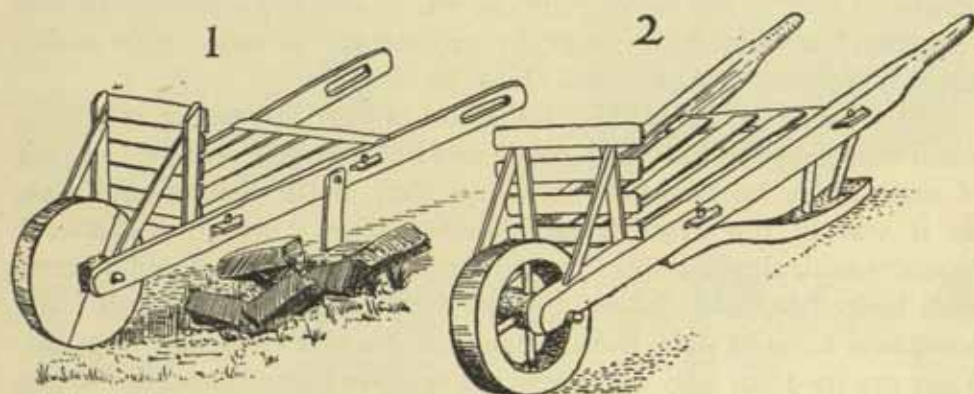


Fig. 25. Turf-barrow

1. Co. Antrim

2. Co. Donegal

cutting, loading and spreading the turf, but the general principles governing its construction are clear. The body is low and flat to facilitate loading and unloading, which involves tipping the barrow so that the turves are unbroken. It must be as light as possible: no iron is used apart from a thin tyre on the broad solid wheel or "trundle." If the condition of the bog makes an exceptionally large and wide wheel necessary, it may be lightened by being spoked (Fig. 25, 2). Legs are short and often become mere lugs, permitting the barrow to be swung sideways by the turf-cutter for his convenience when loading direct from the cutting-face. On some very soft bogs

¹⁰ Gösta Berg, *Sledges and Wheeled Vehicles* (1935), pl. X, 3.

¹¹ *Antiquity*, Dec. 1936, 463, pl. 1.

curved runners take the place of legs (Fig. 25, 2) : the result is a hybrid comparable with the wheeled sledge of Scandinavia,¹² Wales¹³ and other parts of Western Europe. Although I have not seen the wheeled sledge in Ireland, the simple two-runner sled or "slipe" to be discussed later is sometimes employed for turf-transport, and an interesting variant is the roller-slipe. It was to be seen until recently in Co. Antrim and I have heard of it also in Co. Meath.

The roller-slipe (Plate II A) has considerable interest for students of transport typology, but it would be rash to make extravagant claims for it as a survival of the pre-wheel stage. It would appear to be designed to meet the specialized needs of transport in damp bogs, adapting the principle of the loose log roller commonly employed for shifting heavy boats or large stones. I have not been able to trace parallels to this roller-vehicle. It is true that Hugh Miller, describing conditions in Cromarty in the late XVIIIth century, writes of "basket-woven conical carts with rollers of wood, for bearing out the manure in Spring," but although he goes on to say that "there was not a wheeled cart in the parish,"¹⁴ I cannot feel entirely satisfied that his "rollers" were not disc-wheels. Miller, however, was a trained and accurate observer, and his roller carts would come close to the sought-for prototype of the wheel in north-western Europe.¹⁵ Pseudo roller-carts, as Haddon pointed out,¹⁶ are frequently seen in Ireland : they are ordinary carts, or alternatively platforms capable of holding heavy stones, fitted with wooden field-rollers to which they impart added weight.

The sled or "slipe" to which reference was made above is in very general use throughout Ulster, in lowland farms as well as in mountain districts. It is mainly employed for moving heavy stones, but serves also for conveying farm implements to the fields. In many parts, however, a special "slide" is made for transporting the

¹² Gösta Berg, *op. cit.*, chap. VII.

¹³ Cyril Fox, "Sleds, Carts and Waggon," in *Antiquity*, June, 1931, 185-199.

¹⁴ Hugh Miller, *Scenes and Legends of the North of Scotland*, 2nd ed. (1850), 422.

¹⁵ A. C. Haddon, *The Study of Man* (1908). See also J. L. Myres, "Nomadism," in *J. Roy. Anthrop. Inst.*, LXXI (1941-2), 19-42.

¹⁶ Haddon, *op. cit.*, 177.

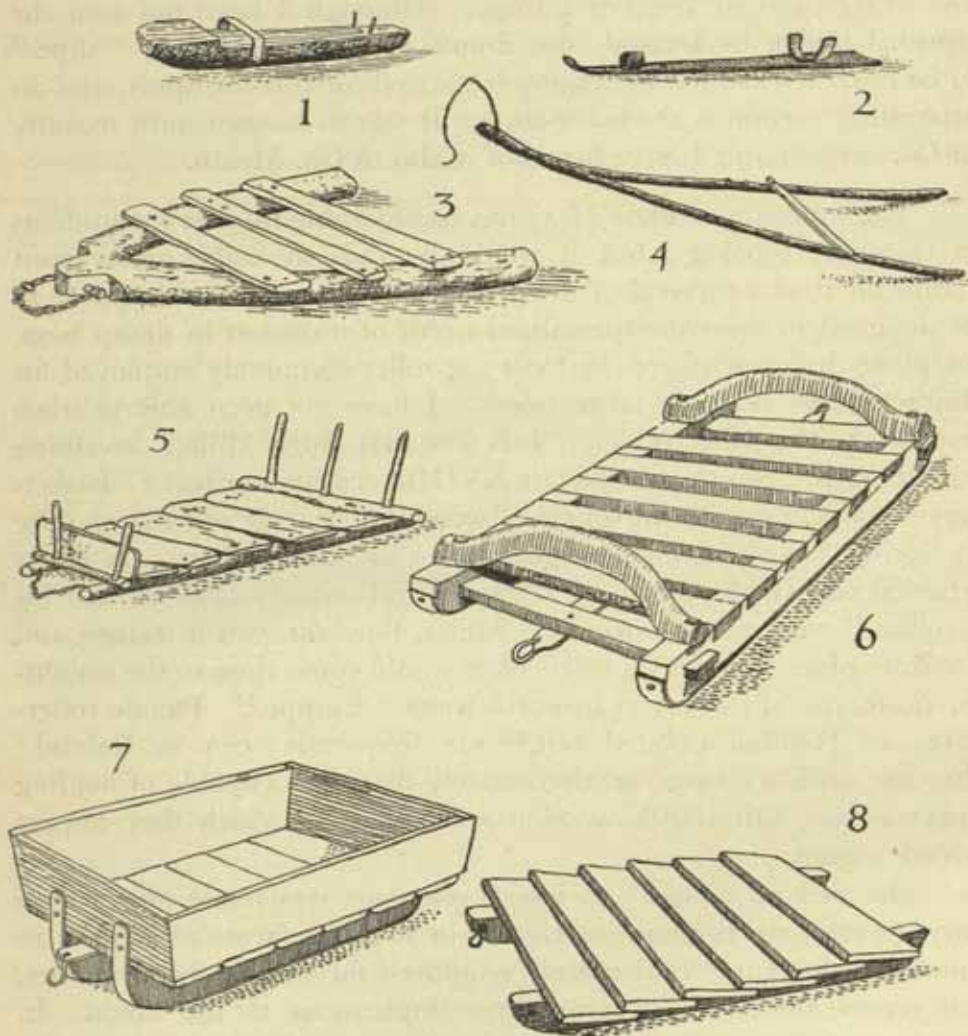


Fig. 26. Slipes

- | | |
|-----------------------------------|--|
| 1. Plough-slide, Co. Tyrone. | 2. Iron plough-slide, Co. Down. |
| 3. Forked slipe, Co. Antrim. | 4. Forked slipe (for man-haulage), Co. Antrim. |
| 5. Simple flat slipe, Co. Antrim. | 6. Stone slipe, Co. Antrim. |
| 7. Box slipe, Co. Down. | 8. Clod slipe, Co. Down. |

(The length of the largest examples figured is 5 ft.)

wheel-less plough (Fig. 26, 1). It closely resembles the English example illustrated by Stevens,¹⁷ and the Swedish plough-runner figured by Berg and equated by him with the single-runner sledge or guide-runner.¹⁸ Danish and Latvian examples are also cited. The Irish slide is made out of a length of a small tree trunk, split longitudinally: slide-car runners are made in the same way. A simple iron runner has taken the place of the wooden slide in some parts of Ulster. I illustrate an iron plough-slide from Co. Down (Fig. 26, 2).

A more primitive version of the platform slipe is the forked runner sled, prepared from a suitable tree such as holly¹⁹ by nailing a few boards or branches across the fork and trimming the end for attaching a drag chain (Fig. 26, 3). I have seen a much lighter forked vehicle, for human haulage, employed for dragging two or three bags of turf down a mountain track (Fig. 26, 4), but the forked sled seems to be almost exclusively used for hauling stones. In addition to its great natural strength and ease of loading, it has the advantage that it can be hauled over trackless boulder-strewn hillsides, where it will to some extent make its own path. The forked sled, which the Abbé Breuil claims to have identified on Iberian sculptured stones of the megalithic period,²⁰ is doubtless the ancestor of the platform sled, and the present-day utilisation of similar though larger triangular sleds for transporting monoliths in Assam²¹ strengthens the probability that the forked sled played a similar role in megalithic Europe. The question of man haulage raises no difficulties: in Assam "enough ropes are provided to enable large numbers of men to pull . . . and as many as a hundred pullers may work on one rope."²² Berg cites examples of the forked sled from south Sweden and many other parts of northern and western Europe.²³ Its dis-

¹⁷ H. Stevens, *The Book of the Farm* (1851), Vol. II.

¹⁸ Gösta Berg, *op. cit.*, pl. I, 5.

¹⁹ Cf. the use of holly for false-keels fitted to inshore fishing boats in Co. Down. It is said greatly to ease the task of hauling in the boats. Maine fishermen attach the same virtue to maple.

²⁰ H. Breuil, *Les Peintures rupestres schématiques de la Péninsule ibérique* (1933-35), Vol. II, 63-4.

²¹ J. H. Hutton, "Assam Megaliths," in *Antiquity*, III (1929), 324-38, pl. XI.

²² Hutton, *loc. cit.*

²³ Berg, *op. cit.*, pl. X, 1 and Fig. 31.

tributational correlation with areas of megalithic culture may be significant.²⁴

Some roughly-made two-runner slipes taper to the front (Fig. 26, 5 ; see also Plate II A) in a way which suggests derivation from the forked slipe, but the usual type is rectangular and shod with iron (Fig. 26, 6). These slipes may have uprights or end-boards inserted at front and rear to support loads of turf or timber, but when loose material is to be transported the box slipe is used (Fig. 26, 7). This vehicle has deep runners set close together for ease of tipping its load of soil, gravel or manure. With it soil is traditionally transported in spring, during the preparation of the seed bed, from one part of the field to another, for example from the lower side of sloping fields to the top. Soil is also spread on any rock outcrops which ploughing and erosion have revealed, and it is often slipped, even on level fields, from the headlands towards the centre. These practices are now confined to hilly and backward districts, but more widespread is the hauling of manure to the fields with the box slipe. The Scandinavian dung-sleds are similarly constructed, but the body is concave and may point to derivation from a dug-out trough.²⁵ Boat-shaped dug-out manure sleds are in fact known from Finland, Hungary and Spain.²⁶

I think it probable that the Irish box-slipe has been similarly evolved from the dug-out sledge, borrowing runners perhaps from the platform slipe. In this connexion reference should be made to a number of problematical dug-out vessels from Irish bogs which, while they must be classed as boats, seem also from their small size and perforated ends to have been designed for dragging. Such amphibian vessels would be well adapted to the lake-strewn boggy country which covered much of ancient Ireland. I may cite the dug-out recently recovered from a bog at Dullaghan, Co. Tyrone,²⁷

²⁴ Cf. the distribution of corbelled beehive huts. Examples from the French Massif Central are strikingly similar to Irish specimens. See F. Henry, "Early Irish Monasteries, Boat-shaped Oratories and Beehive Huts" in *Co. Louth Arch. Journ.*, XI (1948), 295-304. The forked sled may be seen in frequent use on farms in the Dordogne.

²⁵ Gösta Berg, *op. cit.*, pl. VII.

²⁶ *ibid.*, 25.

²⁷ J. M. Mogeey in *Ulster Jour. of Arch.*, 3rd ser., Vol. IX (1946), 69-76.

and a boat-shaped "cradle" from Carney Hill, Finvoy, Co. Antrim.²⁸ Dug-out trunk-sledges are known in the Samoyed and Ostiak cultures, and the Lapps also use them.²⁹ Boats fitted with runners for portage have been described from South America.³⁰

Another version of the slipe is used in some districts for carrying the large cocks (ricks or huts) of hay or corn which is left to mature in this form in the harvest fields. The rick-slipe consists of a large platform fitted with two runners and having a hinged rear-board to facilitate the sliding of a complete cock on to the slipe. The developed "rick-shifter," however, is fitted with a windlass and mounted on a pair of small wheels. But one frequently sees hay being slipped to the haggard by the simple expedient of passing a rope round the cock and dragging it along much as the Eskimo seal-hunter will trail home his prey.³¹ Alternatively a single runner may be inserted under the cock to assist in the sliding: in North Antrim a long iron runner, upturned at the rear so as to grip the load, is used for the purpose.

Finally a curious slipe-like implement made for the special purpose of crushing clods is worth recording. I have seen it only in Co. Down, where it is termed a "slipe." The runners are provided merely for the convenience of transporting it from farm to field. Its heavy platform is constructed of strong boards set crossways and overlapping like the planks of a clinker-built boat (Fig. 26, 8). Again we find Scandinavian parallels: both clod-crushers and harrows fitted with runners are known from Sweden.³² No doubt the clod-slipe, as we may call it, is a specialization derived from the platform slipe. Seebohm refers to an XVIIIth century Yorkshire custom of drawing a sled sideways to smooth the surface of meadows or to spread dung.³³

²⁸ In Belfast Municipal Museum (unpublished).

²⁹ Gösta Berg, *op. cit.*, Fig. 8, pl. II, 1, 2. For Scottish evidence see James Ritchie in *Proc. Soc. Ant. Scot.*, LXXVI (1941-42). See also R. U. Sayce, "Canoes, Coffins and Cooking-troughs" in *Proc. Soc. Ant. Scot.*, LXXIX (1944-45), 106-111.

³⁰ E. Nordenskiöld, *Modifications in Indian Culture through inventions and loans* (1930).

³¹ K. Birket-Smith, *The Caribou Eskimos* (1929).

³² Gösta Berg, *op. cit.*, 81.

³³ Seebohm, *op. cit.*, 305.

The Ulster wheel-less car or slide-car was discussed half a century ago by Haddon, who pointed out its ethnological interest and evolutionary significance.³⁴ He was not aware of the wide distribution of the slide-car in the Old World, and his suggestion that it was the forerunner of the single-horse cart seems to have been anticipated by von Knorring, who had made similar observations on the Finnish slide-car over a century ago.³⁵ Thanks to the extensive researches of Gösta Berg we now have a far wider geographical background against which to set the problem of the slide-car and the wheel. Briefly stated, the distribution of the slide-car extends from Highland Britain and the Baltic lands through the mountain belt of east-central Europe to the Ukraine and Great Russia, and eastwards through Siberia to China, Siam and the Indian Deccan. Berg's conclusion, based on this peripheral distribution and on historical and technical evidence, is that while Haddon's view of the evolution of the single-horse cart from the slide-car is indisputable, that evolution took place, not in the British Isles, but in remote times in the interior of Asia.³⁶ He does not, it seems to me, make sufficient allowance for the independent discovery of the wheel from the log-roller in north-western Europe, but we are not concerned to go into these larger questions here. It will serve a more useful purpose to discuss the types and functions of the Ulster slide-cars, "strange survivals," in Haddon's words, "from the twilight of history."

There is a tendency, especially among historical writers, to express surprise at the persistence of this primitive vehicle into the XVIIIth or early XIXth century while ignoring its contemporary survival, yet the slide-car can be studied in the field and not merely in documents. Despite its admirable suitability to the transport needs of peasant farmers on steep hillsides, however, the Ulster slide-car is not likely to survive much longer except in a state of final degeneration, and it is therefore important to gather together and record such information as can still be gleaned.

³⁴ A. C. Haddon, *op. cit.*

³⁵ F. P. von Knorring (1833), quoted in Berg, *op. cit.*, 129.

³⁶ Gösta Berg, *op. cit.*, 140. The cart with shafts evolved, according to de Haudricourt, in South Russia. See Footnote 50.

I have seen the slide-car in operation not only in Co. Antrim, in the deep glens of the east coast where Haddon came across it, but also in Tyrone, Londonderry, Fermanagh, Cavan and Donegal, and I have little doubt that some trace of it could be found in the other three Ulster counties if persistent enquiry were made. At any rate there can be no doubt that, as historical record and folk memory alike testify, slide-cars were in regular use in all but the most improved parts of Ulster down to the Great Famine of a century ago,³⁷ a crisis which has been well described as the end of the prehistoric era in Ireland. In localities where they are almost completely forgotten a rough slide-car may still be hastily knocked together for some special purpose and then thrown aside to fill a gap in a hedge, a function served by outworn farm implements of all kinds. But where they are in regular seasonal use they are more elaborately made and fall into several types, forming a standard part of the material equipment of the farm.

The Glens of Antrim slide-cars show least decline. They are invariably fitted with runners or "shoes," made out of a split branch about 2 ft. long and secured to the ends of the shafts with a wooden pin and an iron ring known as a "bowman." They can thus be readily replaced when worn out. The Tyrone-Londonderry-Donegal slide-cars also have shoes: in Tory Island they are said to be unusually "long and slanting."³⁸ The shoe is known in Co. Tyrone as the "spag." The Fermanagh-Cavan slide-cars have no runners, but they are altogether more roughly made and degenerate and they may have lost this original feature. It must be observed, however, that neither the Welsh³⁹ nor the Scottish⁴⁰ examples of slide-cars which have been published have shoes. Long runners occur in one Swedish example figured by Berg,⁴¹ but most of his illustrations do not show them. It is not clear what significance the runner has, for example whether it should be considered as a relic of the sled-runner, but it would seem to be a characteristic feature of the Ulster slide-car.

³⁷ And in the mountainous parts of the other Irish provinces.

³⁸ *The Irish Naturalist*, XIX (1910).

³⁹ See a sketch by W. F. Grimes, Fig. 2 in Fox, *loc. cit.*

⁴⁰ Illustrations in Haddon, *op. cit.* See also A. Mitchell, *The Past in the Present* (1880), 76.

⁴¹ Berg, *op. cit.*, pl. XX, 1.

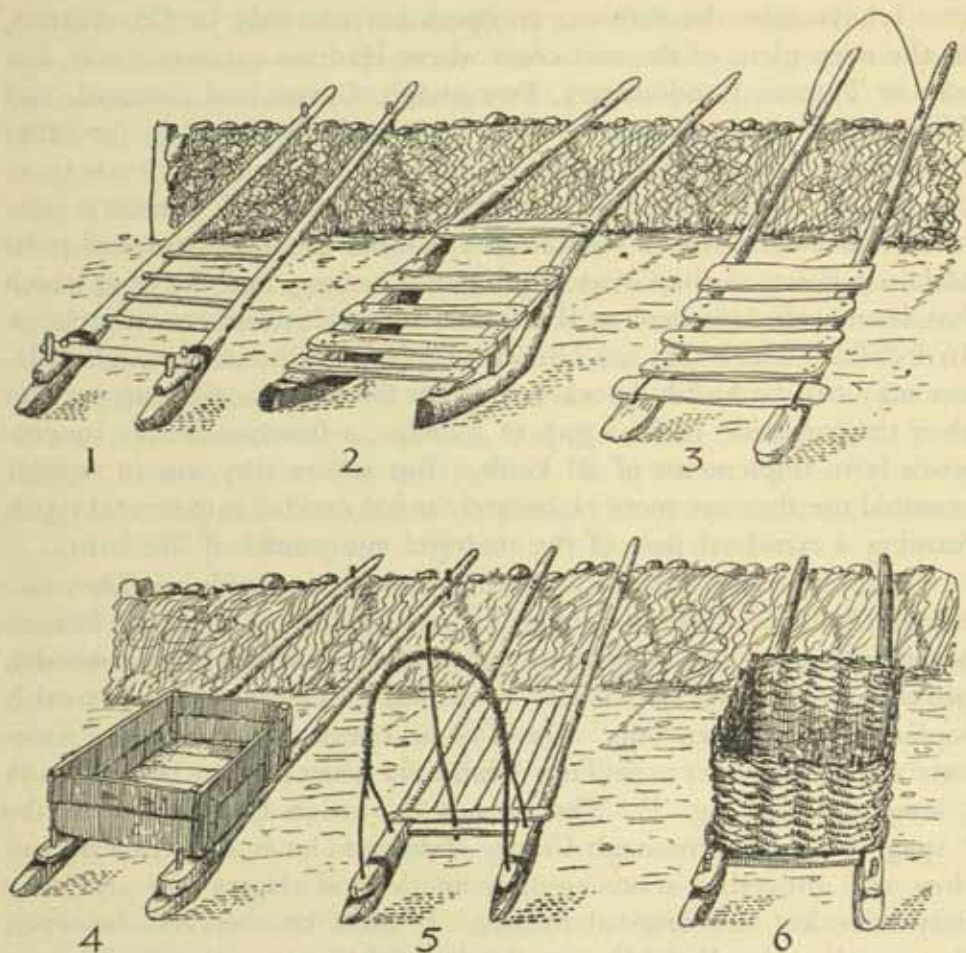


Fig. 27. Slide-cars

1. Glens of Antrim (normally used with creel : see No. 6). 2. South Fermanagh. 3. West Cavan.
4. Box slide-car. 5. Corn slide-car. 6. Turf slide-car, 4-6 Glens of Antrim.

I have not seen a man-hauled slide-car in Ireland, excepting the forked turf-carrier shown in Fig. 26, 4. The rod-frame for holding the load on a Swedish man-hauled hay-slide⁴² is curiously paralleled in the Antrim corn-slide (Fig. 25, 5 ; Plate II B). A hooped osier frame is found also in Finland,⁴³ and the side-supports on the Welsh slide-

⁴² Gösta Berg, *op. cit.*, pl. XX, 2.

⁴³ *ibid.*, 134.

car are very similar, though translated into iron.⁴⁴ The Ulster slide-car in its simplest form (Fig. 27, 1-3) may be used for carrying stones, but it would seem to have no advantage and some disadvantages for this purpose when compared with the slipe.⁴⁵ These cross-slatted slides are variants of the basic unit of the Glens slide-car (Fig. 27, 1) the function of which is to support a large creel or "kish" which is lashed on (Fig. 27, 6; Plate II c). Its main purpose is to carry turf from the mountain bogs down steep tracks to the valleys: a typical creel will measure 5 ft. by 3½ ft. A smaller creel (4 ft. by 3½ ft.) is kept for transporting manure to the fields. It is interesting to note that the ass, popularly regarded as ubiquitous in Ireland, has not succeeded in fully establishing itself in the north-eastern counties, probably for climatic reasons.⁴⁶ It is a rare animal in nearly every district where the slide-car survives, and it is possible that the creel-ass has ousted the slide-car as turf and manure carrier in other parts of Ireland.

The box slide-car (Fig. 27, 4) may be an old variant of the box-slipe, or merely a modern substitute for the kish, the art of making which is fast decaying. Similarly the rod-frame of the corn-slipe is almost forgotten, a few standards lashed together taking its place. In these and other ways the slide-car is steadily degenerating: it is already almost too late to secure a full series for preservation in a Folk Museum.⁴⁷ The skilfully made straw harness of the slide-car pony (Plate II c) is no longer to be found. Dying also is the folk-lore of the slide-car, with whatever light it may throw on former customs and usages. Unfortunately the practice of moving to summer pastures (booleying)⁴⁸ has decayed so long ago in these areas that the use of the slide-car for transport between the permanent and seasonal

⁴⁴ Illustrated in Fox, *loc. cit.*, Fig. 2.

⁴⁵ I am unable to say whether the curved shafts of No. 2, made by splitting a suitably shaped branch, represent an old and recognized type or should be regarded as someone's "invention." The Irish countryside often throws up an ingenious handyman who delights in modifying and experimenting with old devices, often to the confusion of the unwary field-worker.

⁴⁶ J. P. Mahaffy, *loc. cit.*

⁴⁷ Some dimensions may be given. The length of a typical specimen is 10 ft.; width between shafts (at front) 2 ft.; (at rear) 3½ ft. Larger examples may be up to 12 ft. long, while 8 ft. poles will suffice for a small pony.

⁴⁸ E. E. Evans, *op. cit.*

dwellings cannot now be proved, but I think it is safe to assume that, as in Scandinavia, this was a characteristic usage. At the present time the Irish slide-car is almost exclusively kept for drawing turf from the mountain bogs. I have not seen it employed for carrying hay, one of its principal functions in Sweden, as in parts of Wales, but it may have been so used before rotation grasses were sown for hay, when the crop was saved from mearings and marginal tracts.

While a discussion of wheeled vehicles would be out of place here, a few observations may be made on the now nearly obsolete block-wheeled carts variously known as Irish cars, wheel-cars, clog cars or low-backed cars (Plate II B). They grade into larger spoke-wheeled carts of many designs and specializations, but the essential difference lies in the revolving axle, bearing disc-wheels which lie between the shafts under the body. Most writers on the subject have regarded the block-wheeled car as an intermediate stage between the slide-car and the spoke-wheeled cart, and we may accept this view without committing ourselves as to the time or place of the evolutionary process. Much more archaeological evidence, from bog-finds for example, is needed before the history of the block wheel in the British Isles can be written. If rollers had been employed with slide-cars the impact of the spoked wheel, coming with continental invaders, may well have resulted in the modification of the roller into the solid wheel with rotating axle.

The Irish car lives on partly because its construction and cost are within the capacity of poor peasant communities. Under certain environmental conditions, however, the block-wheeled car has certain advantages which explain its survival. It will carry much larger loads than the slide-car on steep mountain tracks where ordinary spoked wheels could not be used. Its chief advantages lie in the strength of the small solid wheel and in the rotating axle which permits one wheel to act as a brake on the other. The whole outfit is sturdy yet light and will take a toss without coming to harm.

The shafts of the car, strongly reminiscent of the shafts of a slide-car, widen from about two feet apart at the front to four feet at the rear, where they project as "trams," a feature of all types of

Irish carts. To escape the wheels, and also to provide a fairly level floor, the body of the car is lifted on struts at the back. The wheel is little more than two feet in diameter and the rim is from two to two and a half inches wide. It is generally shod with a hoop, like all Irish wheels, but I have seen examples in Co. Down shod with two strakes. The three segments of the wheel, made of ash or sycamore, are dowelled together like the head of a barrel. To give extra strength and a better grip for the 2-inch square iron axle, which is tightened through the wheel with four wedges driven into a square iron box, the outside of the wheel, in Co. Down at any rate, thickens towards the centre, where it is five or six inches through.

The spoked wheel came into general use in Ireland during the course of the XIXth century, when suitable roads were already in existence. Consequently the spoked wheel is relatively light and has little dish; and the block wheeled car has been able to hold its own, for the specialized purpose of turf carrying, in the steep-sided valleys of the Antrim Plateau, in the western Mourne Mountains of Co. Down, and in a few other isolated mountain districts.⁴⁹ A full study of these archaic vehicles is urgently needed before their types and lore have fallen into oblivion.⁵⁰

⁴⁹ The example from Co. Monaghan figured by R. H. Lane in *Antiquity*, 1935, 140-150, falls into another class of solid-wheeled carts, also found in Co. Antrim, in which the block wheels lie outside the frame and rotate on a fixed axle. To this class also belong any examples of block-wheeled carts from England and Wales which I have seen illustrated. See for example Fox, *loc. cit.*, and I. C. Peate, "Some Aspects of Agricultural Transport in Wales," in *Arch. Camb.*, XC (1935), 219-38. Berg, however, (*op. cit.*, 119) mentions the former occurrence of carts with revolving axles in Yorkshire and Norfolk. They are described from Norway and Finland, and also from Turkey and China, but are best-known from Spain (the groaning carts).

⁵⁰ Since this article was written a valuable contribution to the subject of ancient vehicles has appeared which utilizes the evidence of "technology, ethnology, archaeology, linguistics and human geography." See A. de Haudricourt, "Contribution à la Géographie et l'Ethnologie de la Voiture," in *La Revue de Géographie Humaine et d'Ethnologie*, I (1948), 54-64. The oldest European carts, he claims, had a triangular body and a draught-pole—shafts not appearing until late Roman times—and the European waggons, evolved in the Hallstatt period, originated as a combination of two such carts. These in turn were derived from the forked slide-car (of which we illustrate a simple man-hauled example in Fig. 24, 4) which may thus lie in the line of evolution from the forked sledge to the two-wheeled cart. It should be noticed that the ox-cart in many parts of India, and also in Sardinia and North Spain, still has a triangular body, often resting on a rotating axle fitted with block wheels.

THE ROUND-CHIMNEYED FARM-HOUSES OF NORTHERN PEMBROKESHIRE

By CYRIL FOX

THE round-chimneyed farm-houses of northern Pembrokeshire have been well-known to students of vernacular building in Britain since Romilly Allen published his classic paper on eight of them nearly 50 years ago.¹ Three more examples have since been located, two of which, Croftufty and Garn, provide me with an opportunity to consider aspects of the problem this house-type presents.²

Croftufty is in Whitchurch parish, 350 yards north of Nine Wells. I visited it in 1942 with the goodwill of the landowner, Mr. Evan Davies, but was not permitted by the tenant to see the whole of the interior.³ The east elevation—now the front—is gaunt; the semi-dormer windows and the flatness of pitch of the limewashed slate roof suggests that an upper floor was inserted in the XVIIIth century, and the front wall raised. The porch and outhouse are obvious additions. On the west side (Plate III, A) an outshut or penthouse, the chimney stack with roofed oven at foot, and a projecting wing diversify the elevation. The sketch plan (Fig. 28) shows that the house is essentially a span-roofed rectangular structure, and that the principal room is in the middle. With its cavernous hearth, its sloping floor partly of rock and partly of slate paving, its slate benches and small deep-set windows this is an unforgettable peasant interior. The ceiling beam and joists are rough work; there was indeed no good craftsmanship to be seen. The present doorway is original, but the main entry to the house was probably, by analogy with other such houses, on the opposite side, providing a through passage now masked by the outshut and by a wooden staircase lighted by the modern

¹ A. Romilly Allen, "Old farmhouses with round chimneys near St. David's." *Arch. Camb.*, 1902, pp. 1-24.

² Two, Treleidyrr and Croftufty, were placed on record in 1940 by Dr. I. C. Peate (*The Welsh House*, p. 158); the third (Garn) was discovered by myself and my wife (1940).

³ Dr. I. C. Peate accompanied me: but for any errors in plan or description I am responsible.

PLATE III



A



B



C

- A. Croftufty, Whitchurch, Pembrokeshire, from the road
 B. Garn, Llanychaer, Pembrokeshire, from the farmyard
 C. Garn : window of "second room," the scullery outshut, base of stack, and wash-house

window seen in the Plate. Croftufty then originally was probably of three-room plan with cross-passage, with no outshut but with one projection, that of the stack.

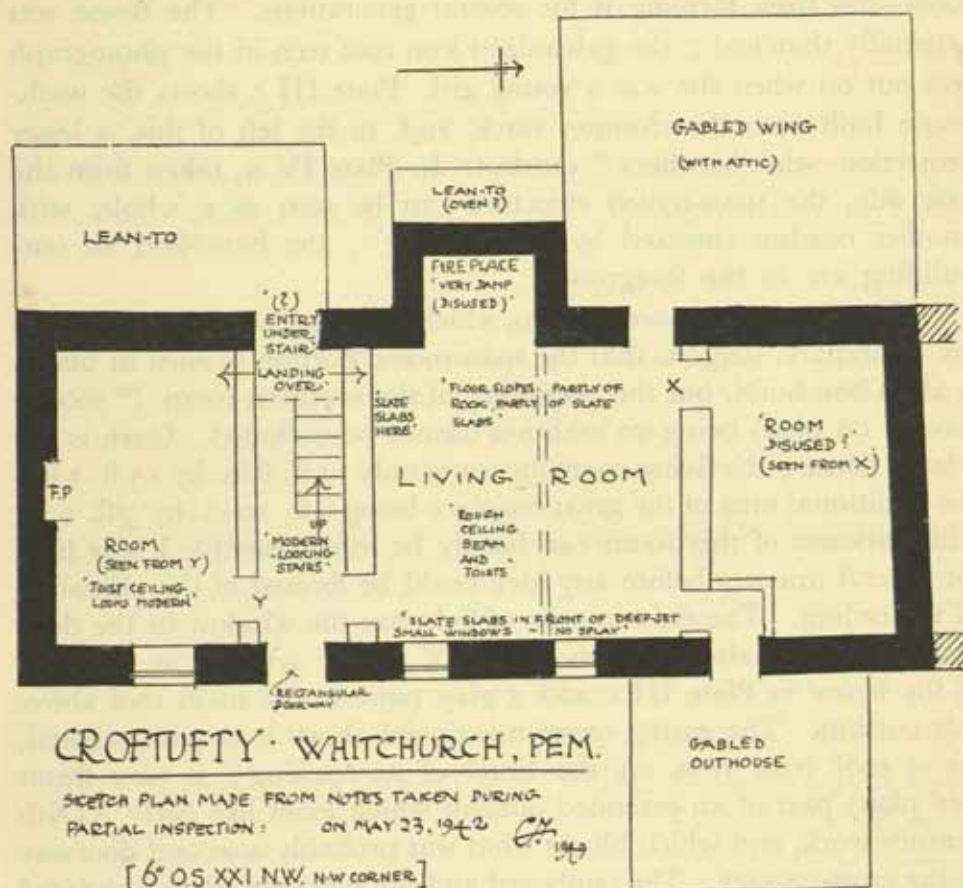


Fig. 28. Croftufty, Whitchurch, Pembrokeshire

The farmhouse of Garn in Llanychaer parish is aligned south-east and north-west down a steepish slope with its principal (north-east) front facing the farmyard. A farm-building—barn with stable—is continuous with the house at a lower level, but there is no inter-communication. Adjacent names on the 6 in. map (10 N.W.)—Garn Wood and Pen-rhiw-garn—illustrate its former importance.

The entrance is beside the white-washed chimney-stack projecting from the house halfway along its length; this is well seen in Plate III B. Mrs. Bateman is the owner of Garn; her family—the surname being Rees—has been farming it for several generations. The house was originally thatched; the galvanized iron roof seen in the photograph was put on when she was a young girl. Plate III C shows the wash-house built onto the chimney stack, and, to the left of this, a lesser projection—the “scullery” outshut. In Plate IV A, taken from the east side, the span-roofed structure can be seen as a whole, with another outshut (masked by the washing); the barn and an out-building are in the foreground.

The plan of the house, Fig. 29, which Mrs. Bateman kindly allowed me to prepare, suggests that the span-roofed portion (shown in black) is all of one build, but the possibility of the southern room (“second room” on plan) being an addition cannot be excluded. Garn is not a large house; the living-room measures only 14 ft. 8 in. by 15 ft. 1 in., the additional area of the great fireplace being 6 ft. 10 in. by 5 ft. 0 in. The darkness of this room can hardly be exaggerated; I was in it for several minutes before any idea could be formed of the character of the ceiling. The only sources of light are the window in the deep recess where meals are taken (Plate IV B), the window at the back of the figure in Plate III C and a glass pane in the main roof above this outshut. The eating recess mentioned above is in part original, for a roof truss rests on the lintel of its opening; it now forms (see plan) part of an extended outshut which looks like early XIXth century work, and which blocks what was probably a second doorway to the cross-passage. The cupboard and the stairs are to be associated with this development. As for the opposite (scullery) recess, this is possibly an addition, for the outer face of its wall is vertical whereas the adjacent house wall has a batter (Plate III C). The lintels of both these recesses are plastered over: they are probably wreckwood: that of the fireplace certainly is, for the trenail holes are visible.

In Mrs. Bateman's childhood this living room was open to the roof; there is now a board ceiling in three planes, the boards in the centre being probably nailed to the collar beams of the roof trusses

PLATE IV



A



B



C

- A. Garn, Llanychaer, Pembrokeshire ; from the back, farm buildings on the left
 B. Garn from the back : on left, outshut ; on right, window of " second room " and slated wall-top
 C. Croft at Lanergill, Caithness

(Fig. 31 c). There are two of these, the room being of three bays; the feet of the principals are visible, springing from the wall below the ceiling. They are not heavy, and are rough in character; but it must be remembered that they only had to support a light roof-covering—thatch. There is a small opening (Fig. 29) in the cross-wall dividing the living room from the passage, near the fire, to enable the master to speak to his man, or to ask a visitor his business. This hole had been blocked, and was recently discovered.

Below the plan, on Fig. 29, an axial section has been drawn; this shows that the fall in the ground level enabled a loft lighted by upper windows—seen in the Plates—to be constructed at the lower end of the house without altering the roof level. The passage, and the room into which one steps down, have accordingly flat ceilings formed by the floor boards of the loft. The unchamfered joists supporting these ceilings run axially from cross-wall to gable wall; the former wall is only 6 ft. high, being surmounted by a wooden partition. Originally the loft was open to the living room and had no partitions of any sort; Mrs. Bateman in her childhood slept there “in the open” with her little brother and sister. The loft then was like those of the Pembrokeshire croft cottages described in 1937,⁴ and the XIXth century wooden stairway may be held to have replaced a ladder, such as has survived to our day in these cottages. A boxed-in principal is seen in this loft which is now ceiled; a roof-truss of the same character as those in the living room then is indicated—this will be discussed later—and the two rooms and passage are demonstrably of one date and build. The loft was, however, unusual in having considerable head room, the wall-tops being some 4 ft. above the floor, permitting sizeable side-windows. In the older houses recorded by Allen such garrets or lofts as are present are of triangular section (see Llaethdy, his Fig. 4) the wall-top being at floor level. To maintain this section, the wall-top and the roof-ridge of one half of the house may both be lower than the other half (see Trefaiddan, his Fig. 14). Alignment down a slope, as at Garn and Llaethdy, is characteristic of much early vernacular building in Britain.

⁴ Cyril Fox, *Antiquity*, 1937, pp. 427-40, esp. Fig. 3.

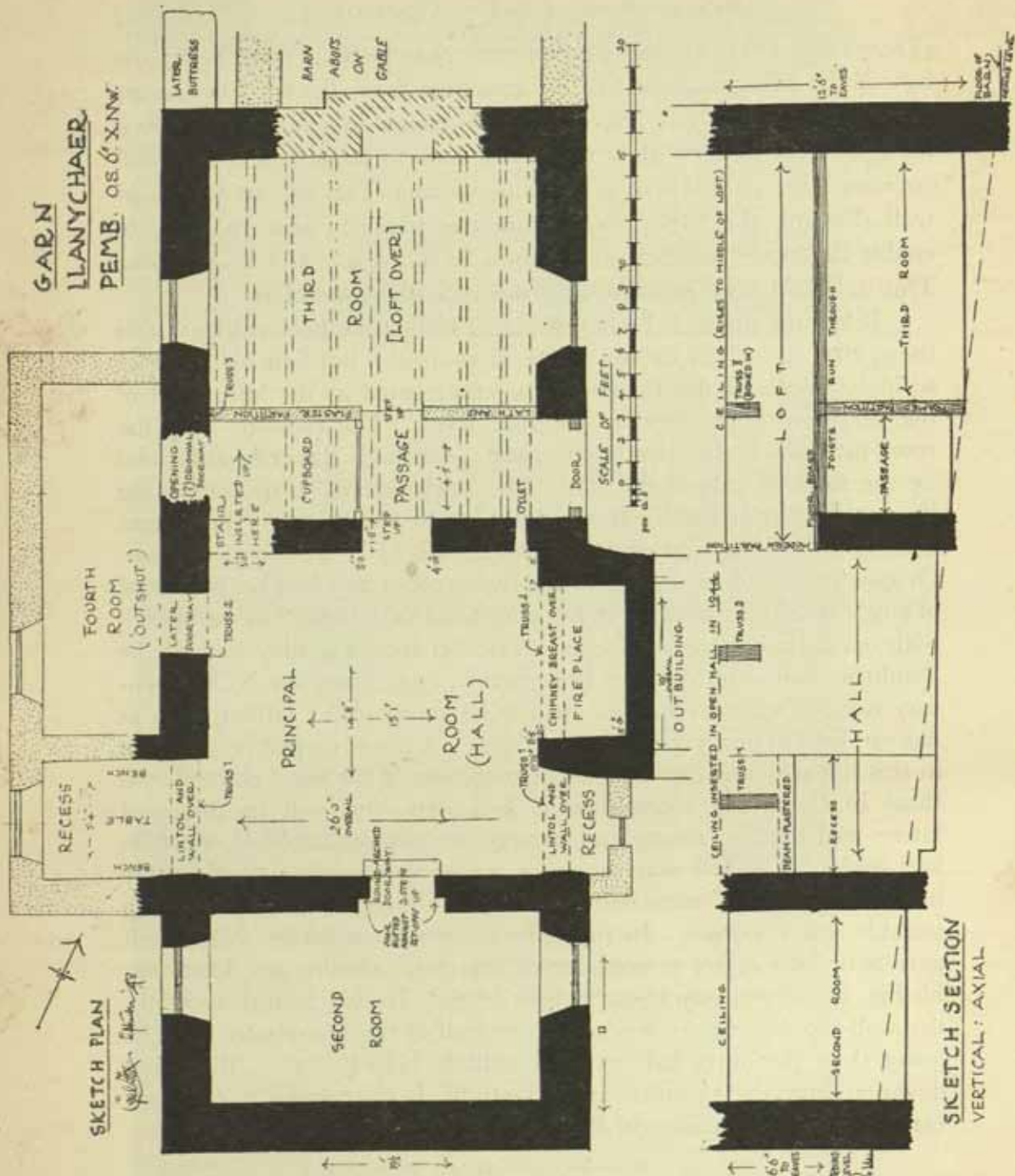


Fig. 29. Garn, Llanychaer, Pembrokeshire

The stack of the fireplace of the "third" room at Garn projects on the external gable (inside the barn), and is shallow and broad. I think it is an insertion; the chimney is level with the plane of the gable wall, the projection of the stack fading clumsily into this plane. The flanking buttress shown in the plan is rudely constructed of large boulders, but is probably not earlier than the mid-XVIIIth century; some rebuilding of this gable has probably taken place.

Turning to the upper end of the house, a round-arched (plastered) doorway—the only architectural feature other than the great stack which the house possesses—leads, up two steps, to the "second room" on the plan which has a ceiling. The cross-wall which divides the living-room from it rises to the ceiling of that room, and probably to the ridge-pole; it may be the original gable of the house, but no straight-joint (to confirm this supposition) was seen outside. This room was not entered; the breadth of the cross-wall shown in the plan is only approximate.

On the evidence, then, Garn dates from a time when a medieval feature—the open living-room or Hall—was still customary in the houses of well-to-do farmers, but when a renaissance feature, the round-arched doorway, had become current, and when side windows to the loft had been introduced; not later, let us say, than the XVIIth century. It is the only round-chimneyed farmhouse known to have had an open hall, or an open loft; but those seen by Romilly Allen were probably originally all like this, the floor described by him as being over the living room having been inserted.

To sum up two important features of these round-chimneyed structures: we have at Croftufty a house with a cross-passage but no contemporary outshuts; at Garn a house also with a cross-passage, with one contemporary outshut afterwards enlarged and extended, and another possibly later. The type represented by them presents, as is well known since *The Welsh House* by Dr. I. C. Peate was published, many problems. I have nothing to add to what has been said by Romilly Allen and Dr. Peate about the round stone chimney, which first appears in the XIIIth century in the west.⁵ But the last

⁵ See, e.g., T. H. Turner, *Domestic Architecture in England*, 2nd. Ed. (1877), I, Aydon Castle, after p. 147, and Stokesay, after p. 160. In Pembrokeshire these are seen in XIIIth century work at Lawhaden and Manorbier Castles, and the Bishop's Palace, Lamphey.

word has not yet been written, as the latter would be the first to admit, about outshuts, and we have yet to discuss the partly exposed wall-tops of the houses. Dr. Peate's remark on the cross-passage, that it "may originally have been related to the similar passage-way in the long houses," moreover, requires examination.

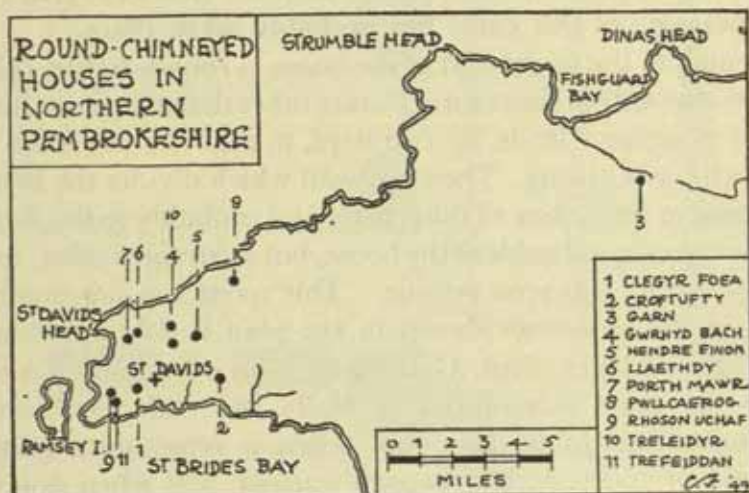


Fig. 30. Distribution map of houses

[The interest of this comparative study will be increased by a distribution map of the houses. In Fig. 30 the eight houses described by Allen are marked, together with Treleidyrr, Croftufty and Garn. Ten are concentrated in the St. David's peninsular area; Garn is an outlier near the north coast.

The wall-tops may be taken first. If the house-wall of Garn on the right-hand side of Plate IV B be examined with a magnifying glass it will be seen that the corrugated iron roof rests on its top, which is slated and sloped to throw the water off. Romilly Allen records and illustrates this constructional feature in those of the houses he visited which retained their original thatched roofs; Porth Mawr, Hendre Einon and Trefaiddan, though he does not comment on it.⁶ We may fairly assume then that we are dealing with an original construc-

⁶ *loc. cit.*, pp. 19, 23, Figs. 14, 15, 16, and pl. facing p. 22.

PLATE V



A. Tucaberry, Birsay, Mainland, Orkney : outshut
Based on A. Russell, *Norse Building Customs in the Scottish Isles*, p. 92



B



C

B, C. Newtondale, Yorkshire : exterior and interior of field shed
(Photos. : Hope Bagenal, F.R.I.B.A.)

tional feature which was allowed to survive to the XXth century in an out-of-the-way corner of Garn farmhouse.

I have observed the same technique in Caithness ; Fig. 31A is from a sketch made in 1947 of a croft on the Latheron Road in that county.⁷ One or two slabs are placed in a sloping position on the broad wall-top on the inner edge of which the framed roof-truss rests. This supports a skin of thin boards on which turves are laid and then thatch—to a southern Englishman very inadequate thatch. It barely reached the wall-face, as is shown in Plate IVc, a photograph of a similar croft in Lanergill, Caithness. The Latheron Road roof is a XIXth century type ; earlier trusses are built up on a curve as in Fig. 31B, a section of a ruined croft at Spital.⁸ Here a slot is left in the wall for the principal which extends upwards from close to the floor ; it is made of "bits and pieces" of wreckwood. The technique in general is characteristic of houses in Orkney ; it is seen in my Fig. 34 and Plate V A, the latter after A. Roussell.⁹

The Caithness crofts not only provide parallels to the partly exposed wall-top of Garn, but also indicate the probable character of the invisible roof-trusses of this house. One of these is sketched in Fig. 31C ; the position of the lower edge of the thatch in this figure is that shown in the drawing of Rhoson Uchaf by Romilly Allen.¹⁰ It will naturally be asked why the western tip of Pembrokeshire should show the same curious feature of the partly-exposed wall-top as northern Scotland. It is I think partly because environmental conditions are similar in both regions. In the first place they are exposed to fierce gales, as is shown by the use of wreckwood. In constructing houses, if there are no eaves, the risk of the roof being carried away bodily is reduced. In the second place these countrysides are mainly treeless, and economy has to be practised in the use of sawn timber ; a roof set on the inner faces of the wall-tops uses much less wood than one set on the outer faces. It is however certain that

⁷ I am indebted to Mr. Murray Threipland of Dale for showing me these.

⁸ cf. A. Roussell, "Norse Building Customs in the Scottish Isles," 1934 : croft near Thurso, Fig. 16, p. 46.

⁹ See also his Fig. 42, Nether Benzieclett.

¹⁰ *loc. cit.*, Fig. 13.

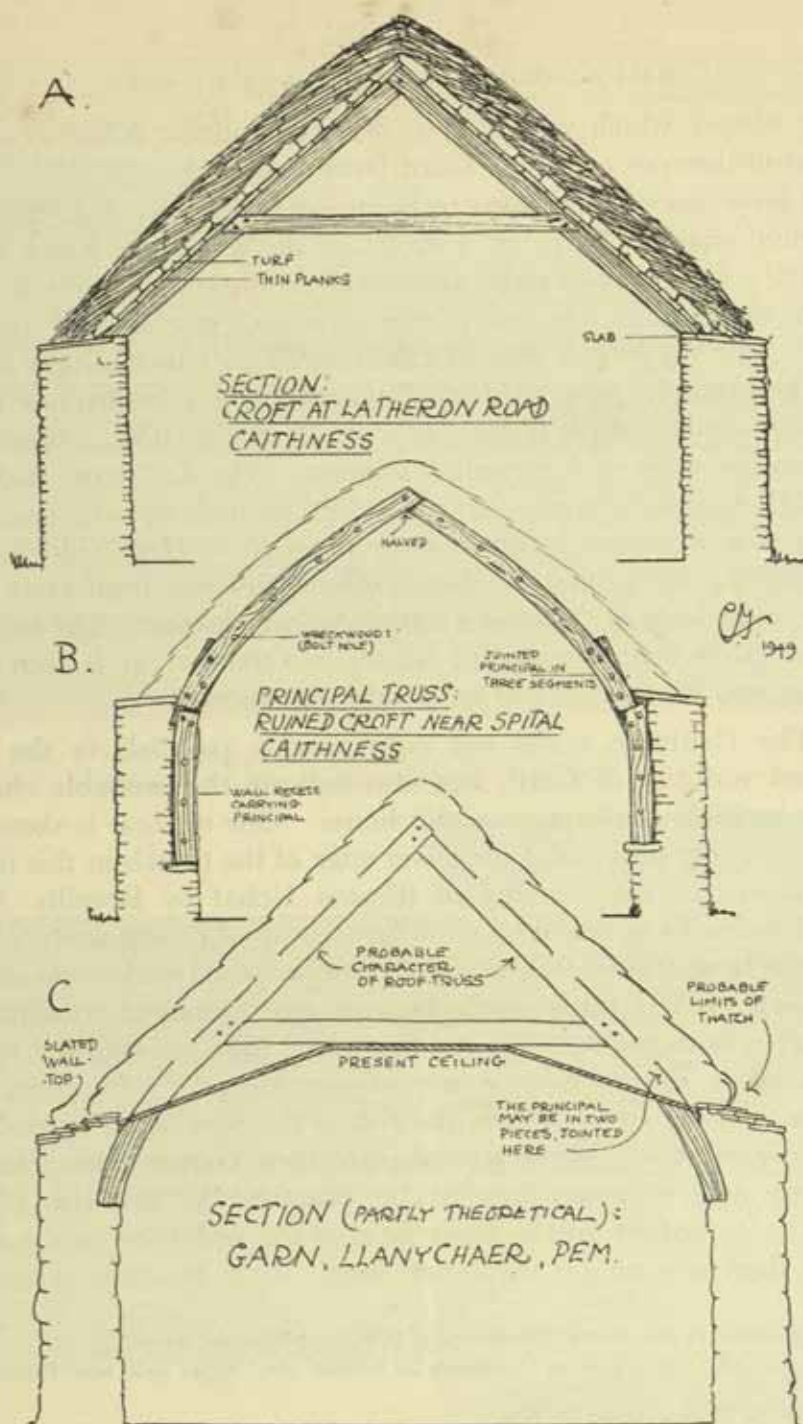


Fig. 31. House sections. A. and B. Caithness, XIXth and XVIIIth centuries. C. Pembrokeshire, XVIIth century. (Relative spans are accurately recorded)

housebuilders do not necessarily react in the same way to identical conditions, and the similar characteristics in north and south Britain must primarily be due to the former existence of common cultural traditions. The link which made a technique common to the two areas was surely provided by seaborne trade and traffic using the "Atlantic route" along the west coast, which we know has disseminated cultures along the "highland zone" of Britain since the 3rd millennium B.C.¹¹ I should, therefore, expect to find roof-structures similar to those in Caithness at suitable points all along the western coasts north of Pembrokeshire, if I could look for them.¹²

I should add that I am not ignoring the Black Houses; they are not relevant, for in them the wall-tops are *not* protected. It may be that the technique of the partly-exposed wall-tops extends further south than Pembrokeshire; Scilly, from information received, is a probable location.¹³

I now turn to the problem of the outshuts which Allen calls "recesses." He says: "the most remarkable feature in the construction of the houses" (at St. David's) "is the device adopted for increasing the area of the ground floor without making a roof of unduly wide span. This is done by adding what may be termed side aisles, as in church architecture."¹⁴ Allen describes eight houses, but provides plans for only two of them; a third "typical ground plan" is in part imaginary and certainly not typical of his group as a whole. Dr. I. C. Peate in *The Welsh House* re-examines Allen's material—38 years later; he notes the disappearance of half the houses and the modernization of others (p. 158).

¹¹ See, e.g., *Personality of Britain*, 4th ed., pp. 11-14, 21-22, Fig. 1 and Map B.

¹² I made this point in the 1949 Rhind lectures at Edinburgh; and Dr. J. S. Richardson, formerly Inspector of Ancient Monuments for Scotland, who was present, cited several examples on the western coasts of Scotland. In R.C.A.H.M. Scotland, 9th Report, Outer Hebrides, Skye, etc., 1928, p. xlv, it is stated that the placing of the roof-framework on the inner edge of the walls is "a mode of construction only now passing out of use in the islands." But no architectural drawings, or reference to individual structures, are given.

¹³ On the other hand south-coast traffic by sea has brought the heavy overhanging eaves-thatch technique of lowland Britain as far west as Penzance and Lands End (Sennen). A beautiful example of the cultural control, in despite of circumstance, resulting from seaborne trade! (At Penzance see cots at Customs House Court and on the Alverton road. I take the Sennen example from Plate 19b of B. Oliver, *The Cottages of England*.)

¹⁴ *loc. cit.*, p. 2.

The oldest houses are those with pointed entrance doorways : Llaethdy, Trefaiddan and Gwrhyd Bach¹⁵ ; I have planned two of them from Allen's data and have copied his plan of Llaethdy, indicating on each where the span-roofed structure probably (or certainly) ended and the "recess" began. These are set out in Fig. 32, with the cross-passages and principal room (to the left) arranged to corres-

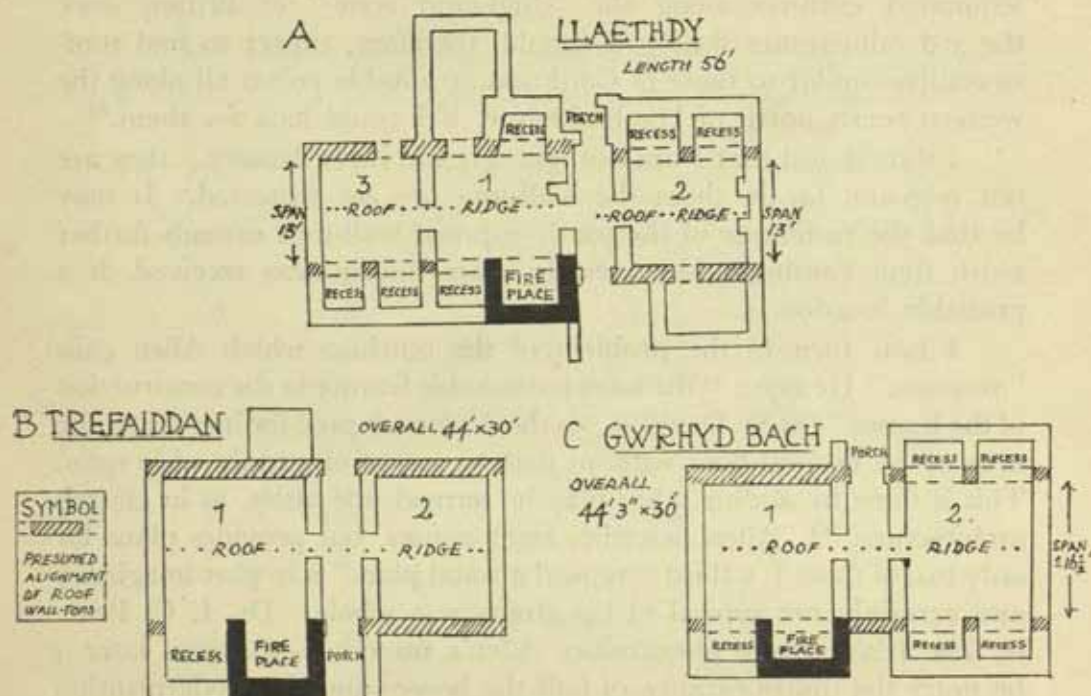


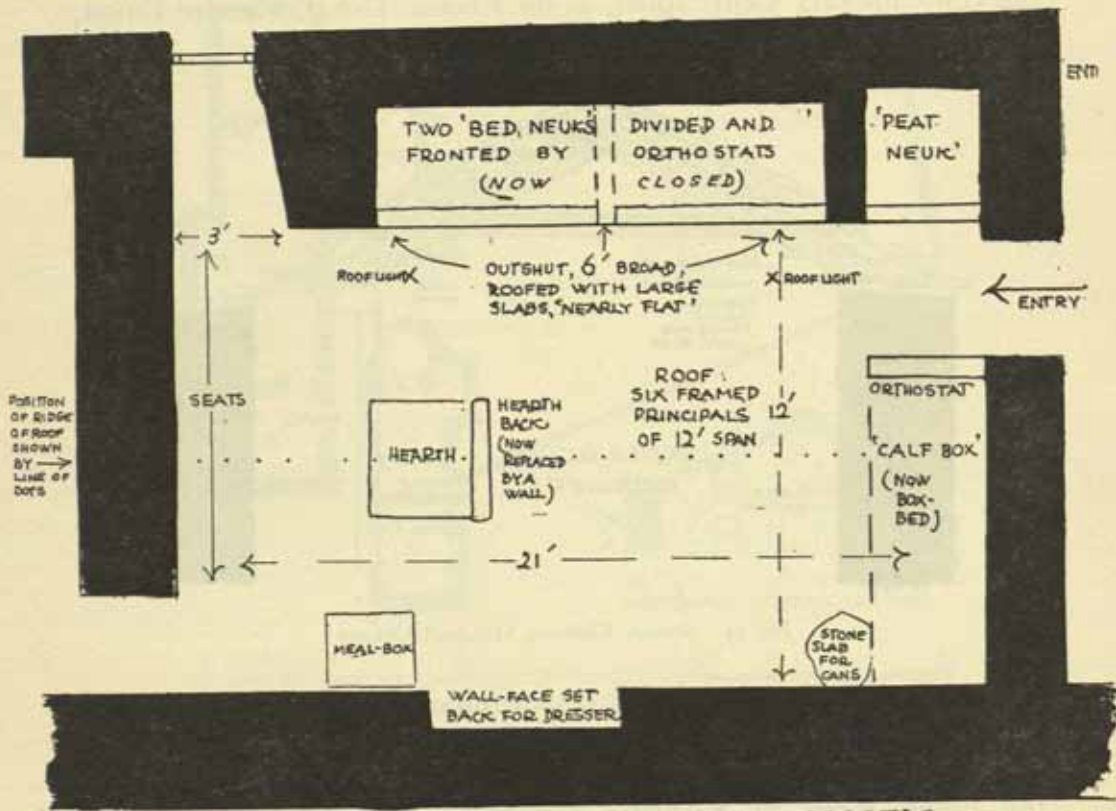
Fig. 32. Round-chimneyed houses in Pembrokeshire
Based on Romilly Allen, *Arch. Camb.*, 1902, 1-24

pond. The great fireplaces are emphasized, and all the recesses are named, but lateral rooms are ignored. Llaethdy and Gwrhyd Bach have no less than eleven such recesses between them, all much the same size ; those of the latter house are vaulted in stone. Such constructions are it is clear, not casual accretions but part of the original designs, and therefore medieval. Trefaiddan suggests how-

¹⁵ Allen mentions a fourth house, Rhoson Uchaf, with a "pointed doorway" ; this is of rough workmanship and does not appear to me to be medieval.

ever that in this early phase one recess might suffice,¹⁶ as it apparently did at a later period at Garn.

Dr. Peate thinks that this round-chimneyed house-type of mortared stone was initiated by trained masons—"castlebuilders." I agree: for these later medieval houses (? late XVth century) are in an



CH. 7 THE FIRE-ROOM KIRBISTER, MAINLAND, ORKNEY SKETCH PLAN

Fig. 33. Plan, Kirbister, Mainland, Orkney

isolated district where a high tradition of masoncraft expressed in cathedral and college, castle and palace existed throughout the middle ages. It is very unlikely that these men invented outshuts; they probably regularized a traditional or informal tendency to

¹⁶ I take the recess shown in Allen's Fig. 16 (p. 20) to be a later addition; it rises above the main wall-top.

extend the floorspace of dwellings in this way. Some tenants needed one outshut (Trefaiddan) others were glad to have several; both demands were satisfied by similar architectural treatment. But the *formal balance* illustrated in particular by the second room at Gwrhyd Bach did not last; Croftufty and Garn suggest that it had no roots in the contemporary Celtic spirit, as do Rhoson Uchaf, Hendre Einon, Pwllcaerwg and other later houses in Allen's series.

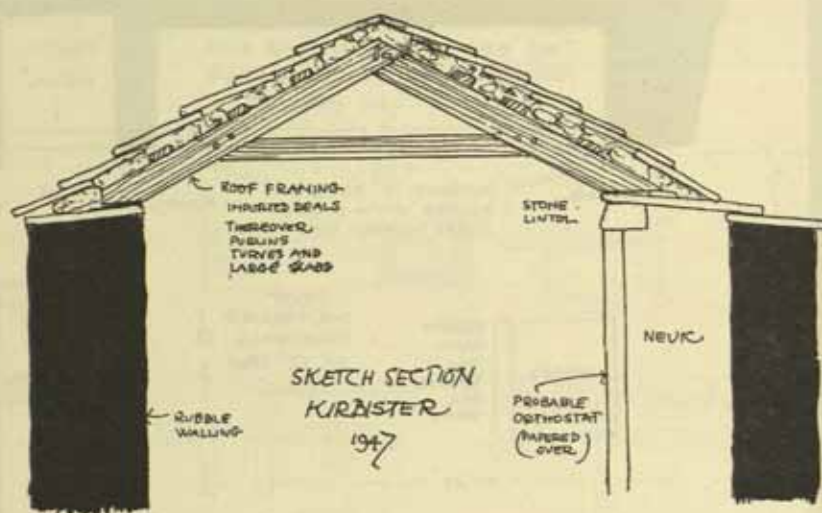


Fig. 34. Section, Kirbister, Mainland, Orkney

We should first consider whether similar outshuts occur elsewhere in Britain. They do indeed occur, like the protected wall-tops, on the Atlantic route, in the far north. I illustrate, in plan and section, the living room of Kirbister farmhouse on Mainland, Orkney (Figs. 33 and 34). The peat-neuk and the neuk-beds form an extended outshut which is, like most of our Pembrokeshire outshuts, slab-roofed. I illustrate also from Roussell's admirable study a plan (Fig. 35) of Tueaberry, Birsay, Mainland which shows (left) two outshuts side by side with orthostatic fronts as at Kirbister, and (right) a cross-section of living room and outshut. The photograph of the latter (Plate VA) is very like our Pembrokeshire examples. "This projecting alcove structure" says Roussell, "frequently occurs in Orkney," but "it is

unknown in the Shetlands."¹⁷ They are much further away!¹⁸

The limitations of these northern parallels brings to the fore an aspect of our problem hinted at on a previous page. What sort of house, what sort of house-plan, was it that the trained masons of

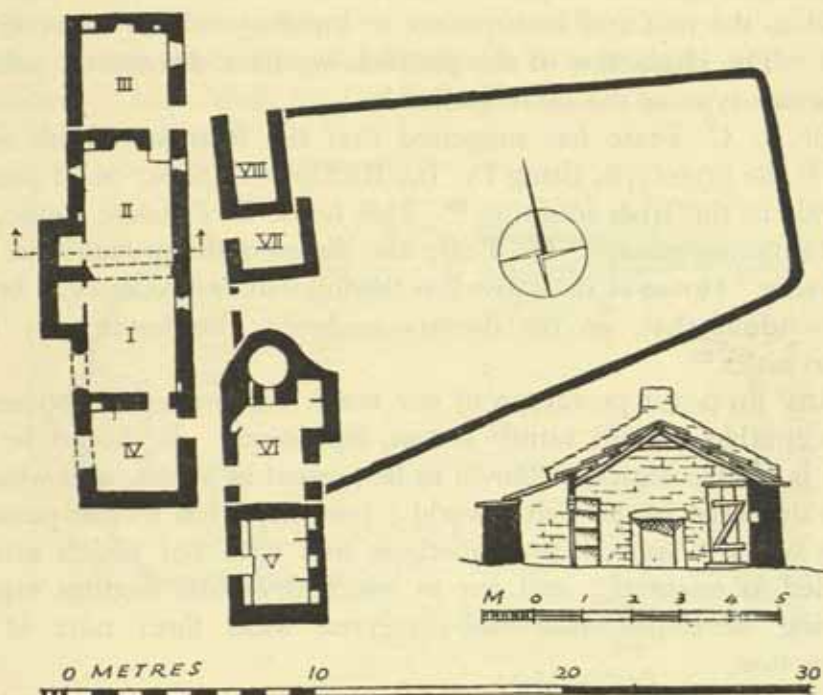


Fig. 35. Tueaberry, Birsay, Mainland: plan of steading and cross-section showing outshut
Based on A. Roussell, *Norse Building Customs in the Scottish Isles*, 1934, Fig. 51

St. David's (*ex hypothesi*) recast in the form that survives today? One cannot study regional types in mortared stone for long without realizing how recent is the phase they represent in the history of rural vernacular housebuilding. The revival of the Roman tradition in the VIIth century referred to by Bede extended slowly from the

¹⁷ Roussell *op. cit.*, Figs. 50-51, pp. 92 and 93, and, for the quotation, p. 82. The author regards these houses as Scandinavian, but does not show parallels to the outshuts in Scandinavia.

¹⁸ Sir Lindsay Scott has familiarized us with an early Celtic culture-spread to the Highland and Islands of Scotland from south-western Britain in his "Gallo-British Colonies," *P.P.S.*, 1948, pp. 46-125. He notes that there is a very special impoverishment of southern cultures in the Shetlands, *loc. cit.*, p. 105. His dwellings are round or oval in plan, and have no direct relevance therefore to our problems.

churches to secular building for kings and nobles, and thereafter took an unconscionable time to spread downwards to such social levels as our particular houses represent. There must surely lie immediately behind Llaethdy, Trefaiddan and Gwrhyd Bach either sprawling constructions on low drystone walls, the woodwork of which was limited to the roof and its supports, or buildings wholly of wood and wattle. The characters of the parallels we have discovered point to the former type as the more probable.

Dr. I. C. Peate has suggested that the Romano-British aisled house is the prototype, citing Dr. Ian Richmond's paper on its possible survivals in the Irish tradition.¹⁹ This house is of course Celtic, but it had no cross-passage. Dr. Peate also discusses the probabilities that the Welsh "House of the Laws" is the immediate precursor: but he has to admit that, on the literary evidence, this house may have had no aisles.²⁰

Any proposed prototype of our north Pembrokeshire houses, to be acceptable, should satisfy certain conditions. It should be one which is archaeologically known to be present in Wales, and which is also widespread in the Celtic world; one which has a cross-passage; one in which "aisles" are sometimes met with but which are not regarded as essential; and one in which dry-stone footings capable of being developed into slab-protected walls form part of the construction.

I suggest a new candidate for the honour of being the prototype of so remarkable a houseplan—the "platform" house discovered in Glamorgan in 1934,²¹ examples of which were excavated in 1936 and 1938,²² and which is now known to be widespread in the Welsh uplands²³: it was regarded by the excavator as of Dark Age origin, though the only example in which datable material was found was still in use in the early XIVth century.

¹⁹ *The Welsh House*, 1940, p. 137 ff.

²⁰ *op. cit.*, p. 136.

²¹ C. & A. Fox, "Forts and Farms on Margam Mountain, Glamorgan," *Antiquity*, 1934, 395-413.

²² Aileen Fox, "Dinas Noddfa," *Arch. Camb.*, 1937, pp. 247-268; A. Fox, "Early Welsh Homesteads on Gelligaer Common," *Arch. Camb.*, 1939, pp. 163-199.

²³ Recorded in Radnorshire, C. Fox, *Arch. Camb.*, 1939, pp. 220-223; C. & A. Fox, *Arch. Camb.*, 1948, pp. 104-106. Mr. W. J. Hemp states that the type is widespread in North Wales. *Arch. Camb.*, 1949, p. 295.

This belief has been justified and a widespread distribution of the type suggested, by the excavation by Professor Seán Ó Riordáin, in Co. Limerick, Ireland, of a house demonstrably of the same character, and with Dark Age associations.²⁴

This discovery in Ireland of a platform house-type on approximately level ground indicates that the "platform" is not an original feature of the type, but an adaptation of a lowland house-type to hill-slopes. This being so, the little Dark Age house without aisles

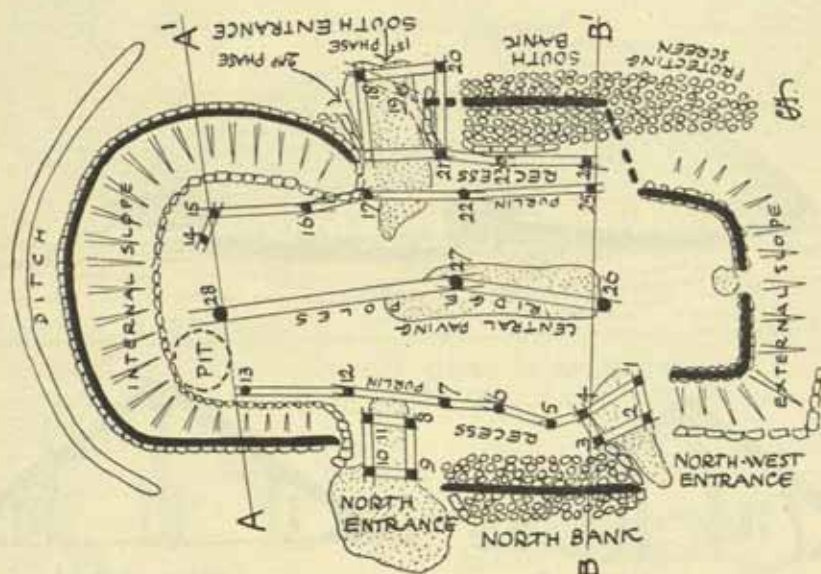


Fig. 36a. Reconstruction (plan) of aisled house at Dinas Noddfa, Gelligaer, Glamorgan (After Aileen Fox in *Arch. Camb.*, 1937)

of the VIth century, also with central posts and cross-passage, excavated by Messrs. Lethbridge and David in 1930 on Gateholm, Pembrokeshire²⁵ is the earliest approximately-dated house of this class.

I illustrate, as an example of the aisled group,²⁶ Dinas Noddfa, Gelligaer, Glamorgan (Fig. 36a), and its reconstruction, with "recesses" on either side, in Fig. 36b; both from Aileen Fox's paper of

²⁴ *Proc. Roy. Irish Academy*, LII, Section C, No. 3, p. 61, Fig. 6.

²⁵ *Arch. Camb.*, 1930, pp. 366-374.

²⁶ Aisleless examples are the Central and South Houses on Gelligaer Common.

1937 in *Archaeologia Cambrensis*. The partial "outshuts" recreated here (without any thought of the Pembrokeshire houses, be it said), are a striking feature.

In my Fig. 37 Professor Ó Ríordáin's house-plan is by his kind permission, set out below the Gelligaer house, with its various elements similarly disposed. Like the former, it had a row of central posts and the upper portion of the building is more clearly defined than the lower. It had, besides the cross-passage, a diagonal doorway at the

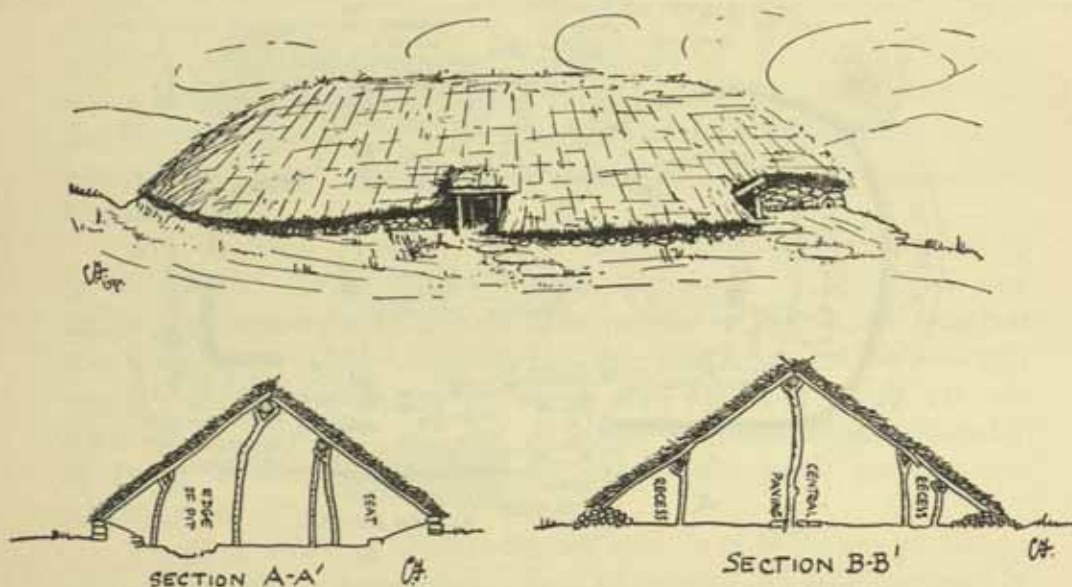


Fig. 36b. Reconstruction (elevation and cross-sections) of aisled house at Dinas Noddfa, Gelligaer, Glamorgan

(After Aileen Fox in *Arch. Camb.*, 1937)

western angle giving entry to an annex ; the same feature of a diagonal doorway (but without the annex) is seen in the Gelligaer plan—the only house of the five excavated by my wife where it occurs. She would consider it to be the earliest of her series.

An outstanding and constant feature of the house-type we are considering is the central row of posts supporting the roof-ridge : it is never present in the round-chimneyed houses. This is, of course,

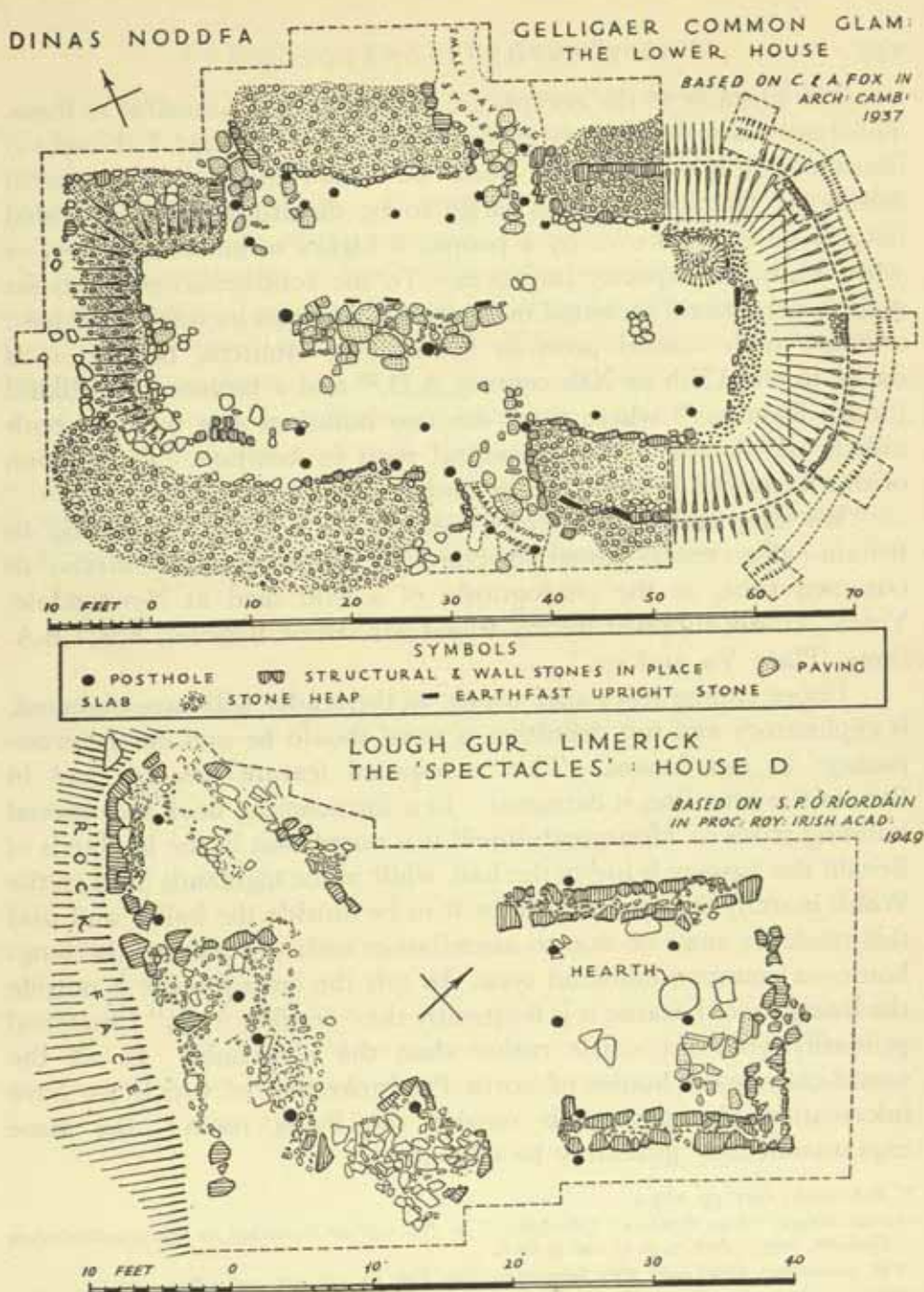


Fig. 37. Aisled house plans at Dinas Noddfa, Glamorgan and Lough Gur, Limerick
(Based on Allen Fox in *Arch. Camb.*, 1937 and S. P. Ó Riordáin in *Proc. Roy. Irish Acad.*, 1949)

a serious obstacle to the acceptance of the group as ancestral to these. This paper would not have been written, however, had I thought it insurmountable; I regard such an inconvenient constructional feature as the first which is likely to be discarded when an aisled house-type is taken over by a people of higher technical capacity, or when technical capacity improves. To the continental parallels for such constructions, recorded by my wife,²⁷ two can usefully be added: a house with central posts in Stellerburg, Holstein, because it is dated to the IXth or Xth century A.D.²⁸ and a farmstead in Oland (South Sweden)²⁹ where there are two buildings side by side, both aisled, one having a row of central posts in addition. Occupation of this farmstead is held to have ended about 500 A.D.

We may well come across, someday, the same relationship in Britain; for central-posted structures in rough carpentry survive to our own time, as the photographs of a field shed at Newtondale, Yorks., kindly supplied by my friend Mr. Hope Bagenal, F.R.I.B.A. show (Plate Vb and c).

Before ending this paper which, as the reader will have observed, is exploratory and not definitive, a word should be said on the cross-passage in our houses. This widespread feature has not had in Britain the attention it demands. In a forthcoming book on regional building styles in Monmouthshire³⁰ it is noted that in the lowlands of Britain the passage is inside the hall, while in the highlands (and on the Welsh march) the tendency is for it to be outside the hall; and that this tendency may be due to assimilation with the plan of the long-house—a common highland type. In this the cross-passage is outside the living room because it is frequently the "feeding walk," concerned primarily with the cattle rather than the household. In all the round-chimneyed houses of north Pembrokeshire of which we have information the passage is outside the living room; the same explanation may justifiably be offered.

²⁷ *Arch. Camb.*, 1937, pp. 263-4.

²⁸ Otto Scheel, "Zum Problem 'Urholstein,'" in *Zeitschrift der Gesellschaft für Schleswig-Holsteinische Geschichte*, 1935: Abb. 3, p. 11 and p. 62 ff.

²⁹ M. Stenberger, *Oland under Aldre Jarnalderen*, 1933, Figs. 87, 128, 129: cf. 126-7.

³⁰ Fox and Raglan: *Monmouthshire Houses: Plans and Building Techniques in the 15th to 17th Centuries: Part I, Medieval Houses*; National Museum of Wales, in the press.

We have as yet no information on internal divisions, if any, in the platform houses, and the row of posts cited as evidence for a cross-wall in the Limerick dwelling are surely essential elements of the post-and-aisles system. It may be added that there was no evidence in the five platform houses excavated by my wife for the use of the lower halves as cattle stalls; the floors were clean and not worn into holes. This is additional evidence for relationship between the platform house and the round-chimneyed houses under consideration.

I hope that this essay will please my friend Crawford, who so helpfully encouraged my earliest efforts in archaeological research. None knows better than he the darkness in which we grope for truth, and the difficulty of knowing whether we have found it or not.

THE JURASSIC WAY

By W. F. GRIMES

ONE of the results of the combined topographical and geological approach to the problems of prehistory in recent years has been the emergence of the Jurassic Zone as a corridor along which early movement between north-eastern and south and south-western Britain took place. Sir Cyril Fox was the first to draw attention to the Zone in his classic paper on La Tène I brooches¹; and while he did not attempt to set out a route in detail, following the suggestion of Dr. F. J. North that the most likely course would be the junction of the Lias and the Oolite he marked its axial line for its northern part as Ferriby-Lincoln-Ancaster-Grantham-Stamford-Northampton-Towcester.

The purpose of this paper is to consider the course of the Jurassic Way in greater detail, though still incompletely, and while touching lightly on its significance in the earlier phases of prehistory to consider anew the part played by it in the spread of Iron Age culture across the English Lowland.

I had hoped before committing myself to print to complete the field-work for the full length of the road from the Humber to the Mendips; but though this has not proved possible because of present-day travelling conditions, leaving outstanding points, some of them crucial, still unsolved, the main lines of movement are clear enough and the rest may follow. In the following paragraphs therefore the road is described briefly from north to south.

From the Humber southwards the first part of its course is easily enough determined, for the topography of this part is in itself simple and trends sympathetically with the road's purpose. Lincoln Edge, with its steep scarp looking westward over the Vale of Trent not only provides the right topographical conditions, but as Dr. North pointed

¹ *Arch. Camb.*, 1927, 96-100.

PLATE VI



A



B

- A. Bowl with running scroll ornament, Desborough, Northamptonshire (*Private Coll.*)
(Height 4½ ins.)
- B. Pot with scored ornament, Draughton, Northamptonshire (*Northampton Mus.*)
(Height 13¼ ins.)

out² is geological suitable for early movement because of the Lincoln Limestone of which it is composed.

Between Lincoln and just north of Ancaster it is still in use, following the scarp of Lincoln Edge (Fig. 39). Just above the latter place, however, it ceases to be an enclosed road and swings eastwards, away from the scarp, to cross the Ancaster Gap at Ancaster itself. Ancaster, like Lincoln, is a perennially significant site in the early history of central Lincolnshire: as Mr. Phillips' maps have shown,³ the area is the focus of settlement much of which is no doubt due to movement inland along the Slea. Whether or not there was a Roman fort (as distinct from the civil site) at Ancaster the strategic value of the position for its two-way communication, north and south along Lincoln Edge and east and west from the Lower Witham into the Upper Witham and Trent basin was clearly appreciated by the Romans, as it had been by the Iron Age people who built Honington Camp to control the gap from the hill above it to the south.

South of Ancaster there is no sign of an old road apart from the Ermin Street, which must be regarded as having replaced the older way. Ermin Street itself is as near the Edge as it could conveniently go here, for the scarp south of the Gap is much more broken than north of it, and the broad back of the ridge makes for easier going.

On Harrowby Heath above Grantham, the Jurassic Way meets the Salters' Way, coming by way of Threckingham from the Fens. Here it must descend to cross the Upper Witham. The ground has been much altered by a modern aerodrome, but though a case could be made out for a steep descent to the Spitalgate crossing at the south end of Grantham, with a steep climb out on the south-west, Mr. Phillips has rightly emphasised the importance of the Saltersford crossing about a mile south of the town and this would seem to be the more likely, though now no trace of the road remains on either slope.

South of Grantham, however, the country becomes more difficult. The Salters' Way continues south-westwards along the northern scarp of the Northampton Uplands to Barrow-on-Soar and beyond; but loses itself in Charnwood Forest—a too westerly trend

¹ *Arch. Journ.*, XCIV (1937), 80 ff.

² *ibid.*, XC (1933), facing pp. 124, etc.

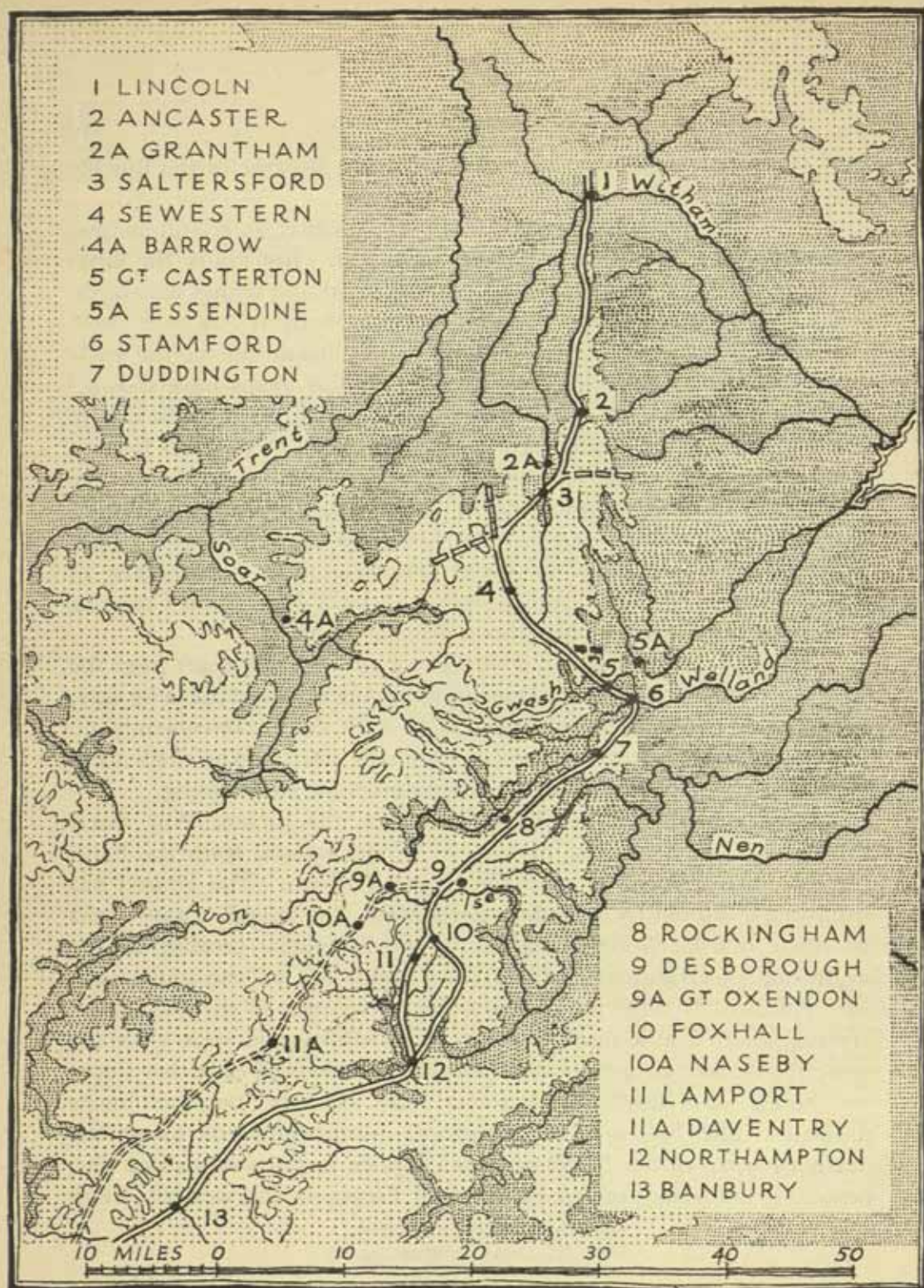


Fig. 38. The Jurassic Way from Lincoln to Banbury
 (For explanation of stippling see Fig. 39)

for our purpose. Our own road must either have set out independently from the Witham or have branched southward from it before entering the Soar basin.

The latter course has already been considered by Peake, who traced a likely line by way of Waltham-on-the-Wolds, Stapleford (crossing the Eye), Tilton, Daventry (west of) and Edgehill.⁴ In this region the nature of the country is such that no course is entirely without its problems: this route also has its variations and uncertainties. At the same time it has every claim to be regarded as one of the main alternatives in this region: I have not been able to study it in detail and have not therefore shown it on my maps.

The line which I have followed here is that of the Sewestern-Cottesmore ridge which divides the Soar on the west from the Witham and its tributaries on the east: though broken by streams rising in both its flanks its top is broad and featureless and provides a fairly unhampered course for the road of undoubted antiquity known as Sewestern Lane which runs slightly east of south along it. Sewestern Lane crosses the road from Grantham to Barrow-on-the-Soar about five miles south-west of Grantham; it meets the Roman road (Ermin Street) about six miles north-west of Stamford.

From here to Stamford there is no sign at present of the continuation of our route in a prehistoric form: indeed, the map suggests that Sewestern Lane had an eastward extension (with the alternative title of The Drift) which crossed Ermin Street and made for the Fens somewhere in the neighbourhood of Essendine.

Once again the Roman road seems to have superseded the prehistoric one, which may not have travelled quite as directly, but would no doubt have utilized the tongue of land on which the village of Great Casterton stands for the crossing of the river Gwash. Climbing steeply away from this crossing, however, the two would have parted again on the high ground above Stamford, for the Roman crossing of the Welland involves a belt of alluvium which more primitive travellers would have avoided in favour of the narrower crossing in the neighbourhood of the present Stamford Bridge. A ford survives just

⁴ *Memorials of Old Leicestershire*, 31 ff. See also T. G. E. Powell in *Arch. Journ.*, CV (1948), 28-9, where the general character of the early settlement of the area is discussed.

below the bridge today. The pre-Roman line therefore may well have been that of the modern Scot Gate ; and the Roman road forks from the modern as a well-marked causeway about a mile outside the town.

Throughout its full length so far the Way lies almost entirely on the oolite, though for a short distance south of Sewestern the Lane crosses boulder-clay.⁵

With the Welland crossed, the Way turns south-westward ; here however for some distance there is an element of doubt which it is difficult to resolve. The broad ridge which to the south-west of the town of Stamford forms the watershed between Welland and Nene would seem to be its obvious course ; and since the underlying rock continues to be oolitic limestone topography and geology are both favourable. The trouble really lies further on, in the Laxton region, where interlocking streams belonging to Welland and Nene create a more complicated topography through which no very obvious way presents itself. A road which followed the back of the plateau would have lost itself in the broken country in this area ; and while a possible line by way of New Town, Collyweston Cross Roads, Westhay Wood, Laxton and Gretton presents itself and is in part marked by paths, the connexion is not continuous.

On the other hand the road which takes the southern scarp of the Welland valley by way of Wothorpe and Collyweston and then by Duddington, Wakerley and Harringworth is unbroken, though between Duddington and Harringworth it approaches (at least in its present version) uncomfortably near the valley-bottom. There are indications at Wakerley and perhaps also at Duddington and Harringworth, of a course which passed behind and above the medieval settlements at 200-250 ft., thus keeping the middle of the slope with its favourable drainage conditions.⁶ Beyond Gretton,

⁵ I have to thank the Director of the Geological Survey for allowing me to consult the Survey's new maps of this area, and particularly Professor S. E. Hollingworth for much information and advice relating to it.

⁶ An alternative here might have left the existing road at its junction with the Stamford-Kettering road $1\frac{1}{2}$ miles east of Wakerley, taking the back of the ridge above Wakerley and Harringworth and making more directly for Gretton. Topographically this would have been the easiest way, but while there are possible slight indications of it at the north-eastern end, aerodrome and ironstone activity have removed any trace that may have survived of it further on. The weakness of this alternative lies in the fact that much of it is—or was—boulder-clay-covered. But judging from the behaviour of the road elsewhere (p. 155) this need not have been an unsurmountable difficulty.

however, after a short break the road must have followed the ridge which runs south-westwards from Rockingham between Welland and Ise (a tributary of the Nene), and forms the northern limit of the Northamptonshire Upland.

On this ridge at a height of 450-500 ft. a road which has in part degenerated into a cart track takes a direct line along the high ground just under a mile to the north-west of Desborough.

But here two alternatives present themselves. Of these the more westerly keeps the high ground by way of Great Oxendon, Naseby, and West Haddon to Daventry; thence by Staverton and the much-broken scarp of the Avon Valley to Edge Hill and southwards towards Great Rollright. At Great Rollright—or just north of it—this western version re-joins the eastern.

The eastern road, which in general has the more probable look, descends obliquely to the Ise. It crosses this small valley where the alluvium is at its narrowest below Harrington and continues on the same south-westerly alignment through the village to Foxhall Inn, near the Draughton Iron Age site presently to be described, at a height of about 530 ft. Here once again are two possibilities for the approach to the Nene. One, going by way of Lamport, becomes the main Market-Harborough—Northampton road through Brixworth. It avoids boulder clay, but has to negotiate two valleys with narrow alluvial floors. The other makes better use of the topography, maintaining a steady height and curving in a crescent round the fan-shaped drainage basin of the Faxton stream and its tributaries. For the last miles of its course it forms the modern main road from Kettering to Northampton.

The crossing of the river here must have been in very similar conditions to those at Stamford; and the road then swung south-westwards under Hunsbury Hill. In a very direct line it covers the 22 miles between Northampton and Banbury, under the title of Banbury Lane, contriving wherever possible in this region of small streams and limited knolls and ridges to maintain commanding views from heights of between 400 and 550 ft.

Beyond the Cherwell (Fig. 39) the line of the road by way of

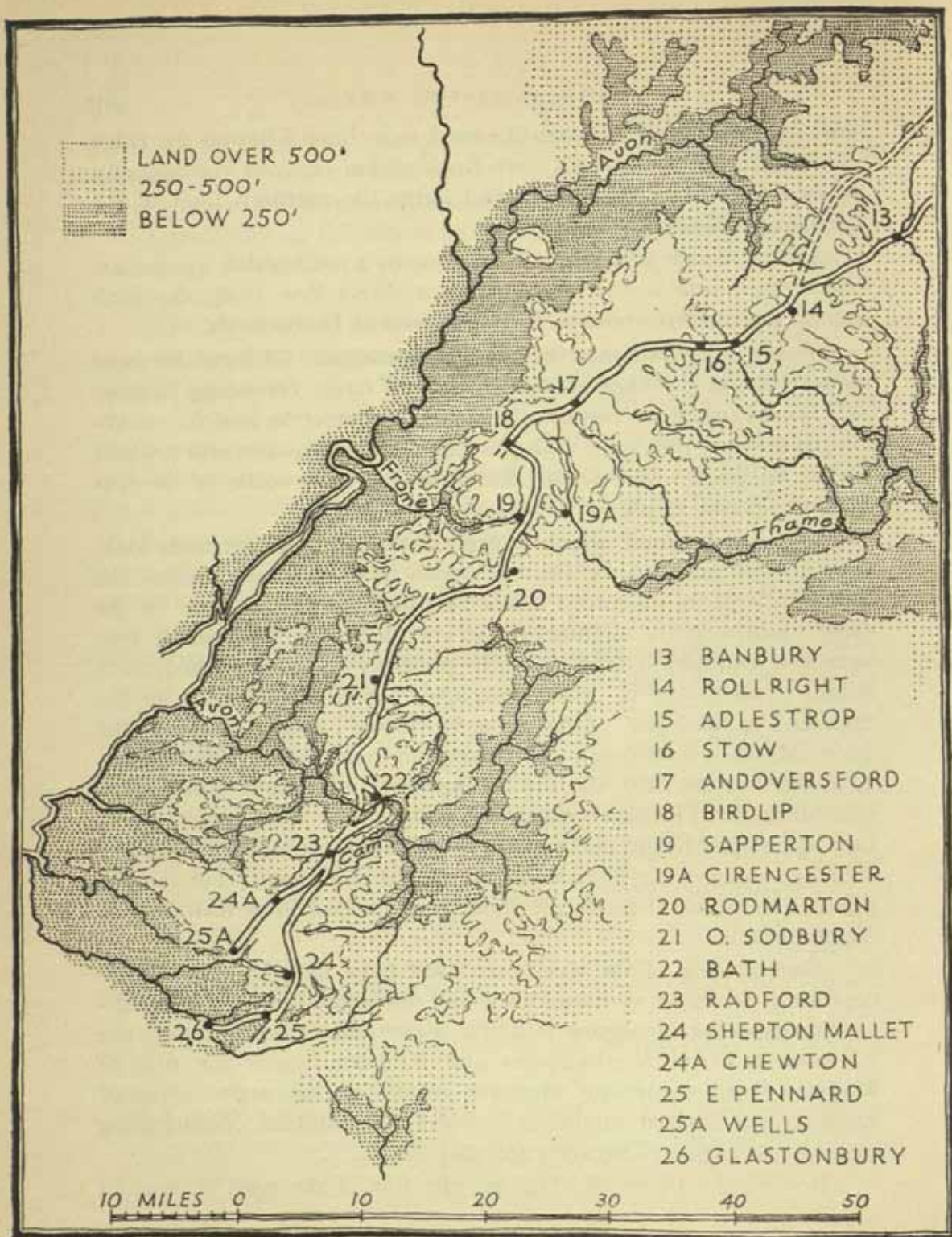


Fig. 39. The Jurassic Way from Banbury to Glastonbury

Wigginton Heath to its junction with the western version and thence to just north of Great Rollright is unmistakable. After this it crosses the Evenlode at Adlestrop, climbs to Stow-on-the-Wold, and then becomes the main road by way of Lower Swell and Harford Bridge to Andoversford.

The northward extension of the White Way, an early road making for Cirencester, crosses this road about two miles east of Andoversford. From this point the White Way itself and its south-western extension beyond Cirencester, which is labelled Roman Road on the present maps, would be a feasible alternative.

At Andoversford, as the old direct road to Gloucester, the Way crosses the Coln (and the modern main road from Oxford to Cheltenham), climbing rapidly the main ridge of the Cotswolds with the steep scarp of the Charlton Kings Valley to the north. It skirts the source of the southward-flowing Churn at Seven Springs and emerges on the north-westward scarp of the Cotswolds at the Air Balloon above Great Witcombe to get its first view of the main Severn estuary, with Gloucester below and the Cambrian Mountains beyond.

At Birdlip a couple of alternative possibilities would maintain the edge of the scarp for some distance, but would have to descend steeply to cross the Frome in the Chalford neighbourhood. A more likely route seems to be one which would swing back from Birdlip along the line of the Gloucester-Cirencester Roman road for a mile or two, before leaving it for the ridge between the Frome and the Churn valleys. This road is unimpeded to a point behind Sapperton; it continues the same general direction across the broad downs south of the Frome Valley and near Rodmarton connects with the road already referred to as the south-western prolongation of the White Way beyond Cirencester. Taking on a more westerly course from this point it links up with the present main road between Stroud and Bath (which is of course the other end of the western alternative) well clear of the complications of the Nailsworth and Dursley Valleys.

The road now becomes the main highway to Bath. It leaves the Dursley outliers on the right, and follows the western edge of the Cotswolds, by way of Old Sodbury. Parting from the modern main

road to Bath about two miles to the north of Cold Aston, it keeps to the high ground over Tog Hill while the main road prepares to descend the Painswick Valley under Charmy Down. From Tog Hill the road crosses to Lansdown and here again presents two alternatives: one following the present line into the City to make the modern crossing of the Avon near Bath Railway Station; the other leaving the main road halfway over the Down and descending to Weston to cross the Avon rather more than a mile below the first.

The country to the south of Bath consists of a series of ridges, outliers of the Mendips, whose long axes lie south-west—north-east. They are defined by the steep-sided valleys of the Cam and other streams which are tributaries of the Avon, which they join in the neighbourhood of Bath itself. Chief of these features for our present purpose are the two middle ridges, divided by the Cam, the more northerly of which ends on the projection of Bathampton Down, round which the Avon takes a wide curve to the north. The Roman Foss Way crosses them obliquely as it goes south to Radstock and Shepton Mallet; its prehistoric predecessor stays on the northern ridge for a longer distance.

Of the two versions mentioned above the eastern road has to negotiate the low-lying tongue of land on which Bath stands before beginning the steep climb which takes it to Old Down. Thence for some miles it follows the spine of the ridge (for part of the distance coinciding with the Foss Way) before it descends Tunley Hill to jump the Cam Brook at Radford. The more westerly version is a less important road today: it straddles two northward-projecting spurs of the ridge, leaving English Combe on the right, and climbs gradually up the main north-facing slope, to join the eastern version at Tunley before it begins the descent to the valley bottom.

The crossing of the Cam at Radford is narrow and the valley steep-sided. Here again two lines are possible. The western, a metalled road throughout practically its full length today, climbs obliquely out of the valley to Paulton, near the root of the more southerly of our two ridges. Beyond Paulton it presently divides in the foothills of Mendip. One line goes by way of Chewton Mendip

to Wells ; it is very direct and a more recent road has superseded it to ease the gradient down the steep southern scarp of the Mendips into the city. The other makes by way of Stone Easton and Gurney Slade for Shepton Mallet.

The eastern road from Radford has suffered more from enclosure, though paths still mark its line. It climbs the valley-side of the Cam more steeply, crosses obliquely into the next valley (that of the Wellow) over Clan Down to the east of Paulton and unites with the Stone Easton-Gurney Slade road at Old Down to the south-west of Chilcompton.

South of Shepton Mallet the prehistoric and the Roman road are identified and having taken the western version to the edge of the Glastonbury area at Wells I propose to confine myself to the same purpose with the eastern road. This skirts successfully the drainage basin of the Somerset rivers to the eastern end of the Pennard ridge, at the extreme tip of which, almost islanded in marsh, stands Glastonbury itself. The ridge carries a road which is now discontinuous on Pennard Hill, but which in times past must have served as the main, if not the only, land link with Glastonbury. The linear earthwork known as Ponter's or Ponder's Ball, with its eastward facing ditch, lies athwart the low saddle at the entrance to the Isle of Avalon.⁷ Its ends rest on both sides on the marshlands ; and its presence is evidence not merely of the importance of the approach to the people of Glastonbury, but also of the age of the road. For the gap through which the modern road passes is original : the earthwork, at least of Dark Age date, begins anew, on a different alignment on each side of it.

We have now traced one version of the Jurassic Way across England—summarily, for the subject is too big for detailed treatment or for discussion of the finer points of behaviour here. Nor is it possible to deal in detail with antiquities along its course : these matters I must leave for another place. I am aware that in some areas there are more alternatives than those which I have described ; but we are not in any case obliged here to choose between them.

⁷ Bulleid and Gray, *Glastonbury Lake Village*, I, 37 and map, Pl. II.

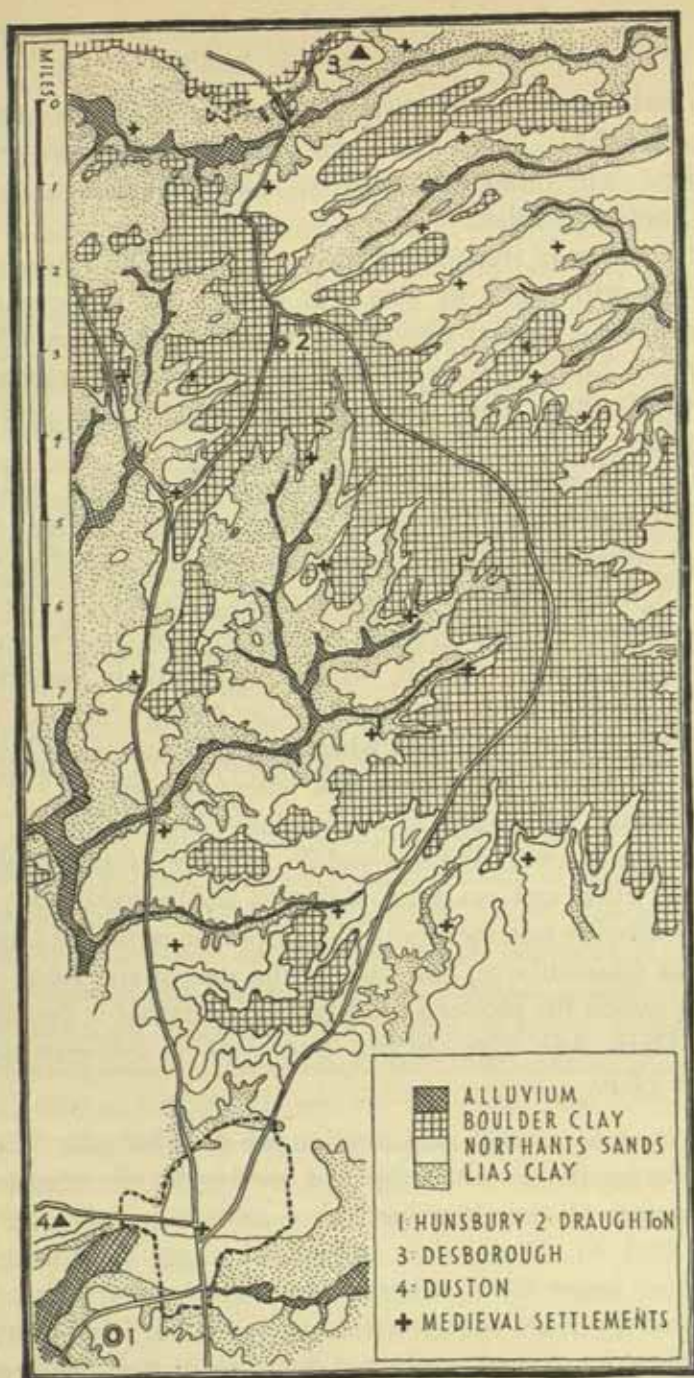


Fig. 40. Roads, settlements and geology between Northampton and Desborough

The Jurassic Way is a corridor for traffic rather than a single track and a complete study of it must range more widely than I have as yet found possible.

Undoubtedly, however, the country between Northampton and Grantham presents the greatest difficulty. The pursuit of an early road is comparatively simple where topography is uncomplicated and the main features trend in sympathy with the line to be followed. In the region in question, however, not only is the surface relief much diversified by the action of the interlocking streams of the Nene and Welland systems, but also the road cuts obliquely across the main axes of the relief; and in addition much of the surface of the hills and ridges so formed is covered from about 300-400 ft. up with glacial deposits in which boulder clay predominates. This circumstance must therefore call for some modification of the simply-held view that the Jurassic Zone became a line of movement or penetration by reason of favourable geological conditions throughout its length.

Particularly to the north-east of Northampton the "best" rocks—here mostly Northampton Sands and oolitic limestone—outcrop only on the valley flanks as narrow zones bounded above by boulder clay, below by Lias Clays. That both the sands and the limestone supported a limited population at any rate from some time in the Bronze Age is evident by the presence of scattered round barrows throughout the area: they occur on spurs and knolls, often below 350 ft., in comparatively sheltered positions which must have demanded some clearing of natural woodland before occupation was possible. Any "road" which linked them must have been heavily involved in a succession of stream crossings if it was to maintain anything like a direct course. On the other hand, to make the best use of topography by following suitable ridges and high ground meant miles of journey across boulder clay-covered areas whose lack of surface relief and consequent absence of good drainage could only have increased the difficulties of movement.

Probably the best example of this contradiction is provided by the course of the Jurassic Way between Northampton and Desborough, a distance in all of about 15 miles. The map (Fig. 40) emphasises the

intimate relationship of the present day topography with the geology of the area: the oolitic formations (Northampton Sands and Limestones) outcrop on the valley sides in narrow zones conforming with the surface relief. Their influence on human settlement is emphasised by the distribution of the medieval communities: for each valley contains one—or in the case of the larger valleys, two—settlements; and the whole has the semblance of a consciously planned and co-ordinated allocation of the better-class land.⁸ Scattered finds covering the earlier periods, the result usually of discoveries made incidentally to ironstone working, augment the evidence of the Bronze Age barrows referred to above. The chief groups of finds are those from Desborough and Duston, where practically the full range of pre-Saxon archaeology is represented.

The oolitic outcrops here appear therefore as foci of settlement to which access in the main valleys at least was probably obtained mainly by river. But while away from the rivers they must have been linked by land routes their distribution does not provide a suitable line for a "through" road of the type with which we are now concerned.

There are two possible courses which would enable such a road to keep to the theoretically most suitable ground. It may move longitudinally along a valley flank, taking the shortest crossing over the watershed into the next river system; or it may cross transversely the succession of ridges and valleys, using the narrow outcrops as it were as stepping stones between one zone of less easy going (whether it be boulder clay, Lias, or alluvium) and the next.

The first of these possibilities does not present itself here; the road up the Kelmarsh valley from the Northampton crossing of the Nene is an example of the second. This road is direct and it provides a link with the Desborough-Rockingham ridge, the next important topographical feature to be utilized by the Way. But its northern part particularly crosses so much low ground that we may doubt whether it could have come into use until comparatively late times. Its southern part as far as Lamport looks more likely. But though it makes a comparatively short crossing of the boulder-clay to connect

* Meaning by "better class" here the land suitable for primary settlement.

with our other road at Foxhall above Harrington it still has to negotiate two valleys to do so.

On the other hand, the Northampton—Broughton Common-Foxhall Inn road is a ridgeway of the normal type. It sweeps round in a wide arc along the crest of the watershed between Ise and Kelmarsh, its every change of direction dictated by a wish at once to maintain height and to avoid stream-crossings; and when finally the upper course of the Ise bars its way it makes the inevitable crossing at the narrowest part of the valley-bottom before climbing out past the famous Desborough site to continue its course north-eastwards along the Rockingham ridge.

As a matter of pure topography this line chooses itself as that most likely to have been taken by the Jurassic Way in this part of its course. It must be noted, however, that the geological evidence is the reverse of what we should expect: the road is on boulder-clay for the greater part of its course. As between these two alternatives it is unnecessary to make a final choice: the ultimate result is not seriously affected in any case and the two roads may well have existed side by side from quite an early date. But the point deserves to be made that in some circumstances either topography or geology may play the dominant part in determining the line to be followed, thus causing important local modifications of postulates made originally on general grounds.

The Jurassic Zone must have functioned as a corridor for human movement at least from the Early Bronze Age. Indeed, it may well have begun with the Neolithic A diffusion: it may be more than a coincidence that the only recorded find of Neolithic A pottery from the east Midlands⁹ comes from within a very short distance of it. In any case, it was no doubt the Jurassic Way which helped to carry such demonstrably northern products as the food-vessels southwards into the Midlands and the Upper Thames Valley and even into the neighbourhood of Bath.¹⁰

⁹ That from Great Ponton, Lincolnshire—*Antiq. Journ.*, XV (1935), 347-8.

¹⁰ The latter area is not shown on the latest map of food-vessels, in Fox, *Personality* (4th ed.), Pl. IV, but the finds from it are represented mostly by fragments from Lansdown and Charny Down published more recently. See *Antiq. Journ.*, XXX (1950), 34 ff.

It is, however, in the Early Iron Age that its operation becomes really clearly defined, when at both ends of it there came into existence the two powerful and culturally progressive centres of Yorkshire and Somerset respectively; and study of the series of Iron Age maps published by Fox shows for so many of the type-fossils of the time a series of finds trailing out along this line.

Such distributions betoken movement in both directions. The currency-bars, recognized as a product of the Glastonbury group, illustrate that movement in what may be its purely commercial aspect; in the other direction and at a somewhat earlier date the same may apply to the La Tène I brooches, some of which in the south show pronouncedly Yorkshire characteristics.

Any attempt to assess the more difficult question of settlement and colonization along the Jurassic belt is, however, handicapped by the gap in our knowledge of the Iron Age B culture of the north—a gap which is making itself more and more strongly felt and the filling of which must soon become a matter of some urgency. Apart from anything else, until we know more about Yorkshire we cannot assess the amount of colonization of the Midland region which may have entered the area laterally along the river-valleys from the Lincolnshire or East Anglian coast.

While therefore it is now recognized that the Marnian culture of Yorkshire must have been the main inspiration of the British school of fine metalwork, there has been a tendency to regard all manifestations of the Iron Age B culture which have appeared along the Jurassic Zone as having been due directly or indirectly to Glastonbury. Such manifestations are of course slight at the present time: the objects of metalwork apart they consist in all of one site in Gloucestershire (Salmonsbury, which is within striking distance of the Jurassic Way) and three in Northampton: Hunsbury, Desborough and Draughton, the last a small settlement discovered and excavated on behalf of the Ministry of Works in 1942 before it was destroyed during aerodrome construction.

Far and away the most important of the Northamptonshire sites is of course *Hunsbury*, the considerable quantity of material from

which, recovered in the 1870's during ironstone working, has recently been re-published by Miss Clare Fell.¹¹

Prolonged occupation of the small hill-fort is indicated—or at least, more than one cultural phase of the British Iron Age is represented (see below, pp. 163-4). The earliest pottery shows Iron Age A influence; there is a small but famous series of bowls with Iron Age B ornament; and there are also the currency bars and the decorated metal objects. A small quantity of Roman material ranges down to the IInd century A.D., though not enough to suggest intensive occupation after the conquest or even in Belgic times. The wealth of the settlement is no doubt to be accounted for by its control of the crossing of the Nene at Northampton—a factor which continued to operate in the case of the later town—as well as of movement along the river itself. But the presence of numerous storage-pits demonstrates that whatever its importance as a trading station the livelihood of its inhabitants was also to some extent based on agriculture.

The discoveries at *Desborough*¹² were made under similar conditions but with even less in the way of record. The site, on the outskirts of the small town, was once again above a river crossing, this time that of the Ise; but could hardly have been as important. Amongst the finds recorded the most significant for our present purpose are of course the famous mirror and a small pot with running scroll-and-dimple ornament (Plate VI A) which came from the same field, though there is no evidence that the two were in any way associated.

Draughton, however, was almost completely excavated and detailed publication of the results is pending. The site was that of a small settlement (actually on the boulder clay) to which slight defences had apparently been added. The material finds included pottery of two kinds: a small group of finer wares with running yin-yang and geometric patterns as at *Desborough* and *Hunsbury* (Fig. 41, 3); and a

¹¹ *Archaeological Journal*, XCIII (1936), 57-100. Superficial examination of the interior of *Hunsbury* suggests that the destruction may not be as complete as is generally thought. Judging by the present contours (which may of course be deceptive) part of the south-east side is untouched and if this were the case careful excavation here might well do something to establish a clearer chronological and cultural succession than is at present possible.

¹² *Archaeologia*, LXI (1909), 329; *Proc. Soc. Ant.*, 2nd series, xxii (1908), 333. I have to thank Miss Jocelyn Morris for help in connexion with this *Desborough* material as well as with several other matters.

group of coarser wares, clearly contemporary, including plain shouldered forms and others with finger-nail and scored ornament (Fig. 42 ; Plate VI B).

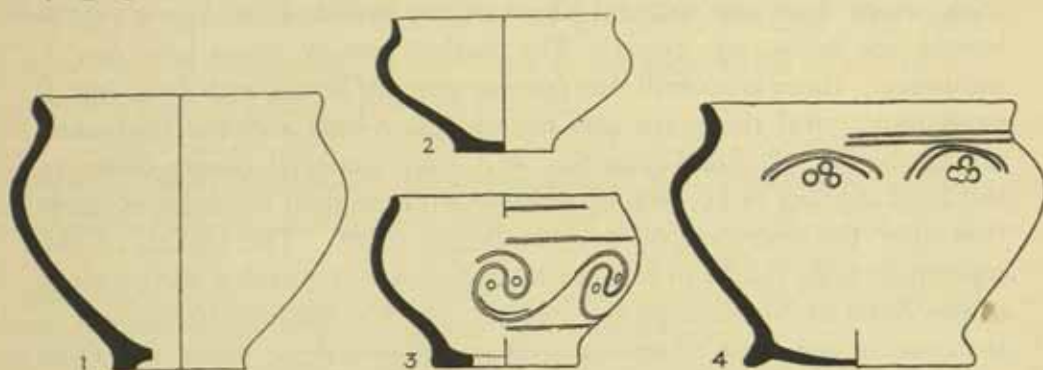


Fig. 41. Pedestalled bowls. (1)

- | | |
|---------------------------------|---------------------------------|
| 1. Flindon Park, Sussex. | 2. Risby, Suffolk. |
| 3. Draughton, Northamptonshire. | 4. Little Horsted Lane, Sussex. |

This coarse pottery at Draughton is clearly part of the same complex as the "A" pottery at Hunsbury, though the latter is less primitive (and presumably later). Technically both the A and the B series are of better quality at Hunsbury than at Draughton. There were no storage-pits at Draughton and it seems unlikely therefore that the inhabitants were agriculturists, though they had cattle and horses. The presence of quantities of selected ironstone and pure iron ore as well as an iron pick probably provides the clue to the character of the site as the settlement of a small group of iron-workers. Its location was therefore due partly to the proximity of the Jurassic Way, partly to the presence near at hand of a good water supply, partly to the need for ready supplies of timber which the inhabitants would have required for the iron-smelting which was their chief activity.^{12a}

It is clear then that in their different ways the three settlements were occupied by people of the same culture in the Iron Age and that that culture incorporated an Iron Age B element as well as something of a rather earlier character, whether Iron Age A or Late Bronze Age in its ultimate origin.

^{12a} The site and material from Draughton are here described with the sanction of the Ministry of Works and of H.M. Stationery Office.

Of this earlier element it should in the first place be said that it does not seem to be present in the Glastonbury B complex. Pots belonging to it occur scattered over the area of East Anglia,¹³ Lincolnshire¹⁴ and the East Midlands generally (Fig. 43).

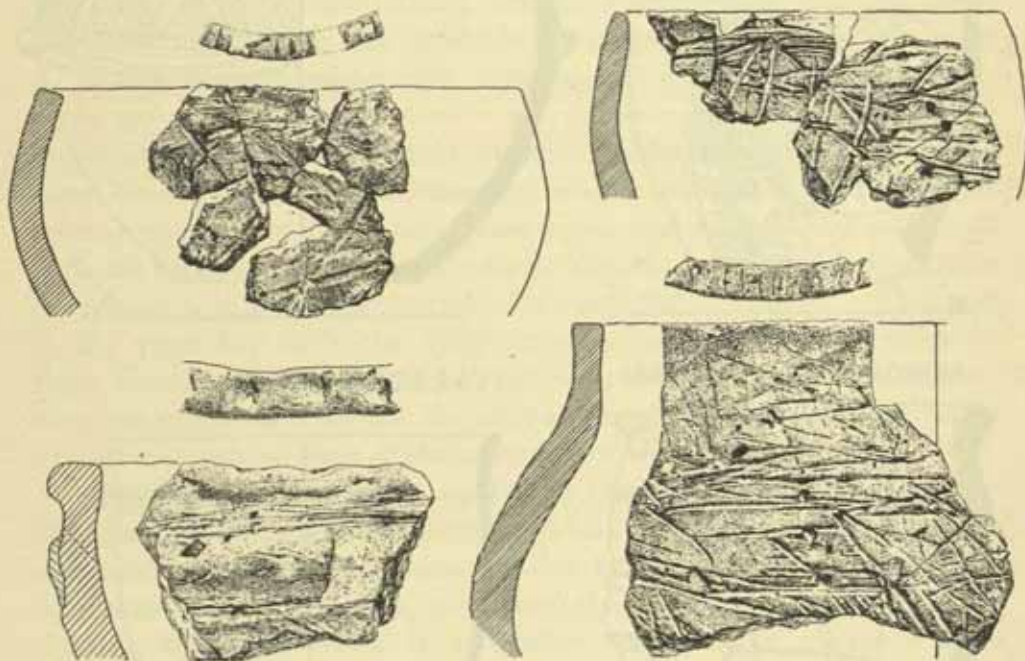


Fig. 42. Pottery with scored and finger-nail ornament from Draughton, Northamptonshire (†)

Related to it at the upper end of the time-scale is probably the scored pottery found by Dr. Clark at Mildenhall,¹⁵ of Late Bronze Age date; but something very like it also seems to continue down to Belgic or even early Roman times in Lincolnshire¹⁶ and no doubt also elsewhere. The scored ornament on this pottery, done sometimes

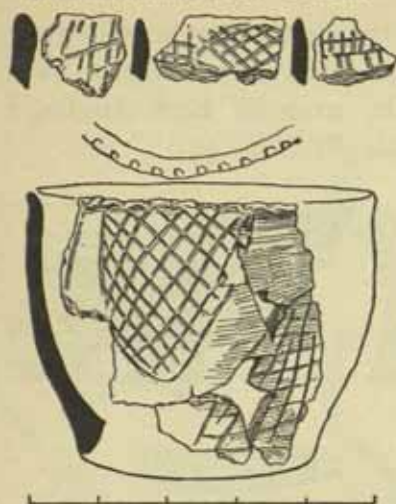
¹³ As for instance at Lakenheath and Rushmere St. Andrews, Suffolk (*Arch. Journ.*, XCVI (1939), Pl. II, 1, and Fig. 4, 3); Abingdon Piggots, Cambridgeshire (*Proc. Prehist. Soc. E. Anglia*, IV (1923), 220).

¹⁴ As at Brigg (*Arch. Journ.*, CIII (1946), 12-13). The small fragment recorded by Wright from the site of the prehistoric boats on the Yorkshire side of the Humber ferry is also of this series, being closely paralleled by some of the Draughton pottery (*Proc. Prehist. Soc.*, N.S., 1947, 135-6).

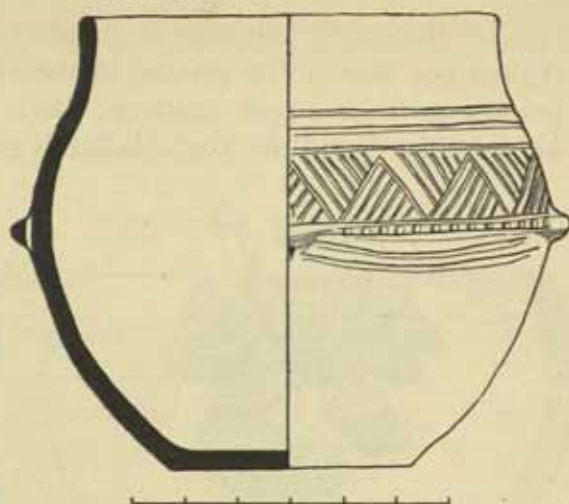
¹⁵ *Antiq. Journ.*, XVI (1936), 29-50. This resemblance has been observed independently by the brothers Wright in their North Ferriby report, *loc. cit.*

¹⁶ On a small enclosed settlement of this date at Colsterworth, excavated during the war and to be published in due course.

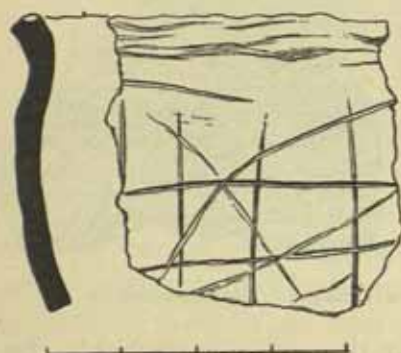
MILDENHALL FEN *Suffolk*



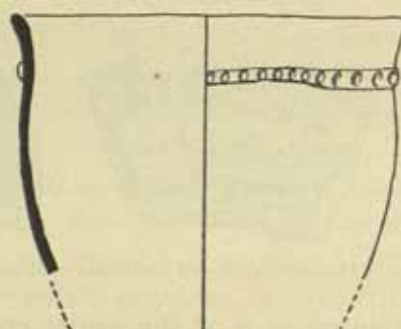
THORNY DOWN *Wilts*



ABINGDON PIGOTTS *Cambs*



SCARBOROUGH *Yorks*



EGGINTON *Beds*



WEST HARLING *Norfolk*

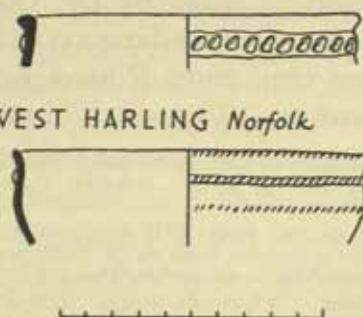


Fig. 43. Scored and finger-tip-ornamented pottery from English sites
(Scales of inches)

with a bundle of twigs or the like, sometimes with a single rough point to produce a haphazard all-over effect in which a crude lattice pattern often emerges, is its distinctively local feature. Its debased situlate and bucket forms, finger nail ornament and occasional applied strips are of wider distribution and their immediate ancestry is no doubt to be sought in the products of Scarborough or West Harling.

I am not concerned here, however, to go exhaustively into the problems raised by this pottery: my purpose is merely to emphasise its significance as the product of a widespread cultural province of Late Bronze Age-Hallstatt ancestry which is manifest at present at several places along the east coast from Essex northwards (though with its own variations) and which, like the corresponding culture elsewhere, was of an extraordinarily persistent character. The pots so far recorded with the inhumation-burials of the Marnians in East Yorkshire¹⁷ appear also to belong to the same ceramic series: they are plain more or less shouldered vessels with simple vertical or slightly out-turned rims of Hallstatt rather than La Tène type.

As already noted, the Iron Age B element in the Northamptonshire pottery has long been recognized and the implication has usually appeared to be that its source was to be sought in the south-west. Alternatively, it has been suggested that it was the result of the copying by A-potters of B decorative *motifs*. The evidence from Draughton in any case makes it clear that the A and the B series are contemporary and this no doubt was also the position at Hunsbury, whatever the variation in absolute chronology between the two sites.

In the matter of its origin, however, the Northamptonshire Iron Age B pottery has distinctive characters which are not those of Glastonbury; and though there is comparatively little of it, its individuality remains very clearly marked.

The Northamptonshire forms are only two: a small open bowl with a high rounded shoulder tapering to a narrow foot (Fig. 41, 3); and a globular bowl, broader than it is high, with a simple out-bent or beaded rim and a base which passes upwards in a smooth rounded curve into the body.

¹⁷ As at the Danes Graves themselves (*Archaeologia*, LX (1906), 263-4) and at Eastburn (*Torks. Arch. Journ.*, XXXIV (1939), 39-40 and Pl. III).

Apart from the simpler swags and interlocking arcs and one example at both Hunsbury and Draughton of obliquely-hatched triangles in well-executed zones, the outstanding feature of the ornamented pots is the use of the running scroll or yin-yang (usually as a broad rubbed rather than incised line) combined with an impressed dimple in the alternating lobes of the scroll, the dimple being used either singly (Desborough, Draughton) or elaborated to form a rosette (Hunsbury).

Now while Glastonbury makes occasional use of the single depression in association with simple types of running line,¹⁸ the distinctive returning spiral and the rosette are entirely absent in the south-west, whose more complicated patterns and more varied forms have nothing to compare with the restraint and masterly control of the little Desborough pot, surely one of the most satisfying productions of the Iron Age potter so far recorded in this country.

The yin-yang is based on a simple geometric construction which consists of two small circles within a larger, their centres on a common diameter, their diameters equal to the radius of the enclosing circle.¹⁹ An S-curve follows alternate semi-circles of the smaller elements and is linked in an unbroken line with the outer circle. The result is aptly described by Dr. Jacobsthal as "two intensely revolving comma-leaves closely clinging together within a circle."²⁰ The *motif* may be used singly²¹ or may be repeated and linked to form a continuous scroll.²²

Dr. Jacobsthal states that in the early phases of Celtic art the pattern never occurs by itself but is usually part of the scrolls of lyre- or palmette-ornaments, the line of the outer circle being broken and prolonged into an S or similar curve, to complete the figure. Curiously incomplete scrolls are, however, figured by him on two pots, the first (No. 412) now in St. Germain Museum from an unknown site in the Marne region, the second (No. 414), from Alsópéc in Hungary, now at Budapest.

¹⁸ *Glastonbury Lake Village*, II, 202, 221, etc.

¹⁹ The basic geometrical form occurs on a sword-scabbard loop from Icklingham, Suffolk (*Arch. Journ.*, XCVI (1939), 66-7).

²⁰ *Early Celtic Art*, I, 78; II, Pl. 271, Nos. 310, etc.

²¹ *ibid.*, I, 14; II, Pl. 271, No. 443.

²² *ibid.*, I, 94, 153.

Of these the Marne bowl is a shallow vessel with ornament on its external base. The main elements are two large S-scrolls on each side of the base. Between them at one end is a returning spiral, which looks like a change of plan or an afterthought perhaps to fill the too-large space : it springs awkwardly from the base of one of the S's, but having completed its returning curve comes to an end in mid-air. The whole has been executed in a broad rubbed groove or channel.

The Hungarian pot is a tall pedestalled vase with panels of ornament some of which are rectilinear, others curvilinear in style, on base of neck and shoulder. The linear ornament is enriched with stabbed or impressed dots the arrangement of some of which suggests badly ordered rosettes of the Hunsbury pattern.²³ Jacobsthal has rightly noted that these panels are disordered renderings of metal ornament. One of the curvilinear panels incorporates two of our returning spirals, of which one is completely detached from the remainder of the pattern.

Whether or not the Alsópée "rosettes" are intended as such or are merely part of a haphazard ground treatment for the linear ornament, rosettes embossed on metalwork and of a varying elaboration are frequently present on Jacobsthal's plates.²⁴ Elaborated in keeping with the more pliable technique, returning spirals and rosettes appear in magnified forms amongst the painted pottery in the Marne region.²⁵

Without pursuing the matter in greater detail, therefore, we can recognize on the continent both the decorative elements of our Northamptonshire Iron Age B pottery and find them occurring in that area of Marnian culture which is the direct ancestor of our own northern and eastern culture.

In British metalwork also the scroll is comparatively uncommon and the few examples are well known. In *champlevé* enamel it

²³ The decorative technique is exactly paralleled on a fragment from Lakenheath, Suffolk, figured by R. R. Clarke in *Arch. Journ.*, XCVI (1939), Pl. XIV, 2, apparently without comment.

²⁴ e.g., II, No. 45 (torc from Belgium) for the Hunsbury version ; *ibid.* No., 134 for more elaborate types (armour and helmet mounts from Bergamo).

²⁵ Jacobsthal, II, Pl. 265, No. 117 ; British Museum, *Iron Age Guide* (1925), Pl. VI, 4-6.

occurs in the simple and in the running version in the Santon hoard,²⁶ and as a running pattern embossed on strips of Rodborough Common (in modified form)²⁷ and more recently at Llyn Cerrig.²⁸ The whole series has been discussed by Sir Cyril Fox, who regards the Santon find, dated to the mid Ist century A.D., as the latest. In seeking the origin of the Llyn Cerrig examples he is inclined to favour the south-west rather than the east.

The rosette is only slightly less rare on metalwork. The British examples have been discussed at length by Professor Hawkes²⁹ and it is sufficient here therefore to observe that while the Tre'r Ceiri brooch, the Santon strip (from the same hoard as the enamelled mount above) and the Elmswell plaque belong broadly speaking to the middle or third quarter of the Ist century A.D., the Ulceby bit, for which a date in the Ist century B.C. is accepted,³⁰ carries the *motif* back at least another 100 years in this country. Professor Hawkes' comments on the origin of this type of rosette would seem to indicate that he believes it to be derived, perhaps in England, from more definitely flower-like petalled forms. But more than one origin is possible for the berried rosette; and whatever its typology its presence on continental works of the late IVth century B.C. in an area (Belgium) bordering the source of our own north-eastern culture suggests that it may just as well have been introduced by Marnian metalworkers as part of their repertoire.

While therefore the evidence for the non-Glastonbury origin of the scroll and rosette is of a negative character, residing as it does in the absence of these *motifs* on south-western pottery, there is some justification for linking them more emphatically with the east and north-east through the metalwork—for the interchangeability of patterns between metal and pottery is no new thing in this and other periods.

But the argument from the ornament receives also some support

²⁶ *Cambridge Ant. Soc. Proc.*, XIII (1909); Fox, *Arch. Cambridge Region*, cover design and pp. 104 ff.

²⁷ British Museum, *Early Iron Age Guide* (2nd ed.), 146, Fig. 169.

²⁸ Fox, *Llyn Cerrig*, 21 ff.

²⁹ *Antiq. Journ.*, XX (1940), 346 ff.

³⁰ *ibid.*

from form. We have already noted (p. 163) that the Northamptonshire B forms are two, a narrow footed bowl or cup and a globular bowl. Parallels for the former particularly are not difficult. The nearest is the bowl from Risby, Suffolk, published separately by Clarke³¹ and Hawkes³² and by both recognized as of Marnian origin. The Draughton bowl especially presents all the features of this Suffolk pot in a less angular mould, for even its rim, though almost bead-like, is nevertheless really a reduced version of the pronounced vertical collar of the Risby bowl (Fig. 41, 2, 3).

As Hawkes has pointed out, the Risby bowl directly or indirectly must be due to the series of Marnian invasions which introduced similar forms to the south coast in the mid-IIIrd century B.C. The other parallels for our Northamptonshire B pots are to be sought in Ward Perkins' south-eastern B group.³³ The south-eastern pedestal bowls have a family resemblance (in form only) to those from Draughton and Desborough, and the same thing is true of some of the omphalos bowls, though here finality is impossible because the Hunsbury pots are incomplete: sufficient remains to show that they have the same rounded bases, but there is nowhere enough to decide for or against the omphalos.

Ward Perkins recognized that the decoration on pots of his Crayford series showed sufficient affinity to that of Glastonbury to leave no doubt as to their ultimate relationship, though they were not directly connected. Such decoration (in its simpler forms) is not wanting on some of the Hunsbury pottery: it is, of course, part of the inheritance of groups divergent from a common origin in which different elements receive varying emphasis as time goes on. But the presence in both the midlands and the south-east of two distinctive forms which do not occur in the south-west would seem to involve a closer link for these two areas. In addition, both groups have a strong Iron Age A element.

In concluding that his south-eastern B pottery was intrusive in Kent and Essex Ward Perkins produced evidence to show that it was

³¹ *Arch. Journ.*, XCVI (1939), 43-4; Pl. IV, i.

³² *Antiq. Journ.*, XX (1940), 117 (Fig. 14), 119.

³³ *Proc. Prehist. Soc.*, N.S., IV (1938), 151 ff.

not Belgic, though the dating material placed it not earlier than the close of the 1st century B.C. and carried it on into the early years of the Roman occupation. He decided tentatively that in Sussex also it was intrusive and not to be derived from a culture like that of Findon Park.³⁴ My own view of the matter is, however, that the two must be related whether the early Sussex wares are directly ancestral to the south-eastern B or not; and I believe that these south-eastern groups and the Hunsbury B pottery come from the Marnian culture along a route which is independent of Glastonbury, whatever the latter's immediate source may be.

The suggestion made here, therefore, is that the Desborough-Hunsbury group of Iron Age B pottery should be regarded not as an outlier or imitation of Glastonbury, not even as part of the south-eastern B series, but as the La Tène element in the pottery of the north-eastern B culture. As such it enriches the eastern pattern of the La Tène colonization of south Britain, allowing to the later Marnian invaders their own expression in ceramic form and ornament which is in keeping with their ancestral traditions in pottery and metalwork. Without more knowledge than we at present possess of the material equipment of the northern Iron Age this suggestion can only be tentative; nor can we unravel the tangled variations of Hunsbury and Draughton, in which, as we have noted, some difference in date is implied, with Hunsbury the later. We have also observed that at Draughton the A and the B elements are contemporary: they are not due to successive occupation of the site first by A, then by B people; and this is presumably also true of Hunsbury, where the two groups appear to show parallel development.

Further speculation on this subject need not, however, detain us here, nor need we consider the place or the manner of the amalgamation of the A and B elements.³⁵ In relation to the Jurassic Way the main point is that the cultural movement and settlement involved must be regarded as having taken place from north and east—whether from Yorkshire, or by way of the Nene or other rivers from the Wash

³⁴ *Archaeologia*, LXXVI (1926), 21, Figs. 11 and 12, for pedestalled bowls of the same type.

³⁵ It is worth noticing in passing that the comparatively small amount of B pottery is perhaps additional evidence for the generally accepted view of the Marnian B invasions as affairs of small groups.

remains to be seen. The Mildenhall chariot-burial³⁶ shows that East Anglia was touched by Marnian settlements and in this area even in early Roman times our distinctive northern decorative elements recur, sometimes modified, as at Santon, by newer techniques. Colonization of the Midlands from this direction would presumably have taken the form of lateral movement along the Way from the valleys which intersect it.

There is, however—as we should expect—parallelism between Yorkshire and Northamptonshire which is not confined to the ornamental details above discussed; and bearing in mind the accepted view of Yorkshire as the original centre of Celtic metalcraft in this country, a colonization of the iron-bearing midlands region from the north-east along the Jurassic Way would be the neatest method of accounting for the presence in the Northampton upland of the school of craftsmen which Sir Cyril Fox has postulated as the source of the “mirror style,” that distinctively British contribution to Celtic art.

In the later Iron Age the Jurassic Way would appear to exercise the other great function of a road, that of a political (and, in this instance, cultural) boundary. The work of Brooke³⁷ and Allen³⁸ on the early British coinage has shown that for all their mobility the coins of the Belgic kingdoms of south-eastern England form a distribution pattern which tallies essentially with the known boundaries of the kingdoms themselves. Allen's survey particularly shows the Belgic tribes confronted by a fringe of non-Belgic folk which resisted their expansion even while they assimilated something of their culture.

The tribal boundaries where they can be determined seem mostly to have followed rivers, but the east midlands area, in which the Belgic Catuvellauni faced to the north-west the non-Belgic Coritani, is one in which boundaries are uncertain. The Coritani seem to have produced no coinage; that of the Catuvellauni, however, appears as rarely crossing the line which has been proposed above for the middle course of the Jurassic Way, suggesting that the Way here marks in a

³⁶ *Arch. Journ.*, XCVI (1939), 43-4.

³⁷ *Antiquity*, VII (1933), 268-89.

³⁸ *Archaeologia*, XC (1944), 1-46.

general sense the forward edge of Belgic penetration in the years immediately preceding the Roman conquest (Fig. 44).³⁹



Fig. 44. Sketch-map showing the distribution of Belgic coins in relation to the Jurassic Way

In Roman and later times the part played by the Jurassic Way in maintaining communications across central England is inevitably much obscured by the emergence of the Foss Way as its Roman successor, linking more directly the (Roman) tribal capitals of CORINIVM (Cirencester) and RATAE (Leicester) with one another and with places on either side of them. Along either of these roads some part of the Saxon colonization of the Cotswolds may have taken place.

³⁹ This point had been made previously by Sir Cyril Fox in discussing the La Tène brooches and I am grateful to him for drawing my attention to his remarks on this subject. See *Camb. Ant. Soc. Communications*, XXX, 52-3 (summary of paper read February 19th 1928).

In several places we have seen Roman roads eliminating the earlier way ; and yet not everywhere did the new order prevail permanently. At Stamford, for instance, topography and natural conditions reasserted themselves, and the more difficult Roman crossing of the Welland was abandoned in favour of one which must at least have approximated to that of the prehistoric road, around which the medieval town developed.

But even if the Jurassic Way did not continue in use throughout its entire length as the equivalent of a modern trunk road, parts of it at least survived, like the Banbury Lane, to have something more than a purely local significance.⁴⁰ There is a strong element of continuity in the siting of so many of our older settlements the remote ancestry of which is often masked by the artificiality of modern conditions. For at least five of the midland towns which have been mentioned in this paper, Lincoln, Stamford, Northampton, Banbury, perhaps to a less extent Grantham, the Jurassic Way must have laid the foundations of their subsequent importance and prosperity in relation to lesser settlements in their respective areas. Each is a bridgehead controlling the crossing of rivers, the larger of which themselves functioned as traffic routes. And whether or not, as with Lincoln and Stamford, the strategic requirements of the Roman province brought a Roman road to the same focal points—sometimes even along the same line—we may guess that some part of the post-Roman development of these places was owing to the “accidents” of nature which directed the pioneers of the Jurassic Way to them at least 2,000 years before the Romans came.

⁴⁰ At Addlestep the road leading eastward to Banbury and Northampton is called in an Anglo-Saxon charter the “Regia Via de Norhamtun” (Grundy in *Arch. Journ.*, XCI (1934), 95).

BRONZE-WORKERS, CAULDRONS, AND BUCKET-ANIMALS IN IRON AGE AND ROMAN BRITAIN

By C. F. C. HAWKES

THE prehistoric bronze industry, as is well known, rose to its height in these islands in the Late Bronze Age : from near the beginning until after the middle of the first millennium B.C. And as iron-using thereafter advanced slowly, so bronze-using persisted obstinately all the more because the ores of copper and tin, on which the old industry was based, were in the west, the north, and Ireland, farthest away (broadly speaking) from the reach of Iron Age immigrants with the new metal. Moreover, when we come even there to speak of the ending of the Bronze Age, we only mean, strictly, the ending of the use of bronze for primary working equipment, essentially cutting-tools and weapon-blades. There was also an end, indeed, of the regular marketing of bronze goods by travelling merchant-founders, accustomed at need to bury their stocks as "hoards." But if the supplying of bronze goods in the Iron Age was organized differently, it was only because then the bronzes chiefly required were different : small castings such as brooches and other personal things, medium-sized castings such as harness-fittings, hilts for iron weapons and handles and attachments for tools, vessels, and things mainly wooden, and lastly vessels or other articles made wholly or in part of sheet-bronze.

These things were apt, in great measure, for "ornamental" treatment. And from the coming of Celtic art in the La Tène tradition to Britain, with the earliest invaders of Iron Age B in the IIIrd century B.C., they were increasingly so treated : in the last hundred years before the Roman conquest, most British bronze products bore the imprint of the contemporary Celtic art-style in one or another form. They include some of the most splendid and renowned of Celtic masterpieces. Naturally and properly, then, British archaeologists, starved of beauty in so many other quarters, have sought first and foremost to study them aesthetically, or at any rate typologically ;

they have seldom gone on to such metallurgical and economic enquiries as are usual in studying the bronzes of the Bronze Age. In consequence, the technology and the economics of Iron Age bronze-working have hitherto not been much considered. But Sir Cyril Fox's work on the assemblage from Llyn Cerrig,¹ which has so greatly advanced the formal and stylistic study of our Iron Age bronzes, has also now at last brought these other aspects of them initially into view. Henceforward, research should go forward on a broader front. But its field of course undergoes, before long, the great distortion made by the impact of the Roman conquest. And the effect of that distortion requires notice : it was twofold.

On the British bronze-worker's art and his repertory of style and types, we all know what it was. Throughout what became the Roman province, British art and design were largely Romanized : that is, British craftsmen were brought either to copy imported Roman products directly, or to produce specifically Romano-British things in which British tradition passed more or less tamely down into Roman provincialism ; outside the province, such new styles as arose were either simply old ones impoverished, or were affected in varying degrees by Roman influence.

On the technical and economic sides of his activity, however, the picture is only in part so clear. We can see that the province's civilized industrial centres, created to meet its new mass demand for commercial products and the army's demand for equipment, could use not only metal supplied from Roman mining in Britain itself, but also imported metals and alloys (and increased supplies of scrap-metal) which the commerce of the Empire made available to them. But we do not see so well how the local bronze-smiths of the less civilized districts supplied their small workshops to cater for local demand. Still less can we discern how far the barbarians beyond the frontiers came to rely for bronze goods and melting-metal on trade coming from within them, and how far they were able or willing to supply themselves by keeping alive the old prehistoric bronze industry from sources outside Roman control.

¹ Fox, *A Find of the Early Iron Age from Llyn Cerrig Bach, Anglesey : Final Report* (National Museum of Wales, 1947).

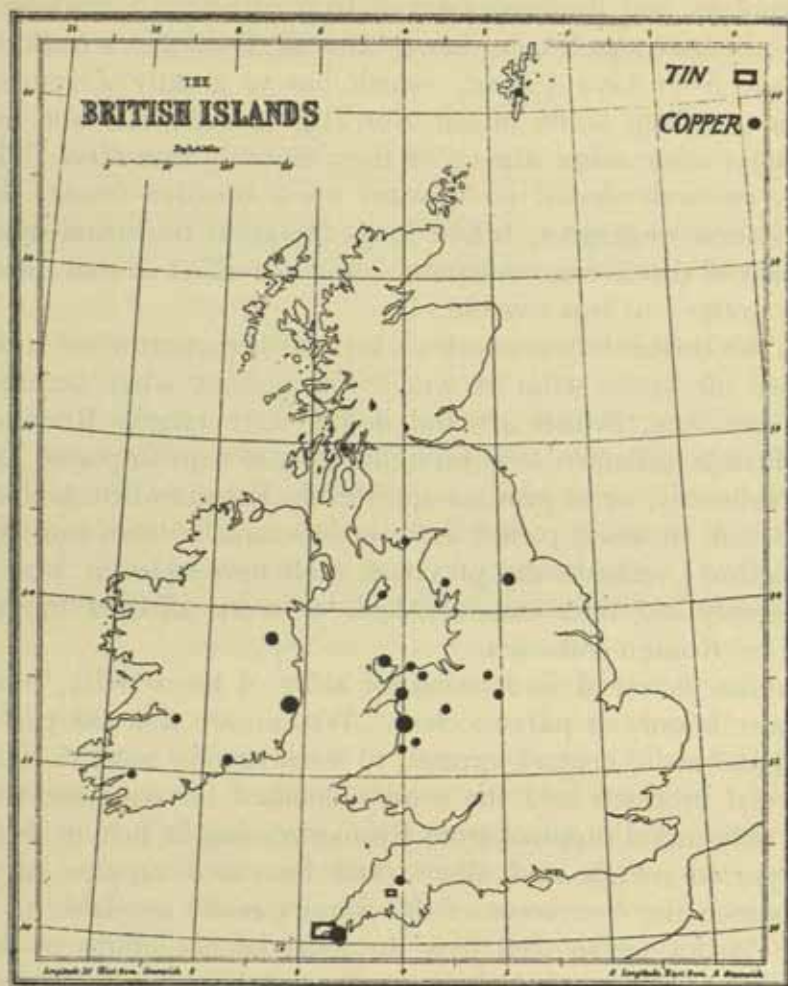


Fig. 45. Map of the British Isles showing the distribution of copper and tin ores

Size of symbols represents annual output for 1909-13 thus:—

Tin: large, 8000-7000 tons; **Copper:** large, over 500 tons;
 small, under 500 tons; medium, 500-100 tons
 small, under 100 tons or nil.

The half-symbol (copper) = surface copper perhaps workable in antiquity (Breadalbane, Bridge of Allan).

Data supplied by the Geological Survey with additions from R. G. Collingwood, cited, footnote 4 (Great Ormes Head; Llanymynydd)

These questions may receive answers in time ; already before 1939, metallurgical research had begun to produce at least some highly valuable facts.² Meanwhile the accompanying sketch-map (Fig. 45), based by permission of the Geological Survey on one of the Survey's MS. "Maps of the Distribution of Mineral Resources in the United Kingdom," prepared for war purposes in 1914 and extant in its Library,³ shows the distribution of the ores of copper and tin in the British Isles. It will be seen that most of the British copper ores lie or lay within the "Highland Zone," though south of Hadrian's Wall ; there are some few locations, however, in Scotland (including Shetland), and one in Man, in addition to the better-known deposits in Ireland. Tin ores, of course, exist only in the south-western peninsula. The evidence for copper-mining within the Roman province is familiar, and has been most accessibly collected by Collingwood⁴ ; outside the province, no direct evidence exists. Yet it seems unlikely that the Irish ores ceased altogether in the Iron Age to be the source of supply that they are recognized to have been in the Bronze Age. And while any ancient working of those in Scotland (or Man), as also elsewhere apart from attested Roman operations, at present lacks all positive evidence, it need not be judged impossible. As for Cornish tin, admittedly (apart from the short-lived undertaking of Flavian times at Nanstallon) organized Roman working of it was only undertaken in the later IIIrd and IVth centuries.⁵ But the famous prehistoric native industry may be allowed to have survived through the preceding three centuries in a shrunken form for local purposes ; moreover, West Cornwall was always so little Romanized, that

² E.g., in *Proc. Univ. of Durham Philosophical Soc.*, IX (1938), A. Raistrick and J. A. Smythe, "A Flanged Bronze Celt from Birtley" (47-54) ; G. C. Whittick and J. A. Smythe, "An Examination of Roman Copper from Wigtownshire and North Wales" (99-104) ; J. A. Smythe, "Roman Objects of Copper and Iron from the North of England" (382-405).

³ My thanks are due to Mr. C. N. Bromehead, F.G.S., for his enabling me to consult and make this use of the maps, and for expert information bearing upon them. He has since published, to the great gain of archaeologists, two articles on "Practical Geology in Ancient Britain" in the *Proceedings of the Geologists' Association* : Part I, "The Metals," Vol. LVIII, part 4 (1947), 345-67, and Part II, "Non-Metals," Vol. LIX, part 2 (1948), 65-76. For Ireland see also A. J. Cole Grenville, *Memoir and Map of Localities of Minerals . . . in Ireland*, Stationery Office, Dublin, 1922, which came to my notice unfortunately too late for study when writing this paper.

⁴ R. G. Collingwood in *An Economic Survey of Rome*, ed. Tenney Frank, Vol. III (Baltimore, 1937), 38-9, 90-2.

⁵ *ibid.*, 47.

occasional small disposals of tin to Irish or western or northern British skippers would be perfectly practicable, even if officially illegal. In short, while the Roman power in Britain drew most of the available British metal-supplies to itself, as well as bringing foreign supplies into the country, the unconquered or little-Romanized natives of the Highland Zone, like the Irish, were at any rate able, if they wished, to keep up some bronze-working independently of the organized Roman industry. True, considerable bronze supplies from Roman sources reached if not the Irish, certainly the Highland British, commercially (to say nothing of occasional plunder) across as well as within the frontier. Yet the Roman distortion of British economy in bronze, great as it was, need not wholly have warped away the prehistoric traffic of the west and north.

Fox has pointed out⁶ that at the time of the Roman conquest and for a century or so before it, that traffic was doing most of its business in the south-west, using Cornish tin, and copper which he suggests was Irish.⁷ Then, when the Roman armies reached the north, native bronze-work increases its showing about and beyond the Border, and its stylistic affinities with contemporary Irish work⁸ suggest some metal-traffic still of prehistoric pattern on both sides of the North Channel. That could perhaps have lasted, after a fashion, into the dimmer ensuing age of hand-pins and "Ultimate La Tène" enamels in north-western Celtic ornament.⁹ At all events, British bronze-working during the Roman occupation was not wholly concentrated in the industrial establishments of the civilized province. The unconquered barbarians will have had their share of it, and in the province's less Romanized highlands there were local workshops too.

The most famous highland workshops are those of the later Ist and earlier IInd centuries among the Brigantes of the Pennines. Their production of "trumpet" and "head-stud" brooches was

⁶ Fox, *Llyn Cerrig Final Report*, 32-3, 63-4. I am most grateful to him for allowing me to study the Report in 1946 in advance of publication.

⁷ But perhaps some of it was Cornish too. The distribution-evidence round the Bristol Channel would suit either. Cornishmen are usually supposed to have been paid (for tin) in foodstuffs. What were Irishmen paid in?

⁸ E. T. Leeds, *Celtic Ornament*, 115-18 (with 110-12), 130-36.

⁹ *ibid.*, 141 ff; T. D. Kendrick, *Antiquity*, VI (1932), 173-5, 177.

penetratingly studied by Collingwood.¹⁰ He showed indeed that soon after about 150, probably in consequence of political revolt, it came abruptly to an end. And from about that time onwards one finds increasing difficulty in distinguishing any such local bronze-workshops, as he did those, by the style or typology of their products. The reason for that, however, is only that in the IIIrd and IVth centuries the style and typology of small bronzes everywhere in Roman Britain tend to sink into uniformity. Local industries as a class did not cease; they only ceased to work in easily recognizable local styles. When, henceforward, as against things in late-classical style common to all the Empire, one can distinguish things that are palpably Romano-British, they can usually have been made almost anywhere in Roman Britain. Let us then turn away from the stylistic archaeology of "ornamental" types, brooches and the like, and consider more utilitarian products. For beside the tradition of small and medium-size "ornamental" castings, descending from the prehistoric Iron Age, there was in Britain a no less ancient tradition of utilitarian work in hammered sheet-bronze.¹¹ And for our present purposes, its most significant products were, in the first place, wholly bronze vessels—bowls, that is, and cauldrons—and secondly, bronze sheet and strip work for the sheathing and binding of wooden vessels—buckets and stoups or tankards.

Now these things, taken as a whole, are prominent in our prehistoric archaeology, from the Late Bronze Age right through the Iron Age. Well-preserved examples are not too numerous, but the comparative frequency of ill-preserved and fragmentary ones should remind us how many must have perished. There is another reason for not under-rating their importance: the very marked disparity, between the "Lowland Zone" and great parts of the highland west and north, in the distribution of Late Bronze and Iron Age domestic pottery. For cooking and eating without pottery (and especially for brewing), metal and wooden vessels—and doubtless leather

¹⁰ R. G. Collingwood, "Romano-Celtic Art in Northumbria", *Archaeologia*, LXXX (1930), 37-56. Cf. Hawkes in *Antiq. Journ.*, XX (1940), 351-3; and on trumpet-brooches *ibid.*, 495, with Hildyard *ibid.*, XXV (1945), 154-8.

¹¹ On the ancient methods of working metal sheet, see Mr. Herbert Maryon's "Metal-Working in the Ancient World," *American Journal of Archaeology*, LIII (1949), 93 ff.

ones too—were indispensable ; indeed, their possession was notably valued and esteemed.¹² And since, moreover, remains of such vessels occur in the pottery-poor Highland and the pottery-rich Lowland Zone alike, their production and use should be recognized, as those of pottery cannot be, as a cultural characteristic which virtually the

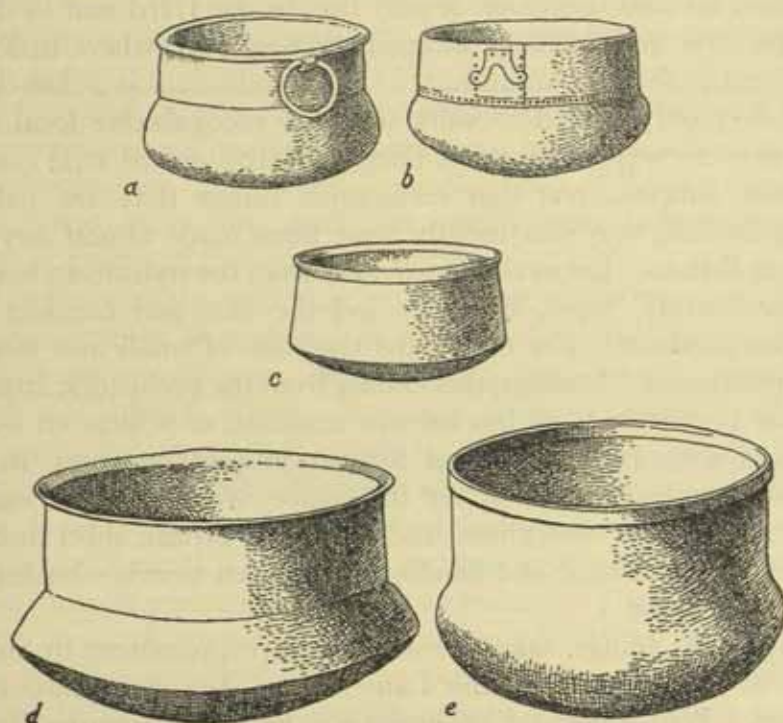


Fig. 46. Bronze cauldrons (a-b, $\frac{1}{12}$; c-e, $\frac{1}{2}$)

Ist centuries B.C.-A.D. : a, Korchow (Mecklenburg)

b, Emmendingen (Baden)

Roman, IIrd. century A.D. : c, Zugmantel (Hessen)

Gallo-Roman, IIIrd century A.D. : d, e, Filzen (nr. Trier)

whole of the British Isles, in those pre-Roman centuries, will have possessed in common. If, then, this characteristic persisted in Roman times, served by the persisting native sort of bronze-working discussed above, it should surely be admitted, no less than should any signs of Celtic tradition in "ornamental" work, as a token of significant native culture-survival through the Roman occupation.

¹² Fox (on the Llyn Fawr cauldrons), *Antiq. Journ.*, XIX (1939), 372-73 ; Déchelette, *Manuel d'archéologie* (2nd edition, = *Manuel*²), IV, 924.

So what are the facts, first of all, about the cauldrons? Cauldrons were first made and treasured in the British Isles in the Late Bronze Age, when the well-known globular-bodied type, made of hammered-metal plates riveted together, was produced in Ireland and imported into both southern and northern Britain.¹³ Its Iron Age successors could be made either in two pieces, a hemispherical base riveted to an upper part formed of a broad and long strip bent round upon itself, or even in one great piece; and when the craft-tradition of the La Tène culture had been extended to Britain we find both one-piece cauldrons,¹⁴ whether hemispherical (Battersea,¹⁵ Walthamstow,¹⁶ probably Ipswich,¹⁷ and perhaps Llyn Cerrig 77¹⁸) or else slightly shouldered (Llyn Cerrig 76¹⁸; and *cf.* Fig. 47, *b*), and two-piece cauldrons which may be either globular (Walthamstow, again¹⁶; Lound Run (Suffolk), if really of this age¹⁹; Spettisbury (Dorset), with hoop "bead-rim" of iron rod²⁰), or of a distinctive form with outcurved or carinated belly, projecting below a cylindrical upper portion and (usually) iron-bound rim (Fig. 46, *a-b*; Fig. 47, *a*).

This last, on the Continent, appears not before Déchelette's La Tène III period, i.e. Ist century B.C.: the best-known example is that figured by him from Emmendingen, Baden.²¹ In the Ist century A.D., when cauldrons are found in Germanic graves, e.g. in Mecklenburg, they are either of this form, or have a truncated-conical upper portion with a belly-carination just also projecting below it.²² Within the same century there appear, within the Empire, small one-piece kitchen-cauldrons in which the similarly conical upper portion joins the convex base in a plain sharp angle²³; these simple

¹³ Leeds, *Archaeologia*, LXXX (1930), 1-36; Fox, *Antiq. Journ.*, XIX (1939), 382, with map, pl. LXXVIII.

¹⁴ Continental prototypes: Déchelette, *Manuel*², IV, 925-7, with Fig. 636, 3-4.

¹⁵ *Proc. Soc. Antiq.*, XXI (1907), 328-29; pl. opp. 326, No. 4; XXVII (1915), 87-8.

¹⁶ *ibid.*, XXI, 329; XXVII, 87-8.

¹⁷ Fragments only: Clarke, *Arch. Journ.*, XCVI (1939), 73.

¹⁸ Fox, *Llyn Cerrig Final Report*, 39 (map), 42-4, 87-8, with pl. XXXVIII.

¹⁹ Clarke, *Arch. Journ.*, XCVI, 73, pl. XX.

²⁰ Gresham, *ibid.*, 121-2, pl. III; *B.M. Iron Age Guide* (1925), 135, Fig. 147.

²¹ *Manuel*², IV, 927-8, Fig. 636, 1; *Germania*, XX (1936), 124, abb. 1, b; whence Fig. 46, *b*, here.

²² F. Behn, *Germania*, XX, 122-4, abb. 1, a and d, from Korchow, Mecklenburg; a = our Fig. 46, *a*.

²³ E.g., in the group of vessels from the Casa dei Capitelli at Pompeii, before A.D. 79: Willers, *Neue Untersuchungen über die römische Bronzeindustrie* (1907), 70 ff., abb. 41.

vessels are known in the Roman Rhineland (Fig. 46, *a*) at least in the first half of the IInd century,²⁴ and were followed in that region by imitations which, later, were among its exports to northern Europe.²⁵

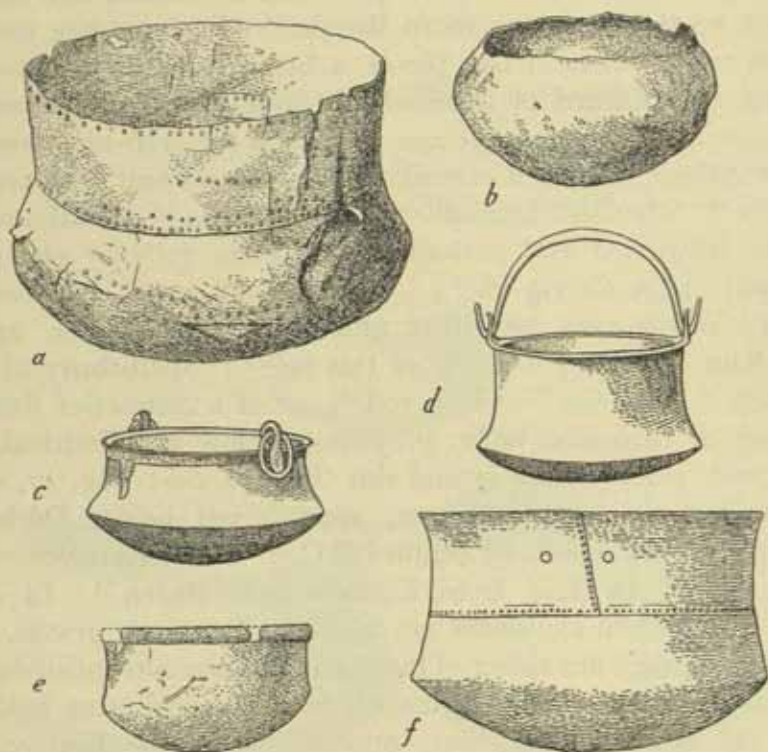


Fig. 47. Bronze cauldrons

- a. Carlingwark Loch, Kirkcudbrightshire
- b. Cockburnspath, Berwickshire
- c. K6ngen (Roman f6rt, W6rttemberg); d. Borte, Norway
- e. Thealby, Lincolnshire
- f. Crummockdale, Yorkshire

(All 1/12th natural size)

But the Rhineland and the Gallo-Roman west in the main kept to the projecting-belly form, only as a rule discarding the old two-piece construction for the more advanced technique of manufacture in one piece, whether by "raising" with the hammer, "spinning" on the

²⁴ Fig. 44, *c*, is after *Germania*, XX, 144, abb. 5, from the *vicus* of the Roman fort at Zugmantel, and (*ibid.*, 124, note 15) is of that age.

²⁵ Literature quoted by Behn, *ibid.* 125-6, with abb. 1, h; and cf. p. 182, here below.

lathe, or even casting.²⁶ Projecting-belly cauldrons so manufactured are prominent (Fig. 46, *d-e*) in the numerous hoards of bronze kitchen-ware known from the German and Gallic provinces in the IIIrd century, buried mainly in consequence of the great barbarian invasions of the years following 250.²⁷ Occasionally, the old two-piece construction is even then still represented, as in one of these hoards from Limes, Dépt. Loire.²⁸

However, at this same juncture, the one-piece cauldron appeared in the Rhineland in a new form. Perhaps under the influence of the angular Roman type of Fig. 46, *c*, the convex-projecting belly and the cylindrical upper portion were unified into a continuously *concave* profile, rising directly from the carination. The new form would doubtless be easier to make, and by diminishing the vessel's height/breadth ratio and so exposing relatively more of its surface to the fire, it would render it easier to boil. There seem at present to be two dated IIIrd-century examples: one (Fig. 47, *c*) had been deposited in a well near the Roman fort of Königen in Württemberg, abandoned with the rest of the *Limes* about 260,²⁹ the other was found in a hoard of this time at Seltz in Alsace.³⁰ Both retain the iron rim-binding

²⁶ H. Maryon, "Metal-Working in the Ancient World," *American Journal of Archaeology*, LIII (1949), 95-102.

²⁷ J. Werner in *Marburger Studien* (1938), 259-67: taf. 108-9, 7-8, Filzen (near Trier), whence here Fig. 46, *d-e*; taf. 115, 1, Rheinzabern; taf. 117, 9, Walheim (Württemberg); taf. 119, 22, Martigny (Switzerland). Another from Lobith (the Bijlandsche Waard) in Holland, *Med. d. Nederl. Akad. v. Wetenschappen, Afd. Letterkunde*, n.r. 5, No. 6 (1942), 37-8, Fig. 16. Cf. that from Sanderumgaard (Fyen, Denmark): Sophus Müller, *Ordning*, 316; Behn, *op. cit.*, 124.

²⁸ Werner, *op. cit.*, taf. 107, 7, after *Bull. soc. nat. des antiquaires de France*, 1884, 197 ff.

The Waukmill (Tarland, Aberdeenshire) bronze cup is a miniature cast copy of another such two-piece cauldron: its projecting belly is carinated, but it does not otherwise closely resemble the concave-profile cauldrons of the IIIrd and later centuries next to be noticed. It was found in a cremation-grave with a silver penannular brooch, of the humped-pin type known in the north in the IIrd century, and three (later?) gaming-counters: *P. S. A. Scot*, XXXIX, 213-17; XLIX, 203-06; LXVI, 296, 350, 390; W. Douglas Simpson, *The Province of Mar* (1943), 76, Fig. 25, and pl. 45.

The funerary use of such small-scale modern cauldrons has lately been illumined from Belgium, in an article kindly communicated to me, while this paper was in proof, by Mme. G. Faider-Feydtmans, "Le Culte Celtique du Foyer dans la Cité des Nerviens," *Doc. et Rapp. de la Soc. Pal. et Arch. de Charleroi*, XLVII (1948-9), 99-118. The models there in evidence are of pottery, found in Gallo-Roman graves of the Nervii, of the first three centuries A.D. The type is that of the pottery vessel found containing the Felmingham Hall (Norfolk) hoard in the British Museum, and the whole phenomenon well bears out my thesis of Celtic tradition maintained under Roman rule.

²⁹ Behn, *Germania*, XX, 123-4, abb. 1, g; *O.R.L.*, 60 (Abt. B, Bd. v), 27, 36, No. 28: taf. V, 4. Within it was one of the saucepan-strainers typical of the period (*ibid.*, 36, No. 9: taf. V, 1): cf. over a dozen figured by Werner, *op. cit.*

³⁰ C. F. A. Schaeffer, *Un dépôt d'outils à Seltz* (1927), pl. 8, h; Behn, *op. cit.*, 124; Werner, *op. cit.*, 263, 265.

and handle-rings characteristic of the old two-piece types. But next, those types and that feature both disappear from the Continent. The one-piece cauldrons, usually (though not always) somewhat reduced in size, become universal there, occasionally still with convex-projecting belly,³¹ but almost always with the new concave profile ; and, instead of iron rim-binding and handle-rings, their simply-everted rims normally have a pair of triangular perforated ears upstanding on either side, to take the hook-ends of a free semi-circular handle like that of a bucket (Fig. 47, *d*). These ears already appear sometimes in the IIIrd-century hoards (e.g. Filzen, once³²) ; from the IVth century, they form a normal feature of the now standardized concave-profile cauldron. In the Vth century, along and west of the Rhine, it became a regular Frankish type, lasting on into the VIth ; and from the IVth already it was exported thence into Germany and (Fig. 47, *d*) particularly to Norway.³³ Not only that : we ourselves know it as an import in some of our best-known early Anglo-Saxon cemeteries : Sawston³⁴ and Little Wilbraham³⁵ in Cambridgeshire, Croydon³⁶ in Surrey, and Long Wittenham³⁷ and Fairford³⁸ on the Upper Thames. What, then, had been the history of the cauldron in Britain during all these centuries meantime?

The La Tène III or Emmendingen two-piece projecting-belly form was duly naturalized amongst us, and we have two typical specimens of the Ist century A.D., both containing well-known hoards of miscellaneous metalware. The first, that from Santon, Norfolk ("Santon Downham"), is native work (with iron rim and ring-handles) doubtless made somewhat before the Roman conquest, and deposited,

³¹ E.g., Behn, *op. cit.*, 122, taf. 20, 2 (Rhine at Mainz) ; 125-26, abb. 1, i (Worms) ; 124, abb. 1, c (from the Kragehul moor-find, Fyen, Denmark, after S. Müller, *Ordning*, 317).

³² Werner, *op. cit.*, taf. 108, 8.

³³ Behn, *op. cit.*, 120 ff. *passim*, esp. 125-6. See Shetelig, Falk and Gordon, *Scandinavian Archaeology*, 240 ; and for such northward exportations in general, e.g., Ekholm in *Acta Archaeologica*, VI (1935), 49-98 ; Olwen Brogan in *J.R.S.*, XXVI (1936), 195 ff., 207-10.

³⁴ *Archaeologia*, XVIII (1817), pl. XXV, 4.

³⁵ Neville, *Saxon Obsequies* (1852), pl. 16.

³⁶ Baldwin Brown, *The Arts in Early England*, III, 472, pl. CXVII, 3.

³⁷ *B.M. Anglo-Saxon Guide* (1923), 68, Fig. 77 ; *Archaeologia*, XXXVIII, pt. 2 (1861), 351, pl. XVIII, 2.

³⁸ Quoted *ibid.*, from Wylie's *Fairford Graves*, pl. VIII, 1.

as its contents show, about A.D. 50.³⁹ The second is that from Carlingwark Loch, Kirkcudbrightshire, and the hoard within it well represents the local native Highland Zone metal-industry (there were native crannogs in the loch) as it was at the end of the 1st century, toward the time of the first Roman retreat from Scotland.⁴⁰ It has worn thin and been patched: loose bronze patch-sheeting occurred in the hoard,⁴¹ and also fittings from wooden vessels, including a bronze tankard-handle in the local "boss-style" of the period.⁴² Of two other northern cauldrons, made known to me through the kindness of Professor Piggott, one is a recent find from near Perth, now in the Museum there; the other, from Black Moss, High Grains, Bewcastle, Cumberland, was found in 1907 and is in Carlisle Museum: it is identical in type with the cauldron of the Carlingwark hoard. A further large hoard from south Scotland shows us the same industry nearly a hundred years later. It was found at Blackburn Mill, on the Water of Eye near Cockburnspath, Berwickshire, in two cauldrons,⁴³ which together reveal that the old near-hemispherical form (Fig. 47, *b*)—here one-piece, like Llyn Cerrig 76, with riveted handle-attachments and perhaps iron rim-binding—was still current, at a date which the Roman bronze patera-bowl in the hoard fixes broadly in the Antonine period of the IInd century.⁴⁴ The larger cauldron had been much patched, and with many tools, etc., the hoard contained further cauldron fragments, including part of a bronze rim,⁴⁵ and a pair of big staple-attached rings from a large wooden vessel.⁴⁶

In commenting on both these hoards, Curle emphasized the importance of the wood-working (cf. Lochlee crannog) and metal

³⁹ Reginald Smith, *Camb. Antiq. Soc. Proc.*, XIII (1909), 146-48, pl. XV, 1; Fox, *Arch. Camb. Reg.*, 104-05; Clarke in *Arch. Journ.*, XCVI (1939), 71-3.

⁴⁰ *P. S. A. Scot.*, VII (1861), 7; James Curle, *ibid.*, LXVI (1932), 310-13, 318-23: cauldron, Fig. 18; iron grid and tripod, Figs. 19-20, compared by Curle with those accompanying the Rheinzabern and Filzen cauldrons cited above, pp. 180-2, with Fig. 46, *d-e*; bulk of the hoard, Fig. 23, where No. 84 is the iron mirror-handle to be cited here below, p. 193, n. 96, and the iron sword-points and (Fig. 25) chain-mail perhaps Roman loot; inventory, 373-4.

⁴¹ *ibid.*, 318-20, Fig. 24.

⁴² *ibid.*, 322-3, Fig. 26.

⁴³ *P. S. A. Scot.*, I (1855), 43; Curle, *ibid.*, LXVI (1932), 313-17 (larger of the cauldrons, Fig. 21; bulk of hoard, Fig. 22); inventory, 362.

⁴⁴ *ibid.*, 300-01, Fig. 12, 1; Bosanquet, *ibid.*, LXII (1928), 246.

⁴⁵ Curle, *ibid.*, Fig. 22, No. 34.

⁴⁶ *ibid.*, Nos. 40-1: Curle compares (316) another pair from Newstead.

(cf. Traprain Law) industries to a people making little or no native pottery. As we have already recalled, that is true of the whole Iron Age, from pre-Roman to post-Roman, in great parts—at times, it seems, all—of the British Highland Zone.

But these native industries persisted farther within the Roman frontier also. At Thealby, near Scunthorpe in the isolated north-western corner of Lincolnshire, a native settlement-site revealed by modern ironstone-workings has produced not only bronze mounting of wooden buckets, to be discussed below, but again two bronze cauldrons, the better-preserved of which is here figured (Fig. 47, *e*).⁴⁷ And in these two cauldrons we can for the first time see a British approximation to the IIIrd-century and later Continental concave profile (cf. Fig. 47, *c*). Their construction is one-piece, with iron rim-binding, and looks very much like a British rendering of the Rhineland model dated to the middle IIIrd century at Köngen and Seltz (p. 181). It is just possible that Roman vessels like Fig. 46, *c* might have engendered this form independently in Britain already in the IIrd century. But since the old projecting-belly forms were dominant right on to the IIIrd century on the Continent, it does not seem likely that they were earlier superseded in Britain. At all events, the concave-profile type cannot have been introduced from the Continent later than the IIIrd century, for the triangular ears, which by the IVth century became inseparable from it on the Continent (p. 182, Fig. 47, *d*), never appear on British-made cauldrons at all. As regards technique, the Thealby cauldrons are very thin, and seem to have been lathe-spun. For the central hole in the base, which we shall shortly see to be characteristic of the later British lathe-spun vessels, appears already in the second of the Thealby pair, and so probably existed originally also in the other (Fig. 47, *e*), before its base was worn through and patched. Spinning on the lathe is

⁴⁷ Harold E. Dudley, *Early Days in N.W. Lincolnshire* (Scunthorpe, 1949), 202, 206-7 (Fig. 74), 209, 218-19, 221. I am much indebted to Mr. Dudley (Curator of the Scunthorpe Museum) for re-examination with me of this and the chief other finds from this interesting site, first in 1939 and again in 1946, which has led to some modification and expansion, now incorporated in his book, of what could be said of them in the original publication in *Antiq. Journ.*, XV (1935), 457 ff., 458, with Fig. 1. It is essentially native in character, but apparently altogether Romano-British in its date. In particular, the burial-pottery is not pre-Roman, but of towards or about A.D. 100 (native inhumation, then, still resisting Roman cremation).

With what is here said of the cauldron type, see below, pp. 195-6, on the bucket-bronzes.

believed to have been an invention of Roman times⁴⁸; and the Thealby vessels are thus fully acceptable as work of the middle IIIrd century or later.

But we have yet another British cauldron to consider in this connexion: that from Crummockdale in the western part of the Craven limestone district of Yorkshire, in Austwick parish between Settle and the high summit of Ingleborough. It was published in 1937 by W. K. Mattinson and L. S. Palmer (Fig. 47, *f*),⁴⁹ and two points about it call especially for notice. First, it is a concave-profile cauldron, but of two-piece, riveted, construction. Second, while it has no basal hole, metallurgical examination is quoted as indicating that at least its base, thin as it is, may have been cast to shape, not spun. It seems in fact to imply a maker still accustomed to the old two-piece tradition, but combining this with the concave-profile form, and perhaps with the even more Roman technique of manufacture by casting—though, if so, he would not be prepared to try casting the whole cauldron in one. This suggests a date in the later IIIrd or early IVth century, with the new form now familiar, as in the lathe-spun Thealby vessels, but with the native mode of construction no more than partly modified by Roman example. And the cauldron was undoubtedly a native product, for native use. As is well known, Ingleborough itself is crowned by a native stronghold, and the moors round it are full of stone-built native hut-settlements (with cave-dwellings along the scar towards Settle), exploration of which has shown them to have been inhabited much in the Ist/IInd-century period of “trumpet-brooch” bronze-work referred to above (p. 176), with a continuance marked, after the ensuing period of local unrest, by a more modest later-Roman element in their material: some late-IIIrd and IVth-century coins, and a small intake of Roman pottery—local potting having apparently fallen away after the IInd century—of early IVth-century types.⁵⁰ The cauldron itself was found

⁴⁸ H. Maryon, *American Journal of Archaeology*, LIII (1949), 94.

⁴⁹ *Proc. Prehist. Soc.*, III, Part 1 (1937), 164-5, whence Fig. 47, *f* is by the Society's permission reproduced.

⁵⁰ A. Raistrick, “Iron Age Settlements in West Yorkshire,” *Yorks. Arch. Journ.*, XXXIV (pt. 134: 1939), 115-50: esp. 119-20 (settlements), 121-2 (caves), 124-5 (Ingleborough), 134, 137-9 (brooches), 143-5 (pottery), 149-50 (bibliography).

nearly 20 years ago in draining a small tarn, near the head of Crummockdale,⁵¹ round which the settlement-sites, mapped here after Dr. Raistrick in Fig. 48,⁵² invite close comparison with the better-known ones near Grassington in Wharfedale.⁵³ Here, then, native cauldron-making is continuing into the later Roman period for a persistent, though pottery-poor, native population.



Fig. 48. Sketch-map of the Ingleborough district
Showing sites of Crummockdale cauldron and Ingleton mirror-handle, with distribution (after Raistrick) of native hut-settlements and cave dwellings (c) of Romano-British age

And so we come to the last and most numerous class of the British cauldrons of these times : that of which the finest specimen was found in the mere surrounding the still undated native ring-fort called The Berth at Baschurch in Shropshire,⁵⁴ and of which the largest group meets us in the well-known hoard of bronze vessels

⁵¹ I am greatly indebted to Mr. Mattinson for showing me the site and affording me much local information in September, 1946.

⁵² Using, by his kind permission, part of his distribution-map, *op. cit.*, 146, Fig. VIII.

⁵³ *Antiquity*, III (1929), 165-81; *Yorks. Arch. Journ.*, XXXIII (1937), 166-74.

⁵⁴ Reginald Smith, *Proc. Soc. Antiq.*, XXI (1907), 324-6, No. 5.

found in 1914 at Wotton in Surrey (Fig. 49).⁵⁵ The true age and purpose of the Wotton type of cauldron have long been obscured by Reginald Smith's unfortunate theory that these vessels were Early Iron Age water-clocks. He supposed that time was measured by the passage of water through the small central hole normally present in their base. But there has always been scepticism about this theory.⁵⁶ The hole is perfectly well explained as a means of fixing the vessel on the lathe for spinning into true circularity of shape : it is often found

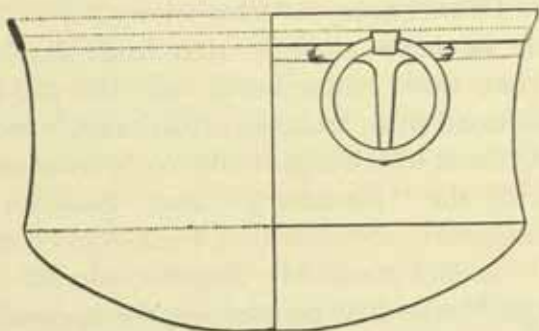


Fig. 49. Bronze cauldron from Wotton, Surrey (1)

still containing the bronze or iron plug with which it will thereupon have been blocked ; and those cauldrons which have no hole were no doubt held central on the tailstock of the lathe either by a shaped block of wood,⁵⁷ or else directly by a "dimple" in their base, evidently as a rule then hammered flat, but still to be seen in one of the Wotton vessels, as Smith with his usual candour was careful to point out.⁵⁸ And his belief in an Early Iron Age date for the type only arose from his unawareness, at the time, of the distinction between it and its forerunner, the genuinely early Santon-Carlingwark type. For that distinction its invariably concave profile and one-piece construction

⁵⁵ Reginald Smith, *ibid.*, XXVII (1915), 76-94 ; reprinted in *Surrey Arch. Colls.*, XXIX (1916).

⁵⁶ Expressed e.g. in 1915 by Mr. Bushe-Fox, *Proc. Soc. Antiq.*, XXVII, 194-5 ; in 1933 by Mr. E. Wyndham Hulme, *Antiquity*, VII, 67-71, and (with 212-13) 215.

⁵⁷ H. Maryon, *American Journal of Archaeology*, LIII (1949), 100-01, Fig. 14 (B held between A and C by the small block D).

⁵⁸ *Op. cit.*, 85, No. 6, with Fig. 10, which however unfortunately does not show the dimple, but, wrongly, a perforation instead.

are fundamental. Moreover, its late date is anyhow made plain by its associations.

The Wotton hoard includes one of those hinged- or folding-handle frying-pans,⁵⁹ which in Egypt are late Roman⁶⁰ or even Coptic,⁶¹ and are known also from Reims⁶² and London.⁶³ The Sturmere hoard of vessels from Essex has another of them⁶⁴; and the various bronze bowls and pans which, as well as the cauldron-type itself, Sturmere and Wotton have in common, reappear in the Halkyn Mountain (Long Rake) hoard from Flintshire, along with no less than three of the IVth-century or later triangular-eared Continental cauldrons, which we have already cited from Anglo-Saxon cemeteries.⁶⁵ More than that: these bowls, and the still larger series of them in the bowl-hoard from Irchester, Northants,⁶⁶ include examples of the hemispherical sort which is generally recognized as the immediate prototype, following the "Naunberg" and "Sackrau" types of the IIInd and IIIrd centuries, of our famous Dark-Age escutcheon-bearing hanging-bowls.⁶⁷ In fact it was Mr. Kendrick, in his classic hanging-bowl paper of 1932,⁶⁸ who first pointed out the impossibility of dating the Wotton type of "water-clock" cauldron before the IVth century.

We can now see that these vessels are products of the old native bronze-industry of Britain, in the late Romano-British, and even the sub-Roman, period of its long and without doubt continuous history.⁶⁹ They owe their concave profile, and the spun technique of their

⁵⁹ *Proc. Soc. Antiq.*, XXVII, 78, Fig. 1.

⁶⁰ C. G. Hurcom in *American Journ. of Arch.*, XXV (1921), 44-6, with Figs. 5-7.

⁶¹ Cf. the Coptic bowls found in Anglo-Saxon graves, on which among recent literature see notably J. Werner in *Festgabe aus Athen Theodor Wiegand dargebracht* (1936): I owe the reference to Mr. Kendrick.

⁶² Hurcom, *loc. cit.*

⁶³ R. E. M. Wheeler, *London in Roman Times*, 118-19, Fig. 41, 1: handle, cf. Fig. 41, 2, from Hurcom's Fig. 6; pan subrectangular, as Hurcom's Fig. 7.

⁶⁴ *Archaeologia*, XVI (1809), 364; *Proc. Soc. Antiq.*, XXVII, 79-80, Fig. 2; pan oval, as Hurcom's Fig. 7.

⁶⁵ *Archaeologia*, XIV (1803), 275, pl. XLIX; *Proc. Soc. Antiq.*, XXVII, 80, Fig. 3.

⁶⁶ Dryden, *Assoc. Archit. Soc. Reports Northants*, XIII (1875), 88, pls. I-II; *Proc. Soc. Antiq.*, XXVII, 94.

⁶⁷ Baldwin Brown, *The Arts in Early England*, IV, 466 ff.; T. D. Kendrick, *Antiquity*, VI (1932), 162-5; Françoise Henry, *J.R. Soc. Antiq. Ireland*, LXVI (1936), 214-17.

⁶⁸ Kendrick, *Antiquity*, VI (1932), 162-3, with note 9.

⁶⁹ Reginald Smith's contention that they were made to weights standardized in the native "currency-bar" metrological system may well be right (cf. *Antiquity*, VII, 70-1): it would accord very happily with the industry's native character.

one-piece manufacture, to Roman influence, received seemingly in the IIIrd century; but they have been developed in a distinctively British way.⁷⁰ This bronze-industry, then, supplied the sub-Roman Britons with metal-ware; and it must have been needed more than ever after the IVth century, when the industrialized Romano-British potting industry, not merely in the Highland Zone but nearly everywhere in Britain, had ceased supplying pottery.

Cauldrons and bowls of bronze, of course, were not their only vessels. As we have said, there was also a long-standing tradition of wooden vessels, which the same bronze-industry could furnish with cast bronze mountings, and with sheathing and binding of bronze sheet and strip. Ireland has actually produced a wooden cauldron⁷¹; the Glastonbury Lake-Village has its famous lathe-turned tub⁷²; and cylindrical wooden vessels made of staves with a flat disc base were being made already in our Late Bronze Age.⁷³ The Iron Age gives us our buckets and tankards also—Aylesford, Elveden, Trawsfynydd, and the rest—mounted and embellished in bronze. This kind of vessel continued to be made and used by Britons throughout Roman times. Little to show it has survived. But for one thing, tankards are implied by tankard-handles, and the handle in the Carlingwark Loch hoard⁷⁴ at least takes them into early Roman times in south Scotland; while, whatever the date of that from the Porth Dafarch hut-village on Holy Island (Anglesey),⁷⁵ the bronze-bound and bronze-handled whole tankard from Shapwick Heath (Somerset) takes them certainly into late Roman times, for it was found with a bronze "Irchester" bowl, and also a pewter pedestalled

⁷⁰ The distinctively British element in our bronze industry is also shown in the IIIrd century by the Kyngadde find from Wales, with its patera—modelled not on the contemporary (p. 181, with n. 29) but the IIrd-century Roman type—accompanied by a strainer perforated in a traditional British-Celtic triskele-pattern: Wheeler, *Prehistoric and Roman Wales*, 216; *Arch. Cambr.*, 6th ser., I (1901), 24.

⁷¹ A. Mahr, *Proc. R. Irish Academy*, XLII, C (1934-35), 11-29, from Altartate, Co. Monaghan.

⁷² Bulleid and Gray, *Glastonbury L.V.*, I, 312.

⁷³ Represented by that containing the Stuntney hoard, Cambridgeshire: J. G. D. Clark, *Antiq. Journ.*, XX (1940), 52-8, with general discussion of the type.

⁷⁴ P. 183, n. 42.

⁷⁵ *R.C.A.M., Anglesey* (1937), LXIX, Fig. 2; *Arch. Journ.*, XXXIII (1876), 140, with pl. following. Most of the datable relics of the occupation here are IVth-century; they are in the British Museum. A further excavation in 1939 (whence another IVth-century sherd): O'Neil, *Arch. Cambr.*, XCV (1940), 65-74.

bowl with a characteristic IVth-century design inside its bottom.⁷⁶ And in north Wales the Ty'r Dewin (Brynkir, Caernarvonshire) bucket of bronze-bound yew-wood, inscribed outside and inside with enigmatic symbols and lettering, sets us inevitably thinking of some still later period.⁷⁷

But there is still more to be said. For in the pre-Roman Iron Age, Celtic things were often adorned with heads or "masks" of men or animals; sometimes, even, with forms of whole animals. It was not merely an "ornamental" matter: these representations originally had a supernatural or symbolic meaning.⁷⁸ That aspect of the subject cannot be gone into here; but the phenomenon is so widespread and recurrent that one should not, in Roman times in Britain, expect its vitality to be quite exhausted. Certainly that of "abstract" Celtic ornament, for its part, was never quite exhausted. It was deeply Romanized, as we have said; but its fundamentally barbaric and un-classical tendencies never sank wholly below the level of re-assertion. The Celtic art of late-Roman and post-Roman times in which they were most brilliantly re-asserted is that which we see best in the escutcheons of the hanging-bowls—an art, that is, fostered amongst the British (and the Irish) makers of bowls and cauldrons whom we have been considering. It can be called the art of a "Celtic revival"; but though the "Ultimate La Tène style" is one of its ingredients, it is no mere repetition of La Tène or pre-Roman Celtic art. It is a revival of the old "abstract"-barbaric Celticism in new forms, which are greatly, though often not obviously, in debt to Roman influences, but are none the less vital for that.⁷⁹ If then we turn to the Celtic portrayals of heads or masks or animals, which were so prominent in the earlier art along with all its "abstract" pattern-making, can we find any such persistence of vitality there?

⁷⁶ H. St. G. Gray, *Proc. Somerset N.H. & Arch. Soc.*, LXXXV (1939), 191 ff.; *J.R.S.*, XXX (1940), 175, with pls. XIII-XV, 3.

⁷⁷ *Arch. Cambr.*, 6th ser., v (1905), 255-56, Figs. 1-4: found in digging peat in the bog at Ty'r Dewin near Brynkir, 1881.

⁷⁸ P. Jacobsthal, *Imagery in Early Celtic Art* (British Academy, Rhys Memorial Lecture, 1941: *Proc. Brit. Acad.*, XXVII); *Early Celtic Art* (Oxford, 1944), chs. I-II.

⁷⁹ T. D. Kendrick, *Anglo-Saxon Art* (1938), 59-60.

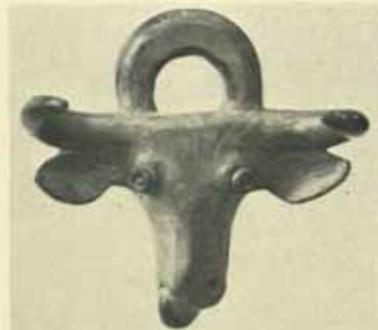
PLATE VII



1



3a



3b



2



4a



4b



5

Bronze ox-heads

1. Ham Hill, Somerset (*Taunton Mus.* ; *Photo.*: H. St. G. Gray) ;
2. Dinorben, Caernarvonshire (*Willoughby Gardner Coll.* ; *Photo.*: Nat. Mus. Wales) ;
- 3a, b ; 4a, b. Felmersham, Bedfordshire (*Bedford Modern School Mus.*) ;
5. Thealby, Lincolnshire (*Scunthorpe Mus. and Private Coll.* ; *after Antiq. Journ.*, XV, Pl. LXXI, 2)

(All natural size)

In their style of rendering, admittedly, Celtic character generally tends to be lost in Romanization. Amongst whole animals, we can claim a barbaric liveliness still for the little Silchester horse,⁸⁰ and the few other small creatures brought forward in that connexion by Mr. Kendrick,⁸¹ but it is on the whole hard to gainsay Mr. Leeds' showing⁸² that the Celtic portrayal of animals fell a victim to Romanization fairly easily. Heads or masks, too, could fall quite readily into Roman style. They are usually small bronze castings, and in fact belong to the general run of "ornamental" casting-production that became Romanized so deeply. For the weird barbaric frown of the human handle-masks on the Aylesford bucket,⁸³ Roman Britain gives us quite commonplace countenances like that on the bucket-handle mount from Thealby.⁸⁴ But that is the same native settlement-site, away in north-western Lincolnshire, that produced our Thealby cauldron; and it is at any rate a native tradition to put such heads on bucket-handle mounts at all. This head must be IInd-century at earliest; and in the IInd century bronze-mounted buckets were still honourable things in those parts, fit to bury with the dead in the old fashion of Aylesford, as we can see from the probably Hadrianic burial found near by at Brough-on-Humber, in a bucket with another and more vivacious little man's head mounted upon it.⁸⁵ The people who made them were our native bronze-workers; and we can learn more of them by turning from human to animal heads on buckets, and in particular to the horned ox.

Ox-heads were widespread in the symbol-ornament of the later

⁸⁰ Piggott, *Antiquity*, V (1931), 43, with pl. II, Fig. 5.

⁸¹ Kendrick, *Anglo-Saxon Art*, 14-15, 26-30; cf. *Antiq. Journ.*, XVIII, 129-35 (Linwood).

⁸² Leeds, *Celtic Ornament*, 90-8.

⁸³ Kendrick, *Anglo-Saxon Art* (1935), 7, with pl. II, 3.

⁸⁴ H. E. Dudley, *Early Days in N.W. Lincolnshire* (1949), 208-9 (Fig. 76), 220-1; *Antiq. Journ.*, XV, 459, with pl. LXXI, 1; see p. 184 above, n. 47.

⁸⁵ Corder and Richmond, *Antiq. Journ.*, XVIII (1938), 68. The style of the associated sceptre-heads is nothing if not Romano-British, but to have such things at all was in such cases British rather than Roman convention: cf. the Farley Heath and Llyn Carrig spiral sceptre-bands (*Antiq. Journ.*, XVIII, 391-6; XXVII, 83-5; Fox, *Llyn Carrig Final Report*, 45, 86).

prehistoric Iron Age, notably in the Celtic world,⁸⁶ and nowhere more so than in Britain: we have only to think of the heads on the familiar iron fire-dogs. Often, though not always, their horns are knobbed⁸⁷—a characteristically Celtic feature present both in the extravagantly Celtic head from Ham Hill, Somerset (Pl. VII, 1),⁸⁸ with its almond eyes and spiral-curling nostrils, and in the elegant statuette from the Lexden Tumulus at Colchester,⁸⁹ which otherwise proclaims the precociously Romanizing taste of the Belgic court of Cunobelin in the generation before the Roman conquest.⁹⁰

Of the two tendencies thus represented in late pre-conquest British animal-art, the more purely Celtic, with its home apparently in the west, was thereafter seemingly the shorter-lived. The ox-head on the Birdlip (Glos.) knife-handle⁹¹ is sturdily Celtic and knob-horned; the decorative Lydney head (Glos.),⁹² moulded and enamelled in the later Ist-century style of the Seven Sisters (Glamorgan) harness-bronzes and tankard-handles, is already more conventional

⁸⁶ Cast in the round, most often, and rare before La Tène III. Worked into surface-ornament, in a rich plastic style of La Tène II, the ox-head appears on the best gold torc from Frasnes-lez-Buissenal in Belgium, which is more likely IIrd-century than 3rd and was found with Gaulish coins as late as c. 75-50: P. Jacobsthal, *Early Celtic Art* (1944), 135, 173, No. 70 (s.v. 'bull,' 234), pl. 51, 70 c ('horse' to Déchelette, *Manuel*², IV, 844, only because invisible in his Fig. 586). The horns here are spirals; but with the Ist century B.C. comes in the numerous round-cast series, with horns characteristically knobbed: Reinach, *L'Anthropologie*, VII (1896), 553; Reinecke, *Mainzer Festschrift* (1902), taf. VI, 5, 6, 10; Déchelette, *Manuel*², IV, 1018-19, Fig. 691, 1-2; cf. 916-17, Fig. 691, 2 (all France); 813-14, Fig. 568, 6; 194, Fig. 629, 1, 5 (all Central Europe); also a good little whole-ox figure from Hänichen near Leipzig, *IPEK*, 1930, 126 = Frenzel, Radig, and Reche, *Grundriss der Vorgeschichte Sachsens* (Leipzig, 1934), 180, abb. 23a (site, 338-9).

From the La Tène III Celts the type was soon adopted by the Germans round the western Baltic: see M. Stenberger in *Formcannen*, XLI (1946), 147-65, with English summary. In the first two centuries A.D. there, it became especially popular for the terminals of drinking-horns; and on a pair of these from a newly-found grave at Dollerup in Jutland, see M. Orsnes-Christensen, *Acta Archaeologica*, XIX (1948), 291-43 (German), with full references and illustrated catalogue of the 22 pieces (from 18 finds, including this one) known. Another recent study of these, with a further example from Schiersberg in Holstein: Fr. Tischler in *Prähist. : Zeitschrift*, 1950, 374-84.

⁸⁷ So with the Germanic series. Orsnes-Christensen points out, *op. cit.*, 241, n. 123, that the terminal knobs must simply reproduce real knobs which the people by custom fixed on the horns of their real cattle. He states that both steers and cows, in various parts of Norway and Denmark, are by custom made to wear metal horn-knobs still.

⁸⁸ *Proc. Somerset Arch. Soc.*, XLVIII, pt. II (1903), 33, drawing; *Proc. Soc. Antiq.*, XXI (1906), 133-34, photograph: "a charming little stylized bronze bull's head of Celtic type, with long tang, which may have been used as an ornamental terminal to a sceptre or chariot-fitting" (W. A. Seaby in *R. Arch. Inst. Taunton Meeting Programme*, 1950, s.v. Ham Hill). It is in the Somerset County Museum at Taunton Castle.

⁸⁹ *Archaeologia*, LXXVI (1927), 249, with pl. LVIII, Fig. 3: Colchester Museum.

⁹⁰ Cf. Mr. Kendrick on the associated boar, "almost pettable": *Anglo-Saxon Art*, 14, with pl. II, 2.

⁹¹ Reginald Smith, *Archaeologia*, LXI, pt. 2 (1909), 332, Fig. 2: Gloucester Museum. For date, etc., see Green in *Proc. Prehist. Soc.*, XV (1949), 188-90.

⁹² Wheeler, *Lydney* (Res. Rep. Soc. Antiq. IX, 1932), 75, Fig. 11, 12.

and has no horn-knobs. In that from Dinorben hill-fort in north Wales (Pl. VII, 2),⁹³ with almond eyes, stylized muzzle, and oblong, punch-dotted hair-frontlet, the rendering has become a formal model. The other tendency was better suited to the Romano-British climate ; for it was semi-Romanizing from its very start, in the Belgic south-east.⁹⁴

Its ox-heads duly appear on bucket-handle mountings ; and a delightful pair, presumably bull and cow, each cast in one with its handle-loop above and fastening-rivet behind, was found in 1942 near Felmersham in Bedfordshire (Plate VII 3-4). With them were the handle and other pieces of their bucket, a superb bronze fish-head bowl-spout, remains of two bronze bowls, and Belgic pottery which should date the find within the half-century before the Roman conquest. After their recent publication by Mr. William Watson of the British Museum,⁹⁵ I have only here to follow him in pointing out the skill with which their maker has combined a preference for life over sheer style-play (contrast Plate VII 1)—most obvious in the knobless horns and the bull's licking tongue and twitched-out ears—with stylizing touches like the plastic ring-and-dot eye and typically Celtic spiral nostril, and a rejection of all unwanted detail.

In the other bull-and-cow pair of heads lately published, those adorning the later Ist-century British bronze mirror-handle from near Ingleton, Yorks.,⁹⁶ the rejection of detail becomes reduction to almost pure symbol (Plate VIII A). One is reminded of the Hounslow boar, and of Mr. Kendrick's remark in that connexion that "one of the chief strengths of northern barbaric art" is "this power to transmute the natural world into a system of appropriate and convincing symbols

⁹³ Willoughby Gardner, *Arch. Cambr.*, 6th ser., XIII (1913), 195, Fig. 2. I am deeply indebted to Dr. Gardner for the loan of the piece, and for permission to re-publish it here from a photograph kindly supplied by Dr. V. E. Nash-Williams from the National Museum of Wales. Its rough, flat back has a bipartite hollow, evidently for attachment, e.g., by soldering, as a bucket-handle or bowl-escutcheon ornament (cf. Fig. 47, b).

⁹⁴ Cf. the Lexden animals already cited, and those on Belgic coins, especially Cunobelin's : *Archaeologia*, XC, pls. I-III.

⁹⁵ *Antiq. Journ.*, XXIX (1949), 39-61. I am much indebted for the illustration, and for Mr. Watson's company and help in examining the whole find at the British Museum.

⁹⁶ Sir Cyril Fox in *Arch. Cambr.*, CIII (1948), 24-8 : Fig. 1, 4 ; Figs. 2-3 ; pl. II, M. Cf. also his iron specimen, without heads but of the same general type (*ibid.*, Fig. 1, 5 ; Fig. 3 ; pl. III, 2) from the Carlingwark Loch hoard in the cauldron above considered (p. 183, n. 40).

that are in themselves comments upon nature."⁹⁷ And of course the iron fire-dog ox-heads get their effect that way,⁹⁸ as do those which support the unique iron bowl from Lydney.⁹⁹ But the symbol is a portrait-symbol, not simply a stylistic flourish: features are just the significant minimum that will imply essential bull or cow. And this is the work again of our highland natives: the piece was found just four miles west of the Crummockdale cauldron (Ingleton is the next parish to Austwick), and three and a half from the top of Ingleborough (Fig. 48). Less austere impressive is the small bronze ox-head

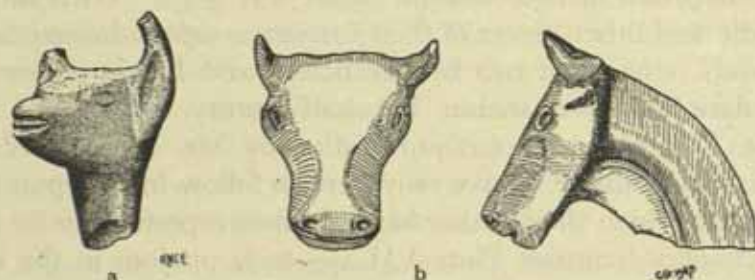


Fig. 50. a. Ox-head, Manchester (Castlefield) (*Queen's Park Art Gallery, Manchester*)
b. Ox-head, Gloucester (*Gloucester Museum*)
(Both actual size)

found over a century ago in Castlefield, Manchester, and now in the Queen's Park Art Gallery in that city (Fig. 50, a).¹⁰⁰ It probably surmounted a knife-handle, in the Birdlip tradition (p. 192, n. 91), and is still palpably Celtic, with its faint almond eyes, lipped muzzle, flattened forehead, and ears merely suggested below the curved horns (unhappily, like the neck, now broken). It was presumably in use in the Manchester Roman fort, or its civil settlement, in the late 1st or 2nd century.

In the west, too, something similar remained to follow the

⁹⁷ *Anglo-Saxon Art*, 5-7, with pl. II, 1.

⁹⁸ See the Lord's Bridge (Cambs.) one in Leeds, *Celtic Ornament*, 91, Fig. 27; or J. and C. Hawkes, *Prehistoric Britain* (1943), pl. 14A.

⁹⁹ Wheeler, *Lydney*, 74-5, Fig. 11, 9.

¹⁰⁰ Old Manchester colln. (formerly Ellesmere colln.), found 1828-32: F. A. Bruton, *The Roman Fort at Manchester*, pl. 93, 28. I am most grateful to Mr. Thomas F. Stones, Assistant Curator, for information and permission to publish the new drawing kindly executed for this paper by Dr. R. M. C. Eager of Manchester Museum; and to Mr. Philip Corder for bringing the piece (and also Fig. 48, b) to my notice.

formally-modelled Dinorben piece. From the small Romano-British town-site of Kenchester (MAGNA) in Herefordshire comes the bronze bucket-handle ox-head of Fig. 51.¹⁰¹ Celtic style-tradition just lives in the faintly knobbed, sweeping horns and the expanded muzzle; the almond eyes have become mere pairs of shorthand-strokes. Here at least is the symbolic ox still persisting as a bucket-animal. I suppose it is late 1st century, or even IInd; and perhaps that is also the date of Fig. 50, *b*, a more naturalistic bronze head which comes almost

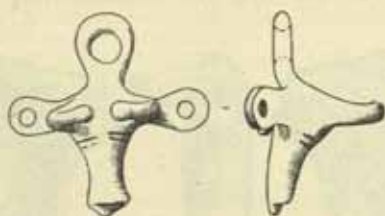


Fig. 51. Bronze ox-head, Kenchester (Hereford Museum) (½)

certainly from Roman Gloucester, or the adjacent Roman site of Kingsholm.¹⁰² Perhaps it was a handle-end: it has a curved neck (of which about an inch remains) formed of a rod of metal strengthened by a flange or dewlap on the underside. It is clearly a Romano-British portrayal of the familiar *Bos longifrons*, but the flat modelling of its long forehead, and the modeller's indifference to ears, still suggest something of Celtic conventionalism. The north and east of Britain still have more to show.

Small animal bronzes, apparently of this same period, occur in the north notably at Aldborough (ISVRIVM) in Yorkshire.¹⁰³ Roman Leicester (RATAE) has produced a small bronze ox-head, apparently a knife-handle like the Manchester specimen but more Romanized in style, which may be as late as the Antonine age.¹⁰⁴ And the native

¹⁰¹ In Hereford Museum. I owe my knowledge of it to Mr. J. B. Ward-Perkins, who made and had kindly lent me the drawing here reproduced.

¹⁰² Gloucester Museum: given in 1902 in a collection all the rest of which came from these two sites. I am much indebted to Mr. Charles Green for giving me, when Curator, this information and permission to publish his drawings, made specially for this paper.

¹⁰³ Eckroyd Smith, *Reliquiae Isurianae*, pl. XXV, 3, 13, 16.

¹⁰⁴ I have to thank Mr. F. Cottrill for giving me, when Keeper of Archaeology at Leicester Museum, a photograph and the information that the head was found in the cellar-excavations for the Royal Arcade, Leicester, in 1877, at a depth of 9 or 10 feet, from which came also Samian pottery (also in Leicester Museum) with potters' stamps down to the Antonine period.

site at Thealby once again enters the story with a pair of bucket-handle ox-heads, perhaps of the earlier IInd century, which are peculiarly interesting (Pl. VII, 5).¹⁰⁵ They are a good deal less Roman in their rendering than the human heads from Thealby and from Brough above cited (p. 191): the eyes are just faint circles, the muzzle carries a sort of ornamental moulding, and the horns not only have knobs, but knobs grooved or "writhen" like those of some (roughly contemporary) Romano-British penannular brooches.¹⁰⁶ Structurally, they are remarkable in having no handle-loop above them, but a

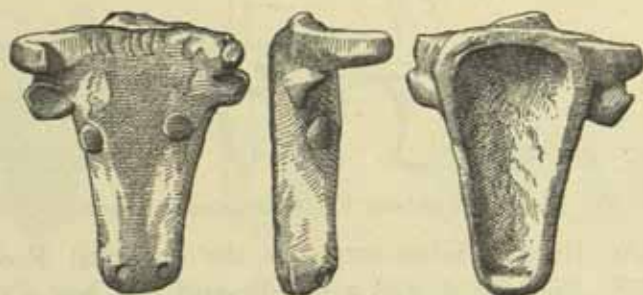


Fig. 52. Bronze ox-head, Kirkby Lonsdale, Westmorland (†)
(Private coll. ; after *Antiq. Journ.*, XV, 79)

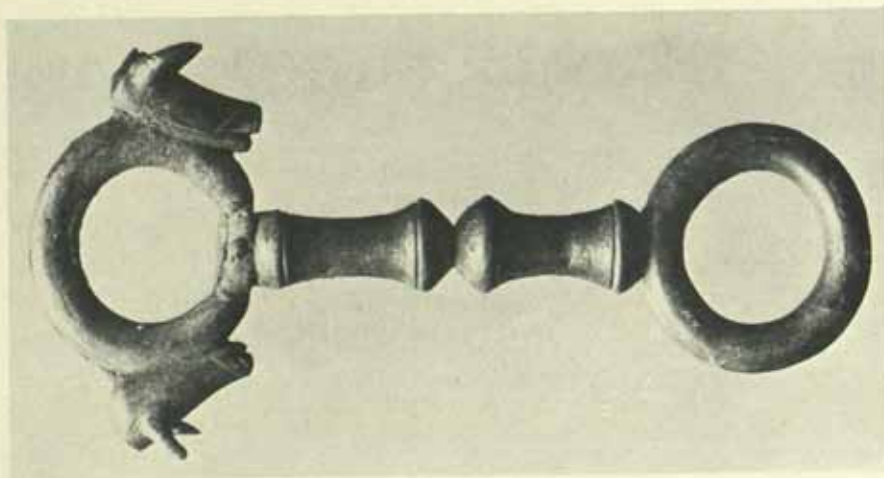
hole at the back of each, into which the terminals of the bucket-handle are to be "sprung"; this device is only found otherwise on the considerably pre-Roman Aylesford bucket. But their strangest feature is the surmounting of their forehead by a bird's head, on a thick rib-moulded neck, with bulging eyes and the curved beak of a hawk. Such a combination of creatures seems without parallel in this age. However, the only other roughly contemporary ox-head from the north, that from the native hut-settlement on the west edge of Kirkby Lonsdale parish in Westmorland (Fig. 52),¹⁰⁷ has above its forehead the broken-off stump of something now lost which

¹⁰⁵ H. E. Dudley, *Early Days in N.W. Lincolnshire* (1949), 207-09, 219-21; *Antiq. Journ.*, XV (1935), 458, pl. LXXI, 2.

¹⁰⁶ E.g., *B.M. Guide to Roman Britain* (1922), Fig. 64, c; Raistrick, *Yorks. Arch. Journ.*, XXXIV, 134, 137, Fig. II, 25.

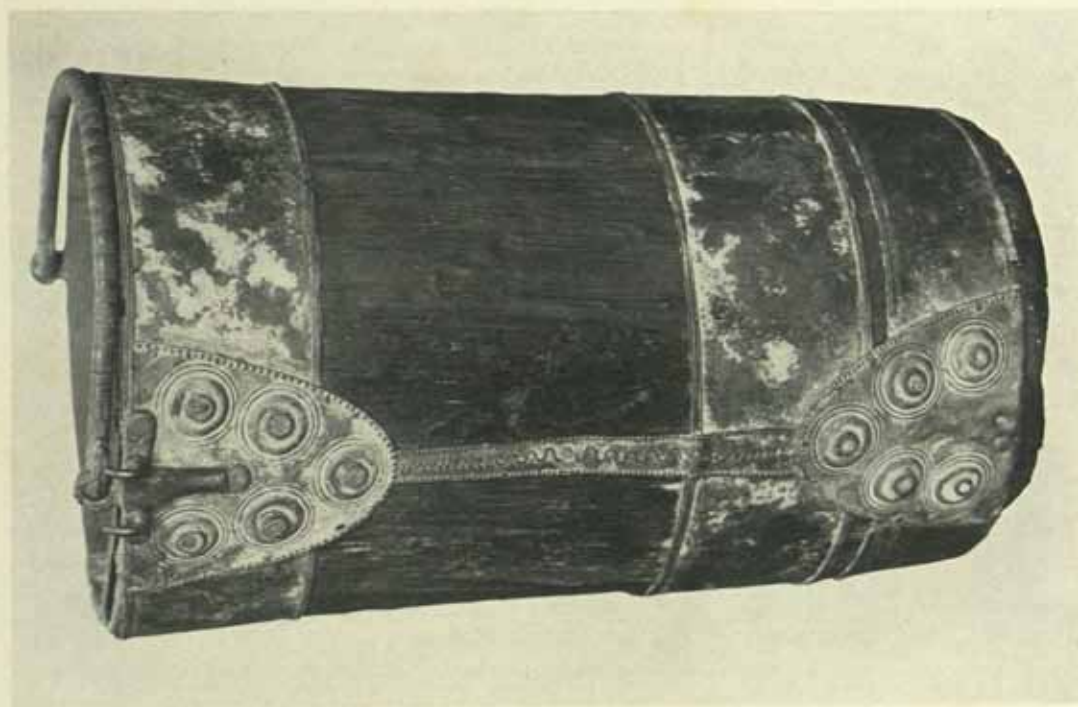
¹⁰⁷ *Antiq. Journ.*, XV (1935), 79-80; *R.C.H.M. Westmorland*, p. xxxiv: "probably an escutcheon from a IInd-century bronze bowl" (R. E. M. Wheeler). Site, *ibid.*, 139-40, No. 37: also produced an iron hipposandal. I am indebted for information to the owner of the head, Mr. F. Dickinson, and to Mr. W. Watson of the British Museum, to whom he kindly sent it for examination in 1946.

PLATE VIII



A

A. Bronze mirror-handle, Ingletton, Yorkshire (*British Museum* ; *photo British Museum*)



B

B. Bronze-mounted wooden bucket, Mount Sorrel, Leicestershire (*Leicester Mus.* ; *photo Leicester Museum*)
(A, $\frac{2}{3}$; B, c. $\frac{1}{2}$)

formerly surmounted it likewise. Perhaps that was a similar bird-head: the ox's eyes bulge like those of the Thealby birds; anyhow, with or without birds, we have now seen the most that Romanization could do to these British ox-heads in the Ist and IInd centuries.

For in the IIIrd century all Romanization waned. And what meets us next is the ox-head symbol portrayed in a style of re-barbarization. It meets us on the Mountsorrel bucket, a treasure of the Leicester Museum still unique in Romano-British archaeology (Plates VIII A; IX 1-2).¹⁰⁸ The bucket was found in 1892 in a collapsed condition in an ancient well at Mountsorrel outside Leicester, during quarrying operations. With it was much Romano-British pottery, which as far as possible re-assembled now by Mr. Cottrill, forms a group closely resembling that excavated and published by Dr. Felix Oswald from the late IIIrd-century well at MARGIDVNM (only 19 miles away), dated by coins of Tetricus I and Carausius.¹⁰⁹ The find was rescued and the bucket published by Baron A. von Hügel,¹¹⁰ in a restoration from which that finally adopted (carried out at the British Museum) differs only in the placing of some of the strip-bronze bindings. Nearly all its bronze parts survive, and of its oak staves three are still in good condition; the ox-head handle-attachments are riveted¹¹¹ to it through embossed sheet-bronze "shields," from which background they jut impressively forward. Their horns curve vertically; ears are rejected, and the flat plane of the forehead is first narrowed between semi-circular lateral hollows, and then expands into angular temples cut slantwise off in sharp brows above steeply-falling cheeks, and continued between these only by the thin nose-ridge which runs down to the transversely-moulded muzzle. Surface features are limited to the faint horizontal tooling of a hair-frontlet on the forehead, ending in two stronger marks that look like eyebrows; eyes are no more than hinted at, but the slanting brows above give the long face stern, frowning expression. The barbaric symbol-portrait has outlasted its measure of Romanization: from here,

¹⁰⁸ I am most grateful to the authorities of the Leicester Museum for these photographs, and especially to Mr. Cottrill for allowing me to examine the bucket with him in December, 1946.

¹⁰⁹ *J.R.S.*, XVI (1926), 36-44, with pls. V-VIII.

¹¹⁰ *Camb. Antiq. Soc., Proc.* VIII (1892-3), 133-41; cf. *V.C.H. Leics.*, I, pl. opp. p. 172.

¹¹¹ The rivets in the photographs are modern: the originals have somewhat smaller heads.

on the threshold of the IVth century, the Dark Ages are not far away.

The Ty'r Dewin bucket, already mentioned (p. 190), seems to show us the old pre-Roman bucket tradition in a late form surviving into the Dark Ages of the Celtic west. The cauldrons are widespread, as are the hanging-bowls, which last far on into Anglo-Saxon times. Did the Anglo-Saxons, whose metal-mounted buckets and stoups display their own versions, poorer and smaller as a rule, of the pre-Roman bucket tradition, make any contact with our Dark-Age Celtic bucket-making? It would be hard to prove for buckets without the Celtic bucket-animal head. But there is one fragmentary bucket from an Anglo-Saxon grave which has such a head. It comes from the Anglian cemetery, broadly speaking of the VIth century, at Twyford in Leicestershire¹¹² (10 miles from Mountsorrel); and the head, in bronze, is the head of an ox with a bird sitting upon it (Plate IX 2).

The Twyford parallel with the Romano-British heads from Thealby, at least 400 years earlier (Plate VII 5), is remarkable. The main differences are that here the bird is a whole bird, looking more like a raven than a hawk; that the bucket-handle (of iron, as rust survives to show) was carried between the bird and a narrow oval back-plate, riveted on in bronze through the bird's neck and in iron through the ox's forehead and the rim of the bucket (represented now only by some of its bronze sheeting and edge-binding); and that the ox, though he has ears and eyes (round cup-hollows, like the bird's) as well as short, straight horns, is less portrait than outright convention, with forehead and muzzle corrugated with ornamental mouldings. The bucket, from its other remains, can otherwise have been nothing but an ordinary Anglo-Saxon drinking-stoup; but since this whole class of Anglo-Saxon vessels is united in general tradition with the Celtic,¹¹³ it would be a natural and familiar thing for a Celtic craftsman to make for an Anglo-Saxon master—one of those craftsmen who must also, as Mr. Leeds has lately enabled us to believe,¹¹⁴ have made penannular, annular, and disc brooches for Anglo-Saxon use,

¹¹² *V.C.H. Leics.*, I, 236, and pl. opp. 172; *Anglo-Saxon Leicestershire and Rutland* (Leicester Museum Exhibition-Catalogue, 1946), 17, No. 114, with Fig. 18. I am again indebted to Mr. Cottrill and the Leicester Museum authorities for the photographs here reproduced.

¹¹³ Baldwin Brown, *The Arts in Early England*, IV, 464-6, with the Twyford head figured pl. CXIII, 3.

¹¹⁴ *Archaeologia*, XCI (1945), 44-52.

PLATE IX



1



2



3



4



5

1, 2. Mount Sorrel, Leicestershire : detail of bucket

3, 4, 5. Twyford, Leicestershire : bronze bucket-mount : back, face and side views (*Leicester Mus.* ; photos Leicester Museum)
(All half actual size)

and, continuing from the old practice of cauldron and bowl making that we have discussed above, likewise the hanging-bowls which are their most splendid memorial.¹¹⁵

Bronze-working in Britain, then, was a Bronze Age tradition which was gradually re-fashioned in the Early Iron Age. Thereafter, Romanized industry as in great part it became, it persisted also among native workers, who took something from Rome, but no more than they wished to take or needed. And lastly, when their cauldrons and bowls and buckets must have grown more than ever in demand with the decline and fall of Romano-British pottery, they maintained their craft—and with it, seemingly, in the ox-head, the old symbolic bucket-animal—into the later centuries of Celtic survival and Anglo-Saxon settlement.

The subject of this essay has connected together the prehistoric, Roman, and early medieval periods. To attempt it seemed on that account particularly to befit a dedication to O. G. S. Crawford, to whom the archaeology of all three periods owes so much. But what I owe to him myself, no attempt of mine can really at all befit.

C.F.C.H.

¹¹⁵ The Twyford cemetery-finds in fact included two hanging-bowl escutcheons (Françoise Henry, *J.R. Soc. Antiq. Ireland*, LXVI, 216, pl. XXII, 2; Kilbride-Jones, *P.S.A. Scot.*, LXXI, 214), of a heart-shape related, like the kite-shape of those from Finningley (Yorks.), Sarre (Kent) and Chessel Down (I. of Wight), and like other variants both plain and enamelled, to the escutcheon-forms of Roman-period bowls (F. Henry, *op. cit.*, 214-17, 227-29; Kendrick, *Antiquity*, VI, 161-66). They also included two of the annular brooches, their rings moulded similarly to those of the Mountsorrel bucket: Nos. 115-16 in the Leicester Catalogue (cited n. 112), p. 17, where Mr. Cottrill makes the same suggestion of work by British craftsmen.

THE VOTADINI

By A. H. A. HOGG

THE VOTADINI make few appearances in history. During most of their existence as a tribe they were outside the boundary of the Roman Empire, and early writers seldom mention them by name, but they are the subject of one of the most notable of the old Welsh poems, and their territory includes one of the few extensively excavated native sites in the Scottish Lowlands. This paper¹ is an attempt to give an account of the tribe in which they themselves occupy the centre of interest, rather than their reactions as a minor element in Roman frontier policy.

To avoid an excessively long account, it has been necessary to omit material, such as the vague Welsh traditions concerning the Dark Ages, which although interesting leads to no very definite conclusions. Further, information which has been included in papers recently published in easily accessible periodicals is only repeated here when such repetition is essential.

Before turning to the subject of the Votadini, I should like to express my thanks to Dr. I. A. Richmond, Mr. R. B. K. Stevenson and Mr. J. A. Brown, for much help and advice.

THE TERRITORY OF THE TRIBE

The approximate area occupied by the tribe is indicated by Ptolemy,² and lies on the east coast, between the Tyne and Forth. Their southern boundary appears to have been the Tyne,³ and the Forth is the obvious natural limit in the other direction. In the Vth century they also held part of the district of Manau, which Skene has shown^{4, 5} included the area between the rivers Avon and Carron,

¹ [This article was written in late 1946, and since then several important papers relevant to it have appeared. The body of the paper has been left unaltered, but some footnotes have been added in March 1950. These are enclosed in square brackets.]

² I. A. Richmond, "Romans in Redesdale," *County History of Northumberland*, XV, 63-158.

³ A. H. A. Hogg, "Native Settlements of Northumberland," *Antiquity*, XVII (1943), 143.

⁴ Skene, *Four Ancient Books of Wales*, II, 366-7.

⁵ Watson, *Celtic Place Names of Scotland*, 103.

about 25 miles west of Edinburgh. The name Clackmannan indicates that Manau extended across the Forth, but it is uncertain whether the Votadini held it all. On the west, the distribution of the small forts⁶ suggests a boundary running roughly parallel to Dere Street, and about ten miles west of it, but if the identification of Newstead with TRIMONTIVM is accepted⁷ the Selgovae occupied part of this area.

Ptolemy gives the names of three "towns" in the territory of the Votadini.⁸ Of these, BREMENIVM is identified by inscriptions with High Rochester, and the emendation which places ALAVNA near the Bridge of Aln is almost certainly correct.⁹ Corbridge is known from an inscription to have been called CVRIA,¹⁰ and as its distances from CATARACTONIVM and BREMENIVM are in the right proportion it is almost certainly the Votadinian town of that name. Ptolemy's information seems to refer to a period before the establishment of the Stanegate frontier, and the construction of Hadrian's Wall must have cut off the town from Votadinian territory.¹¹

ORIGINS

Maps showing the distribution of Late Bronze and Early Iron Age cultures¹² seem to indicate a wedge of territory extending across Ireland and central Britain within which the Iron Age cultures made

⁶ *Antiquaries Journal*, XIII, 11, Fig. 5.

⁷ This identification is incompatible with Ptolemy's data, and there is no evidence in its support other than the three peaks of the Eildon Hills, and frequent repetition. [But it should be emphasized that every recognized authority except Watson accepts it.]

⁸ See footnote 2, p. 200.

⁹ The unamended position, however, would agree quite well with Traprain Law, which is a site more appropriate to Watson's interpretation of ALAVNA (*op. cit.*, 33). [But see reference in footnote 11, pp. 14, 22.]

¹⁰ E. Birley and I. A. Richmond, "Excavations at Corbridge, 1936-38," *Arch. Aeliana*, ser. 4, XV (1938), 287-8. The position of the name CORIE LOPOCARIVM of the Ravenna list seems to imply that it was south of York, and its identification with Corbridge, as suggested in the paper referred to above, is therefore improbable. [But see footnote 11.]

¹¹ [For the discussion of further names in this area see I. A. Richmond and O. G. S. Crawford, "The British Section of the Ravenna Cosmography," *Archaeologia*, XCIII (1949), 1-50. Corbridge is there identified tentatively with CORIELOPOCARIVM (pp. 12, 30), and the CORIA OTADINORVM of Ptolemy with CORITIOTAR, which is not located (pp. 14, 30). It is certainly clear from the analysis on p. 12 that the writer was mistaken in suggesting, in footnote 10 above, that CORIELOPOCARIVM lay south of York.]

¹² E.I.A. B: Fox, *Personality*, Fig. 11; Childe, *Prehistoric Communities*, Fig. 83.

E.I.A. A: Fox, *ibid.*, Fig. 5; Childe, *ibid.*, p. 226. Cordoned and Encrusted Urns: Fox, *ibid.*, Pl. 5; Childe, *ibid.*, Fig. 46, p. 149.

Cup and Ring Markings: E. MacWhite, "A New View on Irish B.A. Rock Scribings," *Journ. Roy. Soc. Ants. Ireland*, LXXVI, pt. II (July 1941), 59-80.

little headway, although it was steadily reduced in width.¹³ The Votadini lie at the north-eastern end of this area, and they may be regarded with high probability as descendants of the Urn folk. The pottery from Traprain Law supports this view.¹⁴

HISTORY

The date at which the Urn folk separated into groups which regarded themselves as individual tribes cannot be determined, but objects typologically of the Late Bronze and Early Iron Age occur at Traprain Law¹⁵ and lignite armlets of rounded triangular sections occur both there and at Yevinger Bell.¹⁶ Not much of this material can be dated with certainty in this area, but the armlets, which are an uncommon type, find parallels in the Bronze Age crannog at Ballinderry.¹⁷ This site, which also produced pottery similar to that from Traprain Law, is regarded by the excavator as earlier than 100 B.C., and is dated later than 400 B.C. by a pollen diagram. A date somewhere within this range would not conflict with the other evidence from the Votadinian area as to the earliest period of occupation of some of the fortified sites.

No details can be given of the tribe's history before the arrival of the Romans, but there are indications that it was not wholly peaceful. Several small forts and village enclosures show two or three periods of construction,¹⁸ the latest of which, when dated, is of the IInd century.¹⁹ Scattered human bones were associated with the promontory fort under the latest enclosure at Gunnar Peak.²⁰ The writer was at one time inclined to regard these remains as traces of native contact with the higher civilization of the Romans, but the wall

¹³ Cf. J. Raftery, "A Suggested Chronology for the Irish Iron Age," *Festschrift: Eoin MacNeill* (Dublin 1940), 272.

¹⁴ See Appendix I.

¹⁵ See V. G. Childe, *Prehist. Scotland*, 249, for summary.

¹⁶ *Berwick's Naturalists' Club*, 1856-62, 431-53.

¹⁷ H. O'N. Hencken, "Ballinderry Crannog No. 2," *Proc. Roy. Irish Acad.*, XLVII, Sect. C, No. 1, 1-76.

¹⁸ e.g., Gunnar Peak: footnote 20; Ingram Hill: *Arch. Aeliana*, ser. 4, XX (1942), 110-33; Harehaugh: D. D. Dixon, *Upper Coquetdale*, 121-2; Dod Law: MacLauchlan, *Eastern Branch of Watling Street*, 43.

¹⁹ [Mrs. C. M. Piggott's excavations at Hownam Rings, Roxburghshire, showed three periods of fortification, the latest being late 1st century. *Proc. Soc. Ant. Scot.*, LXXXII (1947-8), 193-225.]

²⁰ *Arch. Aeliana*, ser. 4, XX (1942), 155-173.

of the promontory fort was a low shapeless mound by the time the enclosure was constructed, apparently about the middle or end of the IInd century.²¹ It is unlikely that it could have fallen into such a state of ruin in only a hundred years.

The three brochs in the area also indicate the presence of invaders before the arrival of the Romans.²²

For the Roman period, the history of the country as a whole is generally well established by a combination of archaeological and documentary evidence, and provides a framework into which the local detail may be fitted.²³

So few other non-Roman sites in this area have been even partially excavated that almost all the evidence for the interaction of Roman and native comes from Traprain Law. The excavations showed²⁴ that the inhabitants there remained in prosperous and apparently peaceful occupation of their town at least until the middle of the 2nd century, and there is no indication that their commercial contact with the Romans was interrupted by the withdrawal of Agricola or the reoccupation of the area by Lollius Urbicus. That the Roman administrator did not regard the tribe as fully trustworthy, however, is shown by the network of roads constructed probably under Agricola.²⁵ Dr. Richmond's estimate of the significance of the relation between the roads and settlements is strongly supported by the evidence of several reconstructions in the small forts. This conflicts with Professor Childe's view that the small forts may in most cases have been erected as a defence against the Romans.²⁶ Even the removal about A.D. 143 of a large number of people from the district near the southern Wall, and their resettlement on the upper Rhine²⁷ seem to have left the occupants of Traprain Law undisturbed, since the latest coin of the early group from there was one issued by

²¹ See however p. 205 below.

²² *Proc. Soc. Ant. Scot.*, LXVI, 341.

²³ Collingwood and Myres, *Roman Britain and the English Settlements*. Footnote 2 above provides supplementary detail for the area considered here.

²⁴ The evidence is tabulated below, in connection with the discussion on the culture of the tribe.

²⁵ See footnote 2, p. 200.

²⁶ See footnote 6, p. 201.

²⁷ Collingwood, *Archaeologia*, LXXX (1930), 37-58.

Antoninus Pius to celebrate his victory in A.D. 155.²⁸ The analogous transfer of Cuneda's people at the end of the Roman period suggests as a possibility that the Brittones who moved to the upper Rhine were at least nominally volunteers. The writer has suggested elsewhere that some of the rectangular earthworks which occur in a group in the south of Northumberland are to be associated with a settlement of Rhaetians in the district which was vacated.²⁹

Traprain Law, however, did not long remain undisturbed. After the coin of Pius mentioned above, there is a break in the series until the reign of Gallienus. There are one or two brooches^{30, 31} and some late Samian³² which may be assigned to the interval, but there seems to have been an actual break in the occupation of the site at this time. The excavation report of 1915-16 says :

"The four principal surfaces may be divided into pairs, an upper and a lower, since the length of time intervening between the latest period of occupancy of the latter and the earliest period of occupancy of the former has been considerably greater than that between the periods of occupancy of the respective members forming each pair. Similarly the difference between the Roman pottery belonging to each pair is much more marked than the difference between the respective levels which compose them."³³

The excavators seem later to have decided that the occupation was continuous,³⁴ but the evidence of the relics favours their earlier view.

Further excavation would probably enable the period during which the site was abandoned to be settled with certainty, but on the present evidence it seems reasonable to associate it with the disaster which followed the withdrawal of the frontier troops by Albinus at the end of the IInd century. If, as suggested above, the Votadini were on friendly terms with the Romans, it is to be expected that they should suffer at this time. Alternative theories would assume

²⁸ *Proc. Soc. Ant. Scot.*, LVI, 238.

²⁹ See footnote 3, p. 200. [The criticisms offered by Steer and Keeney (*Proc. Soc. Ant. Scot.*, LXXXI, 157) dispose of this suggestion so far as the small lightly walled sites are concerned, but excavation of several of the larger and more strongly embanked enclosures in the group south of Risingham is necessary before the problem can be considered settled.]

³⁰ See footnote 27, above.

³¹ H. E. Kilbride-Jones, *Proc. Roy. Irish Acad.*, XLIII, C (1936-7), 379-455.

³² *Proc. Soc. Ant. Scot.*, LXVI, 357.

³³ *Proc. Soc. Ant. Scot.*, I, 86. ³⁴ *Proc. Soc. Ant. Scot.*, LVII, 189.

that the inhabitants of the town were removed by the Romans either at the evacuation of the Lowlands or during Severus' punitive campaign. The first seems unlikely, in view of the undisturbed prosperity enjoyed by the townsfolk during the period when they might have formed a threat to the occupying forces, and if the second is correct the steadily increasing co-operation between the Romans and the Votadini during the IIIrd and IVth centuries is surprising.

It is to this period (following the withdrawal of Albinus), when the north of Britain was overrun by the Maeatae, that the three earth-houses found in the Votadinian area can most probably be assigned. The extensive use of stones from abandoned Roman forts at Newstead and Crichton Mains³⁵ suggests not merely the use of a convenient source of building material but also something of the same mentality which led to the deliberate wrecking of Roman sites. Further, the earth-house appears to be a rare and therefore probably intrusive type of structure south of the Forth, while to the north of that river the type is common.³⁶ The Maeatae are also associated with the district immediately north of the river.³⁷

The relics from the earth-house constructed in the ditch of an earlier native fort at Castle Law, Midlothian suggest a slightly earlier date.³⁸ But when assessing the value of IInd century Roman material as evidence for the date of non-Roman sites in this area, some allowance should be made for the quantities of slightly damaged but still useful pots and other objects which would be obtainable from the rubbish in the abandoned Roman forts.

After the restoration of the frontier system under Severus, and its stabilization by his sons, the recovery of the tribe seems to have been fairly rapid, and it appears that a steadily increased reliance was placed by the Romans on the Votadini. There is evidence for disasters overtaking Hadrian's Wall and the outpost forts of HABITAN-CVM and BREMENIVM at the end of the IIIrd century, after which both the forts and the Wall were rebuilt; about A.D. 340, when the

³⁵ V. G. Childe, *Prehist. Scotland*, 215.

³⁶ V. G. Childe, *Prehist. Scotland*, Map IV, 275.

³⁷ Watson, *Celtic Place Names of Scotland*, 59.

³⁸ *Proc. Soc. Ant. Scot.*, LXVII, 362-388.

forts alone were destroyed, and HABITANCVM only was rebuilt ; in A.D. 367, after which the Wall was reconstructed but the outpost forts were abandoned ; and just before the end of the IVth century, when the Wall also was left in ruins. Traprain Law shows no trace of these disasters, but the town lies well away from the natural route for raiders from beyond the Forth. If the Votadini had sided with the attackers, however, it is unlikely that they would have escaped Roman vengeance. Finally, the evidence of Cunedda's genealogy is also in favour of some degree of Romanization. Nicholson³⁹ has pointed out that the four generations which precede Cunedda bear garbled versions of Roman names, Cein, Tegid, Patern Pesrut, and Aetern, corresponding to Ceionus, Tacitus, Paternus (of the Red Mantle) and Aeternus. Even if the full chronological implications put forward by Nicholson are not accepted, these names must imply strong Roman influence during the IVth century, if not earlier.

At the end of the IVth century, then, the northern frontier of the Roman province was on the east defended by the Votadini, and on the west by another native state, supported further south by more regular garrisons.⁴⁰ At this time, or soon after, Cunedda and his sons were transferred to north Wales, where they founded a famous dynasty.⁴¹ This event, sometimes regarded as emptying the Votadinian territory, seems from the point of view of the inhabitants who remained to have been little more than the removal of some surplus population.⁴² The evidence of the Gododdin poem⁴³ makes it clear that the Votadini still occupied this district or part of it, and maintained their individuality as a tribe, as late as the end of the VIth century. The difficulty which the Anglian invaders experienced in obtaining a foothold also shows that the country was not deserted.

³⁹ E. W. B. Nicholson, "The Dynasty of Cunedag," *T Cymmrodor*, XXI (1908), 61-104.

⁴⁰ See footnote 2, p. 200.

⁴¹ [For a discussion of the date of this transfer and of its implications as to the start of Romanization among the Votadini see P. Hunter Blair, "The Origins of Northumbria," *Arch. Aeliana*, ser. 4, XXV (1947), 1-51 (arguing for a date c. 450) and A. H. A. Hogg, "The Date of Cunedda," *Antiquity*, XXII, No. 88, 201-205 (giving reasons for preferring a date slightly before 400).]

⁴² A plausible explanation of the appearance of the Celtic name of Cunedda after a series of Romanized names would be to regard him as a younger son of the ruling house.

⁴³ See C. A. Gresham, "The Book of Aneirin," *Antiquity*, XVI (1942), 237-257, for an English summary of Prof. (Sir) Ifor Williams' introduction to *Canu Aneirin*.

Archaeological evidence relating to the southern districts is lacking for this period, but Dr. Douglas Simpson has recently drawn attention to the group of early Christian cemeteries in the Lothians⁴⁴ which probably gives a good indication of the area within which the tribe managed to maintain its prosperity during the Vth and VIth centuries.

Traprain Law lies in the heart of this area, but it is generally considered that the treasure found on that site implies that the town was deserted by the early Vth century. The argument is hardly valid, as in a community of agriculturalists a sack would not attract much notice, and there are many possible explanations of how such a treasure might come into the hands of one of the townsfolk. Further, there is both archaeological and traditional evidence for the continued occupation of the hill.⁴⁵ The list of churches founded about A.D. 500 by St. Monenna⁴⁶ appears to be a genuine tradition, as a late biographer bent on glorifying the saint would be likely to select only well-known and famous places. The inclusion of Traprain Law, under its other name Dunpeledur, with such places as Dumbarton, Stirling, and Edinburgh, implies that it also was probably inhabited about that time, and this is confirmed by the discovery of a massive silver chain of a type tentatively dated to the VIth or VIIth century A.D.⁴⁷

Most of the other surviving traditions relating to this area are so much confused by later accretions that they cannot safely be used to work out the history of the tribe. Ancirin's great poem *The Gododdin* stands in a different class. It has recently been edited and subjected to critical analysis, and a full summary of the introduction has been made accessible to English readers⁴⁸ so it is unnecessary to discuss it in detail here. It seems probable that the British disaster

⁴⁴ W. D. Simpson, "New Light on St. Ninian," *Arch. Aeliana*, ser. 4, XXIII (1945), Pl. IV, 94.

⁴⁵ [Recent trial excavations by Professor Bersu have shown that the outer of the two "earlier ramparts" shown on the plan (Fig. 54) is not earlier than the late IIIrd or early IVth century, and had been disused for some time when the 'later rampart' was erected. It is therefore inferred that the latter is probably of Dark Age date. A summary of the results is given in *The Archaeological News Letter*, 1, No. 5 (Aug.-Sept. 1948), 12.]

⁴⁶ Skene, *Celtic Scotland*, II, 37.

⁴⁷ *Proc. Soc. Ant. Scot.*, LXXIII, 326.

⁴⁸ See footnote 43 above.

at Catraeth was one of the earlier Anglian victories of Ethelfrith's reign, and may account for his rapid conquest of the Lowlands. It marks the last appearance of the Votadini as a tribe, but it is unlikely that the population was driven out or slaughtered, as there is evidence for the survival of British elements in Northumberland and the eastern Lowlands.

CULTURE

The material culture of the Votadini differed little from that common to the greater part of Scotland during the Iron Age. This has been fully described by Professor Childe,⁴⁹ so it is only necessary to mention points peculiar to this tribe, mostly illustrated as usual from Traprain Law. Some of the principal relics from that site are listed in the table below, which is also arranged to indicate the change in the character of the occupation between Levels 3 and 2. It must be noted that the levels were arbitrarily established, and there is some scatter of material across the division between them.

The food supply of the inhabitants requires little comment, but in addition to their diet of meat and barley they occasionally used the products of the sea. A bone from the Grey Seal, a bone from a Ling, and several small heaps of Whelk shells are recorded. In spite of the ample evidence for agriculture, it is remarkable that there is no convincing example of an early field system⁵⁰ from the Votadinian district,⁵¹ and even aerial photographs of the area round Traprain Law show no evidence for early cultivations.

So far as the dress of the inhabitants is concerned, the most marked feature is the change in fashion between levels 3 and 2, indicated by the presence of only one or two brooches later than the end of the 2nd century. This may have been the result of the removal of all the more skilled craftsmen, as other bronze ornaments also ceased to be manufactured and the later glass armlets are all colourless. Weaving was practised, but not extensively, as only two loom-weights were found. Weaving combs were not recorded.

⁴⁹ *Prehist. Scotland*, Chap. XI.

⁵⁰ [A very small group of fields has been identified in association with a homestead of Crock Cleuch, Roxburghshire. K. A. Steer and G. S. Keeney, *Proc. Soc. Ant. Scot.*, LXXXI, 138-157.]

⁵¹ *Proc. Soc. Ant. Scot.*, LXXIII, 296.

One of the most interesting results of the excavations at Traprain Law was the information obtained as to the house types. Little remained from the earlier periods, but a ring of paving, with a ruinous hearth at the centre⁵² seems to represent the foundations of a house about 35 ft. in diameter externally, with a thick turf wall enclosing an internal space about 20 ft. across.⁵³ Remains of a circular hut were also found under the later rampart.⁵⁴

These earlier huts do not present any remarkable features and may be compared with others from this area,⁵⁵ but the plan of the latest period could be recovered in considerable detail, and is of great interest (Fig. 53).⁵⁶ The houses lie adjacent to a narrow road, 8 ft. or 10 ft. wide, with cart ruts, which crosses the excavated area diagonally. Near the centre is an irregular square, about 60 ft. by 70 ft., which the road enters and leaves at opposite corners. The square is surrounded by four blocks of buildings. The area on the north is very much confused, but the general character of the structures does not differ seriously from those on the other side. The walls were generally of turf, about 4 ft. thick, usually on a stone foundation, but where this was absent no trace survived, so the plan is incomplete. The few post holes which could be identified do not fall into a coherent plan. Each block was composed of several sub-rectangular rooms, generally about 15 ft. by 30 ft., opening into each other, with smaller irregular chambers about 10 ft. by 5 ft. opening off the larger rooms. The larger rooms often contain big rectangular hearths. The arrangement suggests that each group represents a single house, containing several rooms. The other building which deserves notice is the long narrow rectangular structure on the south-east side of the road north-east of the square. It is about 15 ft. wide and more than 70 ft. long internally, but its full length was not determined.

⁵² *Proc. Soc. Ant. Scot.*, LVII, 186.

⁵³ Cf. Milking Gap: *Arch. Aeliana*, ser. 4, XV (1938), 303-350. Conditions at Traprain Law did not enable post-holes to be identified.

⁵⁴ *Proc. Soc. Ant. Scot.*, LXXIV, 53.

⁵⁵ See footnote 3, p. 200 above.

⁵⁶ The plan is based on those given in the excavation reports, which have been redrawn to a uniform scale, omitting only small isolated stones, and using conventionalized symbols for hearths and paving. A light stipple has been added, to guide the eye along what appear to be the lines of walls.

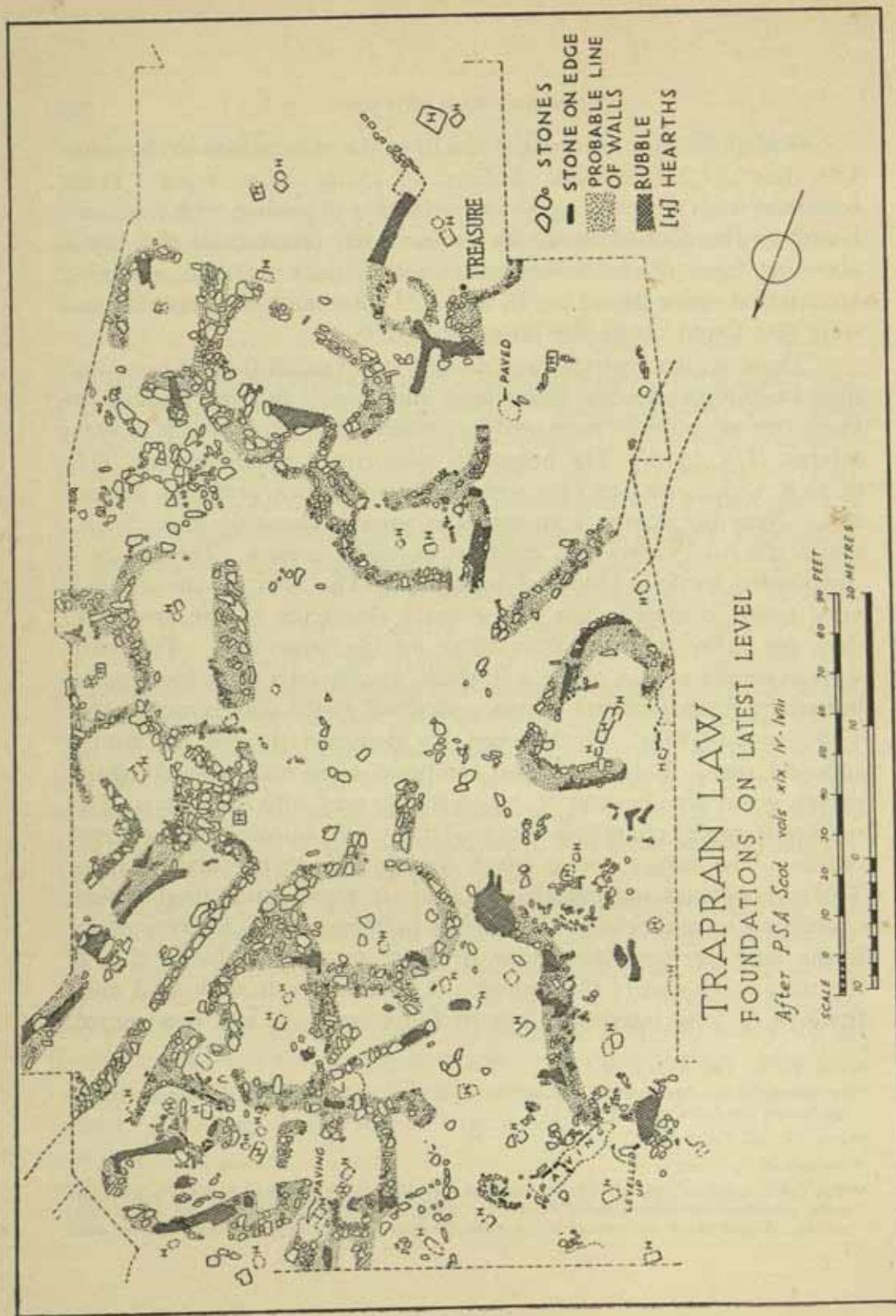


Fig. 53

It is similar to the undated "long-houses" which occur on some Northumbrian sites⁵⁷ and suggests a very small version of the Irish banqueting halls.

To return to the houses previously mentioned, their similarity to the Black Houses of the Hebrides is evident. It is not necessary, however, to look for foreign parallels, as an earlier stage in their development can be traced in this area, at Gunnar Peak and Ingram Hill⁵⁸ though the latter site is not dated.⁵⁹ The origins of these rectangular structures are probably to be traced to Roman influence, in view of their date, but the development seems to be purely native.

Apart from the Gododdin which describes exceptional conditions, the only evidence for the social organization of the tribe is provided by the remains of their towns, forts and villages. The smaller sites have been described in some detail elsewhere.⁶⁰ "Towns" are not common, but their character is well represented by Traprain Law (Plan, Fig. 54).⁶¹ The great number of small forts and their lack of any concentration near the tribal boundary suggests that they were for protection against neighbours as much as against invaders. Their detailed layout indicates that their occupants were probably mainly concerned with cattle rearing. The coherence of their plans suggests that they were constructed under the guidance of a single organizer, but the absence of any exceptionally large or well-placed hut implies that there were no marked social distinctions among the inhabitants. So far as information is available, the same conclusion applies to the townsfolk, and the wavering uncertainty in the setting out of the ramparts of Traprain Law perhaps reflects the difficulty of organizing the greater number of workers involved.

Contrasted with the culture of the Roman province, the impression left by the remains as a whole is generally one of squalid barbarians living little above subsistence level, but this impression arises from

⁵⁷ *Loc. cit.*, footnote 2 above, 78, Fig. 11.

⁵⁸ See footnote 18, 20 above, p. 202.

⁵⁹ [Further work at Ingram Hill by the writer indicates that the rectangular buildings are probably post-Roman.]

⁶⁰ See footnote 3 above, p. 200. [For the first adequate report on the excavation of a typical homestead, see *Proc. Soc. Ant. Scot.*, LXXXI, 138-157.]

⁶¹ [The position of the areas excavated in 1914-23 was determined from aerial photographs.]

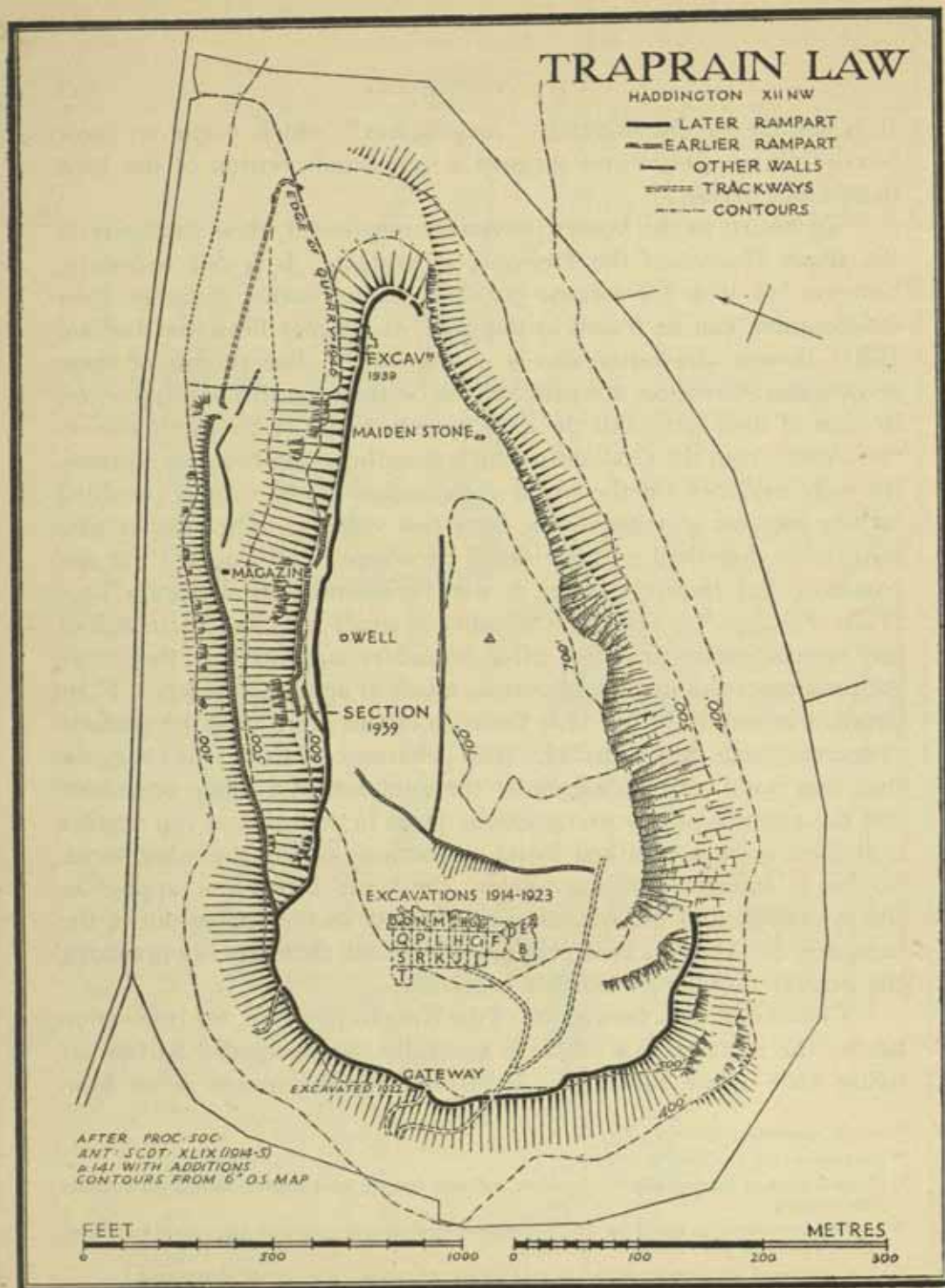


Fig. 54

too great a reliance on the evidence of material culture alone. Fortunately the Gododdin survives to correct it. The warriors described there belonged to a civilization technically far behind the Romans, but as advanced as any which succeeded them in this area for several centuries, and they maintained themselves against the Anglian invaders for at least a century after the collapse of the more civilized south.

BIBLIOGRAPHICAL NOTE : TRAPRAIN LAW

It is convenient to give here a list of the principal reports dealing with this site. All references are to *Proc. Soc. Ant. Scot.*

Excavation Reports: XLIX, 139-202; L, 64-144; LIV, 54-124; LV, 153-206; LVI, 189-259; LVII, 180-226; LVIII, 241-284; LXXIV, 48-59.

Glass Armlets: H. E. Kilbride-Jones, LXXII, 366-395.

Roman Relics: James Curle, "Objects of Roman and Provincial Origin . . .", LXVI, 277-397, especially 284, 294, 330-334, 354-362.

APPENDIX I

THE NATIVE POTTERY FROM TRAPRAIN LAW

(Figs. 55-56 ; Table, Fig. 57)

Among the many sites in the suggested zone of late Bronze Age survivals which have produced comparable pottery, Traprain Law is the only one at which dated objects have been found in association with large quantities of the ware. Not much of the Traprain Law pottery has been published and it seems worth while to make available additional information as to its character.

The writer is indebted to Mr. R. B. K. Stevenson, Keeper of the National Museum of Antiquities of Scotland, for selecting the fragments, for providing a description of them, and for arranging for them to be drawn, and to Mr. J. A. Brown for preparing the drawings. Mr. Stevenson, however, is not responsible for any conclusions as to the significance of the material. It should also be noted that much of the pottery had not, at the time of preparing these notes, been brought out from its wartime storage, and it is therefore impossible to say how fully representative this sample is.

Two fabrics may be distinguished. Most of the pottery is extremely coarse with large grits, and shows a general resemblance to the fabric of Bronze Age cinerary urns, although harder fired. But a small proportion of finer ware also occurs,⁶² having a sandy texture like that of the Romano-British and earlier native pottery of southern England. This ware occurs at all levels, but is more frequent relatively in the upper layers.

The sample is too small to justify any chronological conclusions from the form of the pots, but it may be noted that the coarse ware becomes far less common after the end of the second century.

Only about twenty fragments of decorated pot were found during the excavations, almost all from the lower levels, and they are mostly illustrated either here or in the excavation reports.⁶³ The decoration is very simple, generally a single row of impressions made by the finger nail or with a pointed stick round the body or neck of the pot or on the rim, or very rarely on a raised band.

Material showing marked resemblances to the Traprain Law pottery occurs in quantity on about a dozen British sites (tabulated in Fig. 57)⁶⁴ but none of these provides a complete parallel to all the forms. It is not necessary

⁶² Numbers 2, 14, 21, 22, 24 and 25 are of this ware.

⁶³ *Proc. Soc. Ant. Scot.*, L, 87-89, Fig. 17 ; LVI, 220, Fig. 19 ; LVIII, 257, Fig. 13.

⁶⁴ [No attempt has been made to incorporate material published after 1946.]

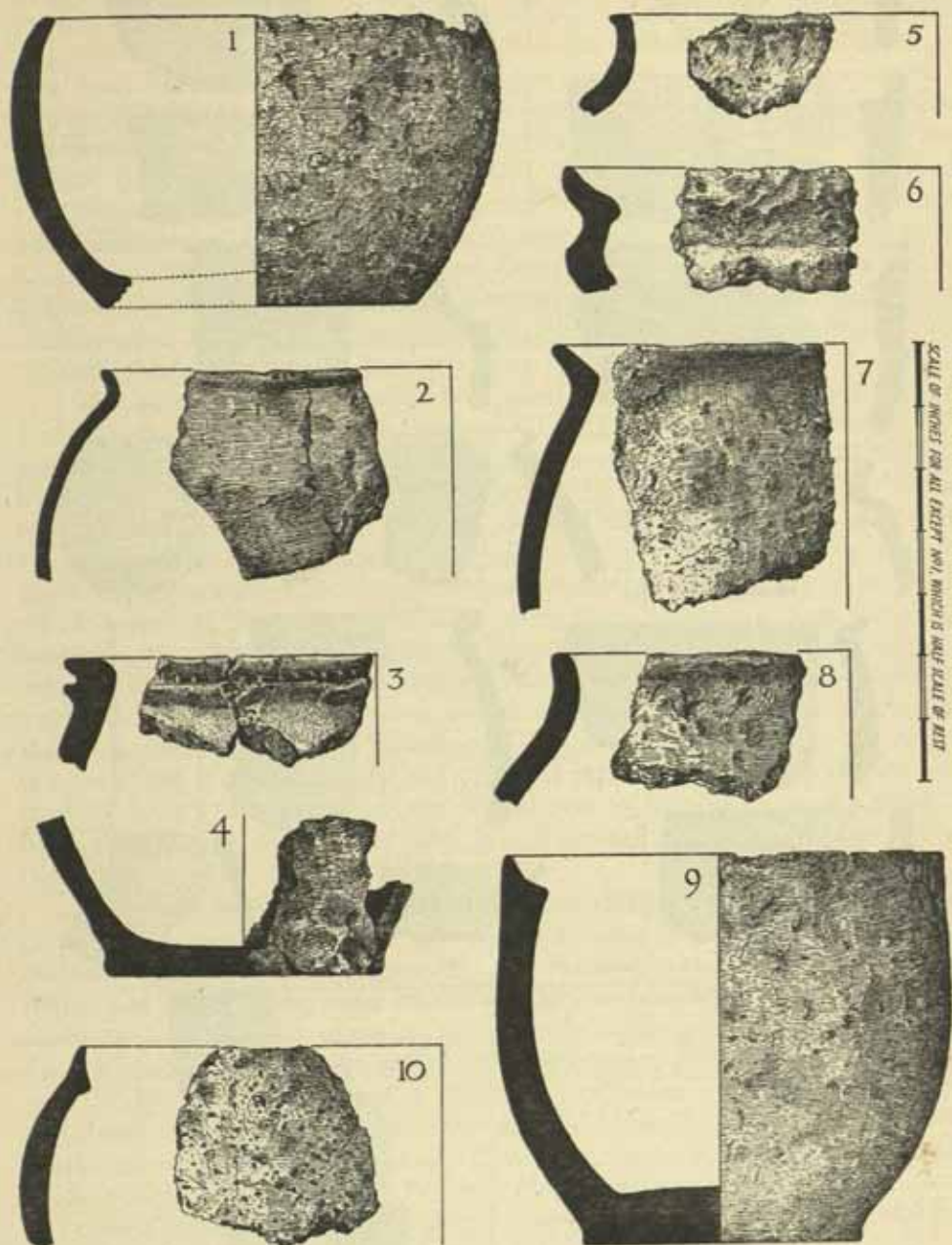


Fig. 55. Pottery from Traprain Law (†)
(National Museum of Antiquities, Edinburgh)

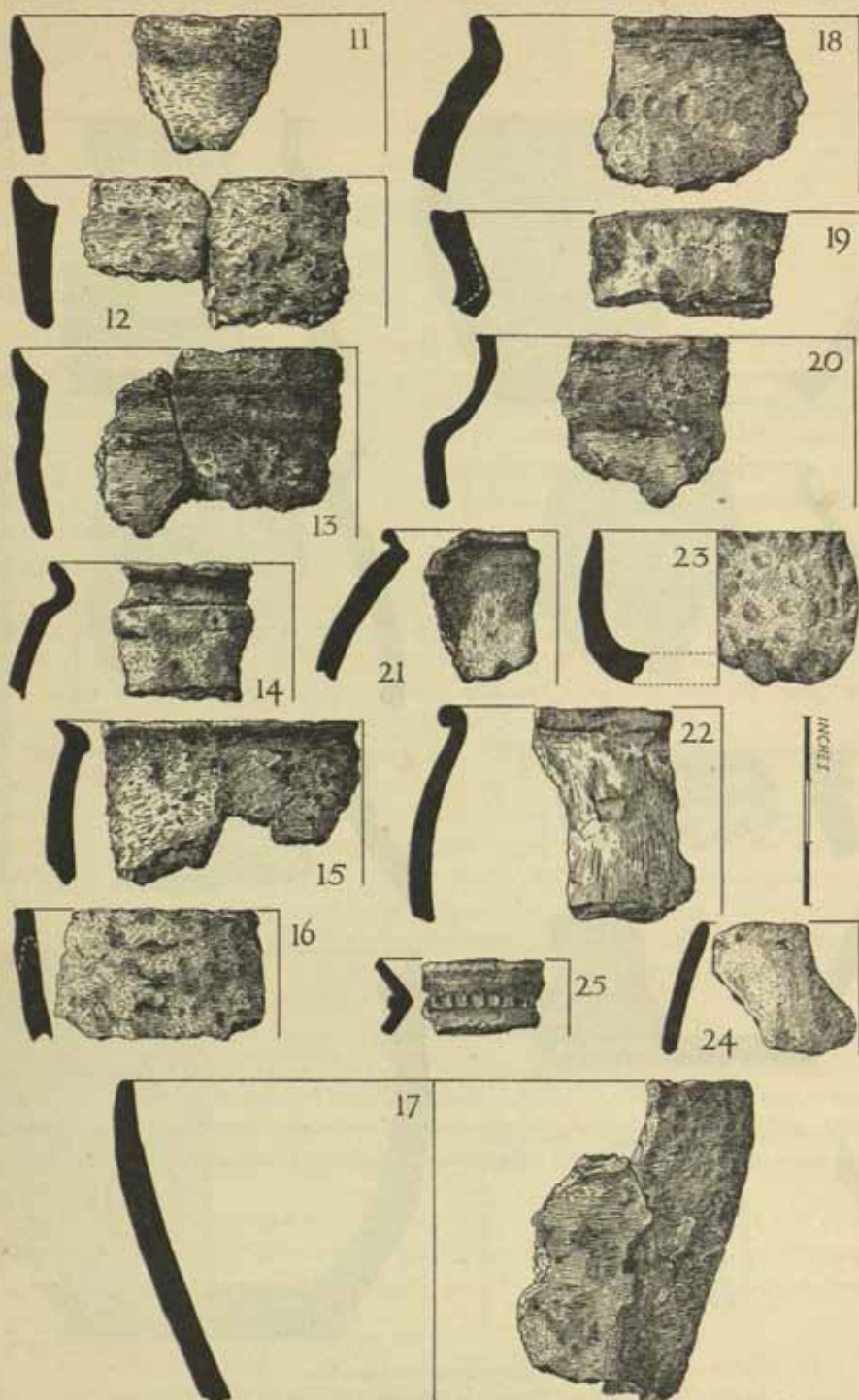


Fig. 56. Pottery from Traprain Law ($\frac{1}{2}$)
(National Museum of Antiquities, Edinburgh)

to discuss each of the sites in detail, but it is interesting to note that there are several points of resemblance between this pottery and that found at Site B on Plumpton Plain, where Professor Hawkes infers the survival of a native British element. The distance in space and probably in time which separates Traprain Law from the Sussex site makes the close agreement of the pottery in form and fabric remarkable. The sites in Yorkshire, Scotland and Ireland do not require much comment, but it may be noted that Jarlshof and Loanhead of Daviot also produced clay moulds and that Ballinderry is dated by pollen analysis to some time subsequent to 400 B.C. At Thornton-le-Dale and at most of the Scottish sites the coarse "cinerary urn" fabric is accompanied by a finer ware, as at Traprain Law. This suggests that the different fabric corresponds to a difference in function rather than in date.

The distribution of comparable pottery, excluding that from Sussex, corresponds quite well with the area in which a survival of late Bronze Age population has been postulated, and the character of the ware would suit this hypothesis. Parallels to the simple bowls of the type of 1 and 17 are found in a much earlier context in Sussex. Several of the pots suggest an origin among users of the Enlarged Food Vessel cinerary urns, in particular the bowl-shaped vessels with rims having a concave internal bevel (Nos. 9-13) which seems an unusual rim-form on other types of pot. A long period of evolution, however, would seem to have intervened between the typical enlarged food vessels and this plain crude domestic pottery, and other influences have made themselves felt. It is conceivable that some of the everted rims may have evolved from the "food vessel" type of rim (Nos. 7-15), but others, in view of the date of the ware, are probably due to the imitation of imported Roman forms (No. 14). Two shouldered pots at least (Nos. 5, 20) seem to indicate Hallstatt connections, and Nos. 8 and 18 have an Iron Age rather than Roman or Bronze Age appearance.

This material therefore confirms Professor Childe's view that "the mass of the townsmen was formed of makers of Cinerary Urns, blended with Hallstatt folk . . . from Yorkshire."⁶⁵ The Hallstatt element, however, is very slight, and need not represent any substantial movement of population. The Cinerary Urn element seems to derive more from the makers of Enlarged Food Vessels, than from the makers of Overhanging Rim Urns.

Dr. Hencken has suggested that the distribution of this ware implies a movement of population "from Scotland diagonally across Ireland from north-east to south-west,"⁶⁶ and Mr. Stevenson argues for a similar movement in the reverse direction, while Professor Childe regards the ware of Old Keig as perhaps connected with intrusive movements from the Continent in Late

⁶⁵ *Prehist. Scotland*, 250.

⁶⁶ The appropriate references will be found in the table below.

NUMBER	SITE & LEVEL (1)	REGISTRATION NO (2)	DESCRIPTION	PREVIOUS PUBLICATION (3)	PARALLELS FROM CINCINATY URNS & OTHER BRONZE AGE POTTERY (PREF SCOT-CHILE, PREHISTORIC COLUMBIA, BRP-ABRIDGMENT, BRONZE AGE POTTERY)
1 M6	1922	1306	HALE OF VERY LARGE POT WITHOUT BASE, GREY-BROWN SURFACE, LARGE GRITS, SOOTY.	PLATE IV, FIG. 272, 273	1919 2,45
2 M5	1922	385	THIN WARE, GREY-BLACK, INSIDE UPPER EXT.		
3 M4	1922	385	GREY BROWN REB. LOWER BLACK, FEW LARGE GRITS.		
4 M4	1922	385	REDISH SURFACE, BLACK RELO EXT. CORE DARK, FRUSTR.		
5 M4	1922	385	DEC. OR UNDEC. STAMPED IMPRESSIONS, BROWN-INDIGO.		
6 M4	1922	385	Y. NO LARGE GRITS, SHALLOW FINGER-TIP "C" SMOOTH.		
7 M4	1922	385	Y. NO LARGE GRITS, SHALLOW FINGER-TIP "C" SMOOTH.		
8 M4	1922	385	Y. NO LARGE GRITS, SHALLOW FINGER-TIP "C" SMOOTH.		
9 L4	1924	221	VERY HARD, LUMPY, SURFACE DUE TO LARGE HIDDEN GRITS.		
10 C46	1924	327	VERY HARD, SOME MEDIUM-LARGE GRITS, SURFACE SMOOTH-ER, LESS "LUMPY" THAN USUAL, GREY-GREEN REB. DARK CORE.		
6 G44	1920	400	VERY HARD, LUMPY, SURFACE DUE TO LARGE HIDDEN GRITS.		
7 G44	1920	400	BROWN-SUFF. EXT. WITH BLACK PATCH; EXT. PROBABLY BROWN-SUFF. NOW BLACKENED & SOOTED INT. BLACK.		
8 G44	1920	400	FABLY HARD, WITH MODERATE GRITS; EXT. PROBABLY BROWN-SUFF. NOW BLACKENED & SOOTED INT. BLACK.		
9 L4	1924	221	SIMILAR TO 7; GREY, BUT INTERIOR OF RIM BLACK.		
10 C46	1924	327	INCONSISTENT FINGER-NAIL DECORATION		
11 P4	1924	327	RETOILED: EXT. BROWN WITH MEDIUM GRITS; INT. BLACK, RIM DETAIL VERY VARIABLE.		
12 P4	1924	327	VERY GRITTY, WITH GRITS VISIBLE ON BROWN-SUFF. SURFACE, PARTLY BLACKENED NEAR RIM & INSIDE.		
13 P4	1924	327	COARSE, WITH MEDIUM GRITS, GREY THROUGHOUT, BLACKENED OUTSIDE.		
14 P4	1924	327	SIMILAR TO 10, THOUGH THINNER, BLACKENED ON INSIDE.		
15 P4	1924	327	VERY GRITTY, HARD GRITS VISIBLE ON INSIDE ORICK; RELO EXT. BLACK, SOOTY ORICK 2, YELLOW FLUTINGS.		
16 P4	1924	327	FABLY SMOOTH, OUTLESS, INT. REDDISH, EXT. MOSTLY BLACKENED & SOOTY.		
17 P4	1924	327	HAND, SOME MEDIUM GRITS, EXT. BROWN TO BLACK, RIM RED INSIDE, INT. BLACK & SOOTY.		
18 P4	1924	327	HAND, SMALLISH GRITS, INSIDE REDDISH, OUTSIDE RED-USH, BUFF, FAIRLY BLACKENED, ONE REDDISH.		
19 P4	1924	327	EXT. FAIRLY WELL-SMOOTHED, FEW LARGE GRITS, REDDISH NEAR RIM, BLACKISH RELO, SCARRED INT. RED-SUFF.		
20 P4	1924	327	EXT. COARSE, BUT NOT A BROWN-SUFF. BLACKENED, INT. BROWN-SUFF. FINGER-TIP IMP. NOW JUST NOTED, NAIL ONLY, UNDER RIM, DUE TO LIGATION WITH RIM, COUPLED WITH THINE INSIDE.		
21 P4	1924	327	BETTER SMOOTHED THAN USUAL, BUT CONTAIN MEDIUM GRITS, REDDISH-BUFF INSIDE & OUT, CORE BLACK.		
22 P4	1924	327	HARD & LUMPY, WITH MEDIUM GRITS, REDDISH INSIDE & OUT, BLACKENED ON INSIDE, GREY INSIDE.		
23 P4	1924	327	CARELESS SANDY WARE, GREY INSIDE, REDDISH OUT, BLACKENED NEAR RIM.		
24 P4	1924	327	WARE SIMILAR TO 21, BROWN-SUFF. INSIDE & OUT, CORE BLACK, PART OF SURFACE FLAKED, RIM RED-SUFF.		
25 P4	1924	327	LUMPY, BUT FEW GRITS, OUTSIDE BLACK, INSIDE GREY.		
26 P4	1924	327	FINE-GLAZED, SANDY, LIGHTLY MICACIOUS, EXT. BROWN-SUFF. INT. GREY, DARKENING BELOW, RIM ANGLE UNCERTAIN.		
27 P4	1924	327	FAIRLY THIN TEXTURE, FEW SMALL GRITS, GREY-BUFF, EXT. & INT. BROWN-SUFF. DEC. APPLIED FINGER, COUPLED.		

NOTES

(1) SITE-MARK GIVES SQUARE & LEVEL

(2) REGISTRATION NO INCLUDES YEAR IN WHICH REGISTERED, YEAR IN WHICH EXCAVATED, YEAR IN WHICH REPORTED

(3) THE PROFILES IN EARLIER REPORTS ARE GENERALLY TOO VERTICAL

(4) INCLUDES WARE FROM OTHER SITES

(5) c = COVESIA

(6) = VERY CLOSE SIMILARITY

(7) = GENERAL RESEMBLANCE

(8) = POINTS OF SIMILARITY

THE POTTERY SHOWS A GENERAL SIMILARITY, BUT PROVIDES FEW CLOSE PARALLELS

PARALLELS FROM CINCINATY URNS & OTHER BRONZE AGE POTTERY (PREF SCOT-CHILE, PREHISTORIC COLUMBIA, BRP-ABRIDGMENT, BRONZE AGE POTTERY)

Fig. 57. Table showing the affinities of the Traprain Law pottery

Bronze Age—Hallstatt times. But the general similarities over a wide area, combined with local differences in ware and rim form, seem fully capable of explanation as the result of the continued development of the native Late Bronze Age population in areas not seriously disturbed by invasion. This view seems to agree with that expressed by Mr. M. R. Hull in his discussion of the pottery from the Vale of Pickering.

APPENDIX II

TRAPRAIN LAW: DISTRIBUTION OF SOME RELICS BY LEVELS

	<i>Level 1 Top</i>	<i>Level 2</i>	<i>Level 3</i>	<i>Levels 4-6 Bottom</i>
COINS (excluding Treasure)				
Nero-Nerva (A.D. 50-98)	1	0	4	4
Trajan-Antoninus Pius (A.D. 98-155) ...	1	4	1	4
(A.D. 155-253)	0	0	0	0
Gallienus-Allectus (A.D. 253-296)	1 (+1)	2 (+1)	4 (+1)	0
Galerius Max—Constantius II (A.D. 305-361)	4 (+1)	3	0	0
Valentinian I—Arcadius (A.D. 364-408) ...	0 (+4)	0	0	0 (+1)
(The numbers in brackets indicate coins of probable but uncertain attribution).				
GLASS ARMLETS (PSAS, LXXII, 366)				
Coloured	2	9	21	18
Colourless	14	31	37	30
PINS (PSAS, LVIII, 262)				
Annular Beaded Heads	0	6	0	1
Hand Type	0	2	0	0
Ring Heads	1	1	3	0
Zoomorphic Heads	1	5	1	4
DRESS FASTENERS (PSAS, LVIII, 264)				
All types	4	5	9	9
HARNESS MOUNTINGS (PSAS, LVIII, 265)				
All types	0	0	5	6
BROOCHES				
Knobbed Penannular	1	5	11	10
Zoomorphic Penannular	1	1	3	0 (+1?)
Trumpet	1	4	6	6
Head Stud	1	3	3	7
Knee	0	2	3	4
Dragonesque	0	0	2	4
Group T (3rd century)	0	1	0	0
SHALE AND LIGNITE RINGS				
Small rings	9	5	8	2
Large rings (totals)	4	25	36	58
			+25 unlocated	
Rings of triangular section, included in above totals	0	9	11	22 or more
WEAPONS				
Spear and Javelin Heads	2	5	5	4
Spear Butts	1	2	1	2
Iron Swords	0	0	4	1
Shield Rib	0	0	0	1
HORSE EQUIPMENT				
Shoes	2	1	0	0
Bits	—	1	0	0
Terrets	1	2	0	3
Linch Pins	0	1	0	0
Wheel Tyre	0	0	1	0
STONE MOULDS (PSAS, LVIII, 265)...				
	5	10	0	0
POLISHED STONE DISCS				
	11		0	

THE ADVENTUS SAXONUM¹

By J. N. L. MYRES

IN the last few years a good deal of attention has been paid among archaeologists and historians to the period in the history of England about which least is known, the Vth century A.D. No one among contemporary scholars has done more to stimulate and fertilize such studies than Mr. O. G. S. Crawford. Not only has he made several important contributions himself to our understanding of the Dark Ages and provided us with the first comprehensive map of its material remains in this country, but he has opened the pages of *Antiquity* with great freedom to other students with views to expound or ideas to ventilate however unusual or unorthodox they have sometimes been. It is therefore not inappropriate to include in this volume an attempt to reassess the evidence for the *Adventus Saxonum*, that obscure sequence of events in the central years of the Vth century, in which the crucial steps were taken by which, as the only contemporary chronicler put it, "the Britains, long troubled by various happenings and disasters, are brought under the authority of the Saxons."²

The chronicler who wrote these words set them against the year 443 in his annals. But he wrote far away in Gaul, and on any showing his statement was a gross exaggeration, for the Roman provinces of Britain, the only sense in which he can have understood the word "*Britanniae*," included Wales and Cornwall which were not

¹ The substance of this article was first published in the *New English Review* for September, 1946, under the title "The Coming of the Saxons," and it was originally intended to reprint it here without much alteration, a course to which the Editor, Mr. Douglas Jerrold, kindly agreed. Since 1946 however a number of contributions have been made to the elucidation of the problems with which I then attempted to deal, and it has been necessary to rewrite certain passages of the text and to provide a more extensive array of footnotes in order to bring the argument up to date or to indicate where I differ from the most useful recent studies. This revision has however altered the main structure of my thesis in no material particular, and I am gratified to find that in many ways my article of 1946 appears to have anticipated the thoughts of others which have been published since. In its original compilation I owed much to discussions with my friends Mr. C. E. Stevens and Professor C. F. C. Hawkes particularly to a long range correspondence with the latter in 1942 and 1943 carried on by both of us in conditions very unpropitious for serious historical study.

² *Monumenta Germaniae Historica, Auct. Ant.*, IX, 660.

brought under the authority of the Saxons for many centuries after 443. But something clearly happened in Britain about then which was regarded in Gaul as in a special way decisive in the struggle for Britain. And the chronicler evidently thought of it as the end of a process, not as the beginning: he was not in his own mind recording the first coming of the Saxons, but their final success after a period of disaster and trouble for Britain in which by implication they had long played their part.

Other scraps of Vth-century evidence support this picture of Saxon inroads as a dominating factor in the troubles of Britain between the withdrawal of regular Roman forces³ and the middle of the 5th century. A devastation of Britain by Saxons is recorded by the same Gallic chronicle under the year 410. Then there is the well-known story of the Alleluia victory won over a combined force of Saxons and Picts somewhere in Britain in 428/9 by S. Germanus, the visiting Bishop of Auxerre. On the other hand in the narrative of Gildas, the British priest who wrote *De Excidio et Conquestu Britanniae* early in the VIth century, the only British writer within a century of the events who gives us any dates in this period, the Saxons play no part in the troubles until much later in the story. According to Gildas it was the northern barbarians, the Picts and Scots, who were felt as the menace in the first half of the Vth century: Saxons are not brought on the scene by him until a date which followed by some considerable and undefined period the failure of an appeal for help made by the Britons to Aetius, then ruler of the Roman West, during his third consulship (between 446 and 454). And they come in the first instance not as invaders but, as so often happened on the frontier of the Roman world at that time, in the capacity of barbarian *foederati*, called in and provided with lands and supplies by the Britons themselves as a means of protection against the Picts and Scots.

Here then is the first serious difficulty in establishing the chronology of the Saxon invasions. Contemporary continental opinion, however remote and ill-informed, seems to assume without

³ I have deliberately refrained from discussing in this article the date of this withdrawal. Such a discussion, while necessary to a just appreciation of the state of Britain in the first half of the Vth century, would require more space than is here available.

question that the invasions made substantial if not decisive progress in the first half of the Vth century : but the earliest British story, written down about 75 years later, visualizes quite a different date and setting, which, however muddled, cannot be dismissed out of hand since its chronology pivots on what is obviously a genuine official document datable to 446 or a few years later.

There is of course one important point to remember in considering this strange refusal of Gildas to recognize the part played by Saxons in the earlier stages of the disintegration of Roman Britain. It reflects in a striking way that pre-occupation with problems of the Highland Zone which becomes characteristic of the British attitude to contemporary events throughout the Dark Ages. On the long view this pre-occupation is ultimately due to the failure of the Romans to complete the conquest of the North. This meant that the contrast between Highland and Lowland mentality, strong enough at all times in British history, was greatly reinforced in the Roman period by a political cleavage of the most marked kind. The relation of Roman and native was indeed entirely different in the two areas. In the south Rome had stood in the British mind for peace, prosperity, town life, country houses, and a high standard of culture and material comfort. In the north she had meant war, devastation, fortresses, frontier defences, and the ruthless domination of a master race.

Already in Gildas' time it would seem that this latter conception of Rome coloured British thought to the exclusion of all others. By his days the Romano-British culture of the south had collapsed so completely that the earlier phases of its dissolution had passed out of memory. Though he recalls the destruction of towns, he has no word of lament for the villas, no conception of the problems of a Saxon Shore.⁴ To him the breakdown of Roman power raises solely the question of defence against northern barbarians, the building and holding of frontier walls. Gildas' refusal to take the Saxon danger seriously until so late in his narrative becomes intelligible only against this background of a Highland Zone mentality.

⁴ The only hint is his reference to the Romans' provision of *turres per intervalla ad prospectum maris*, but this reads more like a memory of coastal signal stations than of Saxon Shore forts. (*De Excidio*, § 18.)

It is however worth looking a little more closely into Gildas' story to appreciate its full significance. In what follows I am greatly indebted to the penetrating analysis of his historical narrative published by C. E. Stevens in 1941.⁵ Briefly we can say that Gildas built the history of Britain from 388 to 446 on the framework of a Triad of Appeals from the Britons for help from Rome against their northern enemies, incidentally the earliest known instance of the familiar Celtic predilection for the Triad as a literary form. The first two of these appeals were answered by the Romans, and Gildas associates them, quite wrongly of course, with the building of defensive walls in the North: the third he associates, as we have seen, with the "Groans of the Britons" to Aetius, and it was not answered. After its refusal however the Britons proceeded with some success to help themselves. Victory was won; the Scots retired for the time being to Ireland; the Picts settled down in the North, and indulged only in spasmodic raids. A period of unexampled prosperity set in: kings rose and fell: the people and Church grew corrupt, until eventually the sudden announcement of renewed invasion by the old enemies synchronizing with a *famosa pestis* bred the panic counsel which led an unnamed "proud tyrant" to commit what Gildas regards as the crowning blunder of calling in federate Saxons. It is clear that Gildas is thinking of this event as happening at least twenty or thirty years after the appeal to Aetius.

But to postpone the *Adventus Saxonum* to the third or fourth quarter of the Vth century was recognized even in ancient times as imposing an impossible strain on the chronology of the period. The Venerable Bede, who made Gildas' story the basis of the sketch of British history contained in the early chapters of his *Historia Ecclesiastica Gentis Anglorum*, which was finished in 731, was clearly conscious of this. Bede, who was as careful and clear-headed in chronological matters as other Dark Age writers were muddled or reckless, never dated the *Adventus* exactly, but he makes it perfectly clear that he thought it occurred about the middle of the century. He uses two different

⁵ "Gildas Sapiens," *English Historical Review*, LVI (1941), 353-73. Since I wrote this section Stevens' view of Gildas has been followed in all essentials by P. Hunter Blair in the opening pages of his *Origins of Northumbria* (1947).

approximations, either "about 446/7"⁶ or "in the reign of Marcian and Valentinian,"⁷ by which he meant sometime between 450 and 455. The first of these reckonings is based in all probability simply on the third consulship of Aetius, and its use amounts therefore to a rejection of Gildas' prosperity period altogether. The second looks like an independent reckoning for the *Adventus*, the source of which, as we shall see later, may well be Kentish. But even if we take the latest year of this reckoning it is really impossible to fit the events of the prosperity period as described by Gildas into the eight short years between 447 and 455.

Most modern historians, while uneasily conscious of this difficulty, have followed the example of Bede and refused to face up to it.⁸ They tend to follow one or other of his own solutions, either ignoring the prosperity period or reducing its duration to negligible proportions in disregard of the implications of Gildas' narrative. Neither solution is a really satisfactory way to treat a primary authority for the period.

Stevens has suggested an ingenious escape from this difficulty. He gives good reasons for supposing that the first two of Gildas' Triad of Appeals represent confused and far off memories of the two actual occasions in the late 4th century on which we know that Roman authority was successfully reasserted in Britain after grave barbarian inroads from the north. These were first the re-organization effected by Count Theodosius in 369 after the *barbarica conspiratio* which took northern marauders as far south as Kent, and secondly that undertaken by Stilicho in 398, ten years after inroads occasioned by the usurpation and fall of Maximus.⁹ Were it not for the association of the third and unsuccessful appeal with the letter to Aetius, it might therefore reasonably be linked with some occasion early in the 5th century when the garrisons of Britain failed for the first time to obtain expected reinforcements against similar incursions. But what if this

⁶ E.g., *Hist. Eccles.* I, 23; II, 14; V, 23.

⁷ E.g., *Hist. Eccles.* I, 15; V, 24; *De Temp. Rat.* § 489.

⁸ I include my own account of the matter in *Roman Britain and the English Settlements* (1937), which evades the difficulty by omitting any discussion of it.

⁹ The identification of the first appeal with the events leading up to the work of Count Theodosius involves of course charging Gildas with yet another chronological confusion, for while in his narrative the whole Triad follows the period of Maximus, Theodosius' visit to Britain preceded the latter's usurpation by nearly fifteen years.

association of letter and third appeal was in fact just as much a blunder on Gildas' part as his corresponding association of the first two appeals with the building of the northern walls? Once detach the third appeal from dependence on the date 446 and immediate relief is obtained in Gildas' strained chronology. It should be possible to find room for his prosperity period somewhere in the first half of the Vth century, and thus bring his apparent date for the *Adventus* much nearer to those envisaged by Bede.

This solution possesses the great merit of preserving fully the claim of the "Groans of the Britons" to be treated as an historical document. All it involves is the assumption that Gildas, who had already made two historical howlers in relating the building of the walls to his first two appeals, made a third in associating a genuine letter from the Britons to Aetius, of which he happened to have a copy, with his third appeal. This, so far from being improbable, is completely in character with what we know of Gildas as an historian. He was not just a humdrum annalist: like all genuine historians he wrote history with a purpose, and he liked putting two and two together. It was perhaps rather his misfortune than his fault that he lived in an age when two and two too often made five.

But if we are to detach the "Groans of the Britons" from the third appeal we are left with two outstanding obligations, first to find a suitable alternative date for the third appeal, and secondly to find an historical setting in or soon after 446 in which a letter such as the "Groans of the Britons" could plausibly have been addressed to Aetius.

The first task was not attempted by Stevens, but there is surely a very simple solution to it. We know from Zosimus, who wrote probably in the latter half of the Vth century, that after the revolt of the usurping Emperor Constantine III in Britain in 407 and his removal of British garrisons to Gaul, the cities of Britain finding themselves unprotected set up an independent administration in 410 and sought help from the legitimate emperor Honorius. He, however, while confirming their action, was unable to send any practical assistance, which was not surprising in the year of the sack of Rome

by Alaric and the Visigoths. He could only tell them to take what measures they could for their own defence. The situation as stated by Zosimus¹⁰ seems exactly to fit the circumstances of Gildas' third and unsuccessful appeal: the fact that the Britons, according to his account, reorganized their own defence with such effect that the barbarians withdrew and a period of prosperity became possible dovetails most neatly into Zosimus' account of the so-called Rescript of Honorius.

If therefore we date the third appeal provisionally to 410 we can approach the second task with some confidence. The prosperity period will then run, if our guess of twenty or thirty years as a minimum is taken as reasonable, at least until a date between 430 and 440. As we have seen, Gildas notes three characteristics of this time, the continuance of sporadic raiding amid the general peace, the rise and fall of kings, and the corruption of Church and people. It so happens that confirmatory evidence on all these heads is available from independent continental sources in their brief references to conditions in Britain in these years. The continuance of sporadic raiding in the midst of a general peace is excellently illustrated, as we have already seen, by the visit of S. Germanus in 428/9 and his conduct of the brief campaign against a mixed band of Picts and Saxons which culminated in the Alleluia Victory. The rise and fall of kings, a new phenomenon in what had hitherto been a Diocese of the Roman Empire, is echoed exactly by Procopius who, writing in the same generation as Gildas but at the opposite end of Europe, tells us that after the death of the usurper Constantine the Romans never recovered Britain, which continued to be ruled by tyrants.¹¹ And the corruption of Church and people could hardly be better exemplified from the point of view of Gildasian orthodoxy than by the spread of the Pelagian heresy in Britain, which caused such concern to the neighbouring churches of Gaul as to lead directly to the two visits of S. Germanus. Indeed Gildas himself is probably indulging in an indirect reference to Pelagianism when he includes among the characteristics

¹⁰ Zosimus, V, 5, 6.

¹¹ Procopius, *Vandalic War*, I, 2.

of this time "the acceptance of Satan for an angel of light" and attributes to the British Church "a confused judgment of good and evil."¹²

Is it possible to say more exactly when the prosperity period came to an end? Its end was marked according to Gildas by the coincidence of rumours of renewed inroads from the north and a *famosa pestis*. Now Stevens has pointed out that famous pestilences, like the comets with which their occurrence was frequently associated in antiquity, can frequently be useful pointers to chronology, and he finds that Hydatius in recording a comet, which is astronomically dated to the end of 442, adds that it was the precursor of a *pestilentia quae fere in toto orbe diffusa est*. If we accept the correction of Gildas' chronology discussed above, no date could be more suitable than 443 for his *famosa pestis*, particularly when it is recalled that that is the very year in which the Gallic chronicler recorded the reduction of the provinces of Britain into the power of the Saxons. Stevens concludes that "the Gallic chronicle must be describing and dating the *Adventus* itself."¹³

There is certainly an almost breath-taking neatness about the interlocking of these dates for Hydatius' pestilence and the Gallic chronicler's reference to the Saxon domination of Britain, and for the convergence of both upon the chronology suggested by Stevens for the *Adventus* story in Gildas. Moreover the *Adventus* in 443 gives the ideal setting for the "Groans of the Britons" to Aetius soon after 446, for the letter would then be occasioned by the devastating results of the quarrel between the proud tyrant and his revolted federate Saxons on which Gildas dilates in one of his purplest passages. Indeed, as Stevens points out, there is in Gildas' description of the raid, which followed that quarrel and is said to have spread "from sea to sea," almost an echo of the phraseology of the appeal itself, "the barbarians drive us back to the sea, the sea drives us back to the barbarians."

It might seem unduly ungracious to raise a warning finger at this point, but there are three questions which we are right to ask at once.

¹² *De Excidio*, § 21.

¹³ *op. cit.*, 363.

The first is about the dating of Gildas' plague. Are we safe to put it in 443? Plagues, especially in the Dark Ages when life was very local and the spread of infection by travellers less likely than now, move much less rapidly than comets, and it would be quite in accordance with what we know of their habits for a plague of 443 in southern Europe to be at its worst in Britain anything up to three or four years later. Exactly a century after this date another visitation of this kind devastated southern Europe in 543-4. There is every reason to believe that the great pestilence which carried off Maelgwn Gwynedd, the greatest of Welsh princes of his time, in 547 was its British version. Hydatius' plague cannot therefore be used to pinpoint Gildas' *famosa pestis* to 443 with any certitude.

Then again, is Stevens' claim that "the Gallic chronicle must be describing and dating the *Adventus* itself" really justified? As we have seen, this chronicle purports to record in 443 the end of a process of Saxon conquest. Is it consistent with a historian's proper attitude to his materials to claim that a source which plainly describes the end of a process can be rightly used to date its beginning? This difficulty would disappear if we could push back the *Adventus* some years earlier than 443, and say that the entry records with pardonable exaggeration the effect of the revolt of the Saxon federates against the proud tyrant. But if we do this we have to abandon the synchronism with Hydatius which is the basis of the case, and we can only save the historical setting which we have found for the "Groans of the Britons" by the assumption, in itself not at all impossible, that the devastation after the quarrel went on for more than three years and the appeal to Aetius was not among the first reactions of the Britons to it.

The third question opens up wider issues. If the *Adventus* was in 443, what are we to say of Bede's view that it was no earlier than 446-7 and perhaps as late as 450-5? Bede was after all incomparably the most careful and accurate student of chronology produced by the Dark Ages, and if we are to quarrel with him we must show just cause. The 446-7 date need not detain us, for, as we have seen, Bede seems here to be simply following Gildas as far as he dare. He takes his story up to and including the "Groans of the Britons" sub-

stantially unchanged. But in those passages where he uses the 446-7 date he must be discounting the prosperity period altogether. This would make the summoning of federate Saxons follow directly upon the rejection of the third appeal, almost indeed as if it was the inevitable consequence of that rejection. This is a perfectly reasonable rationalization if we are content to reject the chronology of Gildas.¹⁴ But there is no reason to suppose that Bede had any ground other than the "Groans of the Britons," which of course he found in Gildas, for dating the *Adventus* to 446-7.

It is however only right to point out that Bede does not anywhere explicitly press the logic of this dating to its conclusion in this way. In the main passage dealing with these events¹⁵ he in fact includes a condensed version of Gildas' prosperity period, and just manages to find room for it by bringing in the federate Saxons in the joint reigns of Marcian and Valentinian (450-5). Where does this date come from?

Stevens argues that Bede had no independent authority for this reckoning, but derived it from what was in effect a misreading of a passage in one of his own chronological works.¹⁶ This seems to me singularly unconvincing. Historians may misread one another's works, but it is surely most unusual for them to misread their own. I think

¹⁴ At first sight this seems to be exactly the course taken by the Anglo-Saxon Chronicle (MS. E) which under the year 443 records first an appeal from the Britons to Rome for help against the Picts, which failed because the Romans were then too heavily engaged in the war with Attila, and secondly a similar appeal to "the nobles of the Angle race," the result of which is not stated. But this entry appears to be of greater interest than Plummer, who thought the information contained in it came straight from Bede (*Hist. Eccles.*, I, 13, 14), allowed. In fact the only parallelism to Bede's account is the mention of the war with Attila as the reason for the failure of the British appeal. Bede attached this piece of information, which comes from Marcellinus Comes, to his account of Gildas' third appeal no doubt because he knew that Theodosius II made a humiliating treaty with Attila in 446. Bede goes out of his way to explain that the appeal must be dated to this year because Aetius was consul for the third time in the twenty-third year of Theodosius II, who came to the throne in 423. It is clear therefore that A.S.C. (E) in dating these events to 443 cannot be directly following Bede, and it is tempting to suppose that its compiler may have had some independent information of an unanswered appeal in 443 to which the reference to Attila, derived either from Bede or direct from Marcellinus, became incorrectly attached. This possibility of an unanswered appeal in 443, especially if it was at once followed, as the entry states, by a similar approach to "the nobles of the Angle race" reminds us forcibly of the Gallic chronicler's entry for that year, but it would be unwise to build too firmly on what may be only a mistake.

¹⁵ *Hist. Eccles.*, I, 14, 15.

¹⁶ *op. cit.*, 361, n. 3. M. W. Hughes ("The end of Roman Rule in Britain," *Trans. of the Hon. Soc. of Cymmrodorion*, 1946-7, 163) also thinks this date is derived by Bede from his own use of regnal dating in the *De Temporum Ratione*. But if this was so the Emperors would not have been Marcian and Valentinian but Theodosius and Valentinian. He does not see that Bede has in fact two different ways of dating the *Adventus*.

Bede used this date because he had it from some independent source on which he thought he could rely. Now the main source other than Gildas which we know Bede to have used on this question was information derived from friends at Canterbury, who no doubt obtained it either from ecclesiastical records of the Archbishop's *familia* or from early traditions of the Kentish court. His naming of Hengist and Horsa as the leaders of the federate Saxons, his story of Horsa's death in battle and of his still surviving inscribed tombstone in east Kent, his recounting of the Kentish royal pedigree and mention of the fact that the royal family were called Oiscingas, must all be taken direct from this stock of Kentish information.¹⁷ In view of this it may well be that the Marcian-Valentinian date for the *Adventus* is also Kentish, and support for this view may be found in the fact that this is the reckoning used, in a bungled form, by the Anglo-Saxon Chronicle for dating the arrival of Hengist and Horsa in Kent. The Chronicle was compiled in the form in which we have it about 891, long after Bede's day, but the little group of entries dealing with the beginnings of Kentish history contains material far older than that. It includes details of battles with the Britons which have no parallel in Bede, but come from lost heroic sagas dealing with the exploits of Hengist and his family. While it is often assumed that the date of the opening entry is taken from Bede, there is no reason why in the matter of date both should not be drawing independently on the same Kentish source. The corrupt form in which the names of Marcian and Valentinian are given is certainly difficult to understand if the writer was directly copying Bede.

The possibility that local Kentish tradition was responsible for the 450-5 date for the *Adventus* raises further questions of some consequence. Is such a tradition necessarily inconsistent with the case developed above for dating the *Adventus* to 443 or even earlier? May events in Kent have taken a different course from those elsewhere? Is it possible to locate as well as to date the *Adventus* as described by Gildas? Will it turn out that there are more strands in the tangle than have been generally suspected by historians?

¹⁷ *Hist. Eccles.*, I, 15; II, 5.

In attempting to answer these difficult questions the first point to notice is the apparently deliberate vagueness of Gildas on all the details surrounding the *Adventus*. He does not name either the "proud tyrant" or the leader of his Saxon federates, and he does not locate the lands allotted for their occupation more closely than by saying that they were in the "eastern part of the island." Bede gives us a name, Vortigern, for the proud tyrant: he says that the federate leaders are believed to have been two brothers, Hengist and Horsa, and while he does not in so many words place their settlement in Kent, he makes it quite clear that he thought this was so, for he records Horsa's death and burial there, and he traces the pedigree of the Kentish royal family of his own day back to Hengist, without any hint of a change in the locality of their activities.¹⁸

It is important to notice however that Bede does not, as is often assumed, give these Kentish tales an absolute priority in time in his account of the *Adventus*.¹⁹ It is true that he speaks of Hengist and Horsa as reputedly the *duces primi*, but the context of this statement should be noted. It follows an account of federate arrivals in two stages. In the first *Anglorum sive Saxonum gens* come over at Vortigern's request and settle, as Gildas says, in *orientali parte insulae*. Their success against the northern barbarians, a matter on which Gildas is silent, is followed by the appearance of a *classis prolixior* which received an unlocated *locum habitationis* among the Britons. These later reinforcements are described as Angles, Saxons and Jutes, a classification which Bede then proceeds to amplify by describing, in a parenthesis which is probably a later insertion of his own²⁰, the continental origins and areas of English settlement of these three peoples. He then says that Hengist and Horsa were believed to have been their first leaders and recounts of them the scraps of Kentish tradition mentioned above.

It is apparent from this that Bede regarded Hengist and Horsa

¹⁸ *Hist. Eccles.*, I, 15; II, 5. I cannot accept the argument of E. G. M. Fletcher ("Did Hengist settle in Kent?", *Antiquity*, XVII (1943), 91-93) that Bede gives no clear lead on this point. All the evidence which we have directly associates the Hengist-Horsa story with the settlement of Kent and nothing but confusion can result from attempts to break this association. I am glad to see that since this passage was written (1945) the same view has been taken by P. Hunter Blair, *Origins of Northumbria* (1947), 18-19.

¹⁹ *Hist. Eccles.*, I, 15.

²⁰ *Roman Britain and the English Settlements* (1937), 337, n. 1.

as the first leaders not of the original arrivals but of the secondary movement and this is made more certain by the fact that, whereas the Saxons and Angles are included in both groups, the Jutes, to whom Bede in this very passage attributes the Kentish settlement, appear only in the second. The same conception of a composite *Adventus* is conveyed even more clearly by Bede in the more condensed version of these events which he gives in the *De Temporum Ratione*. There the invitation from Vortigern and the arrival of a *plaga Anglorum* are recorded among the later events of the reign of Theodosius II but the appearance both of *gens Anglorum sive Saxonum* and of an *exercitus fortior* of reinforcements—Jutes do not appear by name in this account—belongs to the beginning of the joint reigns of Marcian and Valentinian.

But these careful distinctions were not maintained by other Dark Age writers, who tended to focus attention more and more on the details of the Kentish tradition. The strange compilation known as the *Historia Brittonum*, which reached substantially its present form in the IXth century, though some of the materials used in it must be at least two centuries older, has the same identification of the tyrant as Vortigern and the Saxon leaders as Hengist and Horsa. It adds the highly significant detail elsewhere unrecorded that they came to Britain as exiled adventurers.²¹ It places their first grant of land in Thanet, and goes into a good deal of detail about their subsequent relations with Vortigern and his family. Much of this is romantic stuff, and the narration is throughout disjointed and obscure, but there is enough circumstantial detail to show the use of several strands of very ancient tradition which, whether reliable or not, are at least independent both of Gildas and of Bede. The weight of ancient evidence for a treaty settlement under Jutish leadership in Kent is thus very strong, so strong indeed that it has often crowded out from the minds of historians the possibility of similar events having taken place elsewhere. But there is at least a probability that Bede was right in his apparent assumption that the Kentish settlement of

²¹ Highly significant because it provides a real link between the Hengist of Nennius and Bede and the Hengist of Beowulf and the Finnsburh fragment whose obscure story included events which would have made exile certain. For an attractive reconstruction of Hengist's earlier career on these lines see the opening section of Gordon Ward, *Hengist* (1949).

Hengist and Horsa was secondary and that Gildas may not have been thinking of events in Kent alone, or indeed at all.²²

One clear impression relevant to our present purpose emerges from a study of this matter in the *Historia Brittonum*. Although the Hengist-Vortigern story starts in Thanet and spreads thence to the rest of Kent and so to Essex, Sussex and Middlesex, as the strength and ambitions of the newcomers grew, there is no suggestion that the interests of either party were exclusively localized in the south-east. Vortigern indeed is pictured as a sort of High King, who overrides the interest of subordinate rulers in Kent itself, and much of the story is devoted to his melodramatic adventures with S. Germanus, apparently in Wales. Hengist moreover persuades Vortigern to let him call over from the continent his son and nephew, Otha and Ebissa, and to grant them lands in the north near the Wall, as a basis for the protection of his dominions against northern invasion.²³ Otha and Ebissa after various manoeuvres in northern waters are stated to have occupied "very many regions beyond the Frisian sea," a locality which I have suggested elsewhere should be identified with the estuary of the Humber.²⁴ This looks like a settlement in Yorkshire rather than in the immediate neighbourhood of the Wall. In any event they retained contacts with what was going on further south: on the death of Hengist Otha is stated to have passed over from the "sinistral part of Britain" to Kent.²⁵ It has been universally recognized that the writer of this sentence was looking eastwards at British history from somewhere in Wales, and so spoke naturally of the north as the left hand side.

Here then is a hint of another treaty settlement, subsidiary to that of Kent: is there anything to be said on similar lines about any other region in "the eastern part of the island"? To answer this

²² P. Hunter Blair, *Origins of Northumbria* (1947), 48, goes too far in developing this argument when he claims that "according to Gildas" the federate Saxons were first brought to settle in the north of England. Gildas says no more than that they settled "in orientali parte insulae," a phrase which would cover equally settlements in Northumbria, East Anglia or Kent.

²³ *Hist. Britt.*, 38.

²⁴ "The Teutonic Settlement of Northern England," *History*, XX (1935), 250-62, especially 261-2. The grounds which P. Hunter Blair gives for his view that "the story of Otha and Ebissa does not inspire confidence" (*Origins of Northumbria* (1947), 17) do not seem to me strong enough to justify its rejection.

²⁵ *Hist. Britt.*, 56.

question we have to turn away from the literary evidence, which for the rest of eastern England is entirely lacking, and look at the picture suggested by archaeology of the spread of Teutonic settlement in Britain in the Vth century. In doing so we must remember not to press the archaeologists to tell us more than the nature of their material permits. They cannot date any particular group of antiquities to the actual years of the *Adventus Saxonum*, and we have no right to expect them to do so. What they can tell us are the places in which articles of Vth-century Teutonic character have been found, and whether their volume and nature are such as to imply a full or sparse occupation at that time.

Put in this way the witness of archaeology is clear. There is evidence for Vth-century Teutonic settlement in East Kent, on the Sussex coast, in the lower Thames valley, especially on the Surrey side, and in the valleys of its southern tributaries: in East Anglia, both Norfolk and Suffolk, and in the river valleys flowing into the Fens and thence over much of the southern midlands, including the upper Thames valley, the Warwickshire Avon valley and the south-eastern tributaries of the middle Trent: Lincolnshire seems to have been penetrated from the fenland on the south and from the Humber estuary on the north, and from the latter area there was early settlement of the east Yorkshire wolds and the plain of York, especially close around York itself.²⁶

There is thus no special emphasis on Kent as a region of pre-eminently early settlement: such emphasis as there is seems rather to lie in the eastern midlands.²⁷ But within the general pattern of Vth-century settlement it is practically impossible for the archaeologist to say that some areas must have been occupied earlier than others. Regional differences do however exist between different parts. Some, such as the distribution of different types of brooches, reflect contemporary fashions in different parts of the continental homeland and do not directly concern the present enquiry. For our purposes the

²⁶ See my map X (a) in *Roman Britain and the English Settlements*. Several further sites can be added now, but they do not greatly affect the distribution there portrayed.

²⁷ For a recent assessment of the evidence from the brooches in this sense see E. T. Leeds, *A Corpus of Early Anglo-Saxon Great Square-headed Brooches* (1949), 102-3.

most interesting is perhaps the difference of emphasis in the use of cremation and inhumation in the cemeteries. In Kent and the south-east generally inhumation is the normal rule, cremation the exception. In the Thames and Avon valleys and throughout Middle Anglia mixed cemeteries are the rule, the balance on the whole being in favour of inhumation, particularly in the south. In Norfolk, Lincolnshire and Yorkshire most of the demonstrably early cemeteries contain a very high proportion of cremations, and a certain number, especially in Norfolk, contain practically nothing else.

This difference marks a cultural contrast. In most parts of the pagan Teutonic homeland cremation had been the ancestral rite, while in the Christian Roman Empire inhumation was the rule. Germanic tribes on the frontier or in other positions which brought them into close contact with Roman influence readily adopted inhumation, which was regarded as more civilized. In Britain therefore, we can say with some assurance that in the traditionally Anglian areas and particularly on the north and north-east coasts, the newcomers were culturally less Romanized than those in Kent and the south.

An important qualification which is significant in the present connection has however recently been pointed out by Mr. Leeds. He has drawn attention to the fact that the Vth century in Jutland is marked by a cessation of cremation and its replacement by an inhumation culture originating in southern Sweden and the islands of the western Baltic. The disturbances produced by this irruption had repercussions beyond the limits of Denmark and may well be associated not merely with a southward movement of the previous population into north Germany and Frisia (the sort of movement which seems to be reflected in Hengist's story in *Beowulf* and the *Finnsburh* fragment) but also with the appearance among the earliest Anglo-Saxon material in England of Jutish (in the sense of north Danish) objects, especially gold bracteates and the first square-headed brooches of the type with divided feet (Group B1).²⁸ This material is again significantly distributed in England, the bracteates mainly in

²⁸ "Denmark and Early England" *Antiquaries Journal*, XXVI (1946), 22-37, and *A Corpus of Early Anglo-Saxon Square-headed Brooches* (1949).

Kent, and the Group B1 brooches in Suffolk and the eastern midlands. The origin of the inhumation cemetery at Ipswich, a coastal site well placed *in orientali parte insulae*, Leeds would thus specifically attribute to "a band of settlers with direct relations with north Jutland."²⁹ Although it would be rash to claim that any of the B1 brooches is as early as 450,³⁰ the cultural associations of this element among the invaders are highly suggestive in the light of the literary evidence.

Another regional difference relevant to this discussion has recently attracted attention. In the north and east, again roughly in the Anglian areas, Roman towns and other walled sites are often marked by Teutonic cemeteries or groups of burials, usually cremations: in the south, except for Kent where inhumation burials and cemeteries are not unknown in or close to Roman centres, no such phenomenon has been observed. Thus while York, Malton, Lincoln, Leicester, Ancaster, Cambridge and Caistor-by-Norwich are all the sites of early Teutonic cremation nothing of the kind has been noted at London, Colchester, Verulam, Winchester, Silchester or Chichester. It is certainly odd to find this close association of Roman towns and Teutonic burials so strongly marked in the cremation area, where culturally the newcomers must have been least in sympathy with Roman ways.³¹

Various explanations for these phenomena have been suggested in the last few years. It has been claimed that the predominantly cremation areas provide a key to the strategic pattern of an invasion based on Norfolk, planned as a whole and executed on broad lines in overwhelming force.³² Certainly the dominance of cremation is most naturally accounted for by mass settlement in walk-over conditions involving a minimum of cultural influence from the Romano-British past. But this does not account for the close association in this part of the country of Teutonic cemeteries with Romano-British towns,

²⁹ *Corpus*, 114.

³⁰ They have hitherto been dated nearly a century later, as e.g. by Aberg, *Anglo-Saxons in England* (1926), 61-3, but Leeds' case for a somewhat earlier date is strong.

³¹ See my article on "Cremation and Inhumation in the Anglo-Saxon Cemeteries," *Antiquity*, XVI (1942), 330-41.

³² K. D. M. Dauncey, "The Strategy of Anglo-Saxon Invasion," *Antiquity*, XVI (1942), 51-63.

except on the somewhat farfetched hypothesis that the direct occupation and control of those towns was felt by those who led the invasion to be strategically essential to the success of their enterprise.

Another explanation that has been recently championed is that these cemeteries at the front doors of Romano-British towns represent Teutonic settlements which started as *foederati* designed to protect those towns against incursions by the Picts and Scots.³³ It is certainly true that in searching for traces of *foederati* in this period the first places at which we should look would be the Romano-British towns, for by the middle of the Vth century there was little left of Roman Britain except the towns that was worth anyone's while to protect. But we should hardly expect settlers who started as Romanophile mercenaries to display so unequivocal an attachment to cremation as do the users of these cemeteries. Before accepting what is otherwise an attractive hypothesis we should remind ourselves that in the one part of England for which federate settlement is reasonably certain, namely Kent, the newcomers do as a general rule inhumate their dead, as we should expect them to do in these circumstances. It is perhaps a matter for argument how far this point can properly be pressed. It would certainly be absurd to assert universal validity for a doctrine of "no federation without inhumation." But the difference of burial rite does make it reasonable to claim that if in the predominantly cremation areas Teutonic settlement started on a federate footing, the conditions were substantially different from those which prevailed in Kent.

In another way also the problem is not so simple as has been assumed by these writers. The presence of Teutonic cremation urns in the immediate proximity of Roman towns would only be significant in the way suggested if the urns in question were demonstrably of mid-Vth century date and of types such as one might reasonably expect the followers of a leader like Hengist with continental con-

³³ Originally proposed by T. Dayrell Reed (*ibid.*, 177-80) this view has now received the powerful support of P. Hunter Blair (*Origins of Northumbria* (1947), 43), who however distorts the significance of the evidence by speaking as if it were a phenomenon confined to Northumbria. Since this passage was written the discovery of exceptionally early and characteristically Anglo-Frisian pottery on an occupation-level inside Roman Canterbury has provided the most striking instance yet known. The pottery in question is exactly what one would expect a leader like Hengist with antecedents in Frisia to bring with him from the continent in the middle of the Vth century.

nections in Jutland and Frisia to use. I have attempted elsewhere³⁴ to isolate the main types which such an Anglo-Frisian ceramic complex might be expected to include. The results are of course only tentative but so far as they go they are of some interest. Early Anglo-Frisian pottery appears to be commonest in East Kent, East Yorkshire, Lincolnshire and East Anglia. Apart from sites which have no obvious Roman associations it occurs at York, Lincoln, Ancaster, Leicester, Cambridge and Caistor-by-Norwich. The recently discovered pottery from Saxon levels in Roman Canterbury is all Anglo-Frisian in character. The evidence is therefore consistent with the notion that all these settlements included Anglo-Frisian elements. But not all of this pottery is demonstrably of mid-Vth century date. On the other hand it is true that among those listed the cemeteries of York, Cambridge and Caistor-by-Norwich at any rate do contain very early examples of more purely Saxon or Anglian types and they can safely be placed, along with Sancton on the Roman road leading north from the Humber to York and Malton, among the earliest cremation cemeteries in this country.

The mere fact that most of these burials close to Roman towns outside Kent are cremations may have some chronological significance, though it is important not to overstress the point. While it cannot be generally argued that cremation is necessarily earlier than inhumation in any particular instance (since in some of these cemeteries burnt burials were still being made far into the VIth century, while very early inhumations are well attested) there was undoubtedly all the time a "flight from cremation" going on. There is no archaeological obstacle to the view that, in addition to the cultural difference between the Anglian and more southern areas of English settlement, the former may have started some years before the latter.

Such an explanation may be helpful in connection with the literary evidence for the *Adventus* surveyed in the earlier part of this article. As we have seen, a close study of that evidence forces us to the conclusion that the "Coming of the Saxons" was a more complex

³⁴ "Some English Parallels to the Anglo-Saxon Pottery of Holland and Belgium in the Migration Period," in *Miscellanea Philologica, Historica et Archaeologica in honorem Huberti Van De Weerd* (1948), 453-72.

process than has been generally allowed. The only way to reconcile the different dates in the sources is to accept the natural conclusion that they belong to different events. Something on a big scale had been taking place, starting perhaps in Norfolk and Lincolnshire and spreading over the eastern midlands in the years preceding 443, which led the Gaulish chronicler to his alarmist view that Britain had gone wholly Saxon by that year. But that was by no means the end. Whether or not an unanswered appeal had been sent to Rome in 443 the Britons were certainly appealing to Aetius for help against barbarian inroads in or soon after 446: a treaty settlement with Hengist and his federates seems to have taken place in Kent between 450 and 455: subsequent to that settlement, but not precisely dated, similar arrangements were made for his relatives Octha and Ebissa in the north, probably, as the archaeological remains indicate, in Yorkshire rather than Northumberland. It may even be that Gildas in building his story of the loss of Britain on the schematic framework of a Triad of Appeals was thinking confusedly enough not merely of the great occasions, of 369, 398, 410, 443 or 446, but of a multiplicity of other moments in the first half of the Vth century when the perplexed authorities of Britain, whether urban magistrates or local tyrants, had cast longing eyes across the Channel to the one source of power still felt competent to impose peace on barbarian invaders or overbearing *federates*—the dying majesty of Rome.

Such a re-interpretation of the evidence for the *Adventus Saxonum* does little violence to the ancient sources of our knowledge: indeed it may claim to harmonize their apparent contradictions without an excess of wishful thinking or a riot of imaginative reconstruction. On the contemporary evidence we can reasonably reject Gildas' opinion that Saxons did not trouble Britain till some years after 446, and we can accept, I think, without serious misgiving the detachment of the letter to Aetius from his third appeal, which Stevens has proposed, and so restore sanity to his chronological scheme. No other major operation on the sources is necessary to secure a coherent and on the whole convincing story. That story will differ from that of our text books chiefly in two particulars. It will make the *Adventus Saxonum*

a more complex process, one element in which may be a set of variations on a single theme, a tale of federate settlement re-enacted who knows how many times in various parts of eastern Britain in the central third of the Vth century. And among those variations the story of Hengist and Horsa and their doings in Kent will, without losing its claim to an historical basis, perhaps have to give up the priority of time and significance which it may owe solely to the fact that it alone among the invasion sagas was preserved in some detail. It may be necessary to give pride of place to still more shadowy and anonymous adventurers, "nobles of the Angle race," whose doings can only be described with the deliberate vagueness of Gildas, as they bargain with some nameless *superbus tyrannus* for lands and *stipendia* somewhere or other in *orientali parte insulae*.

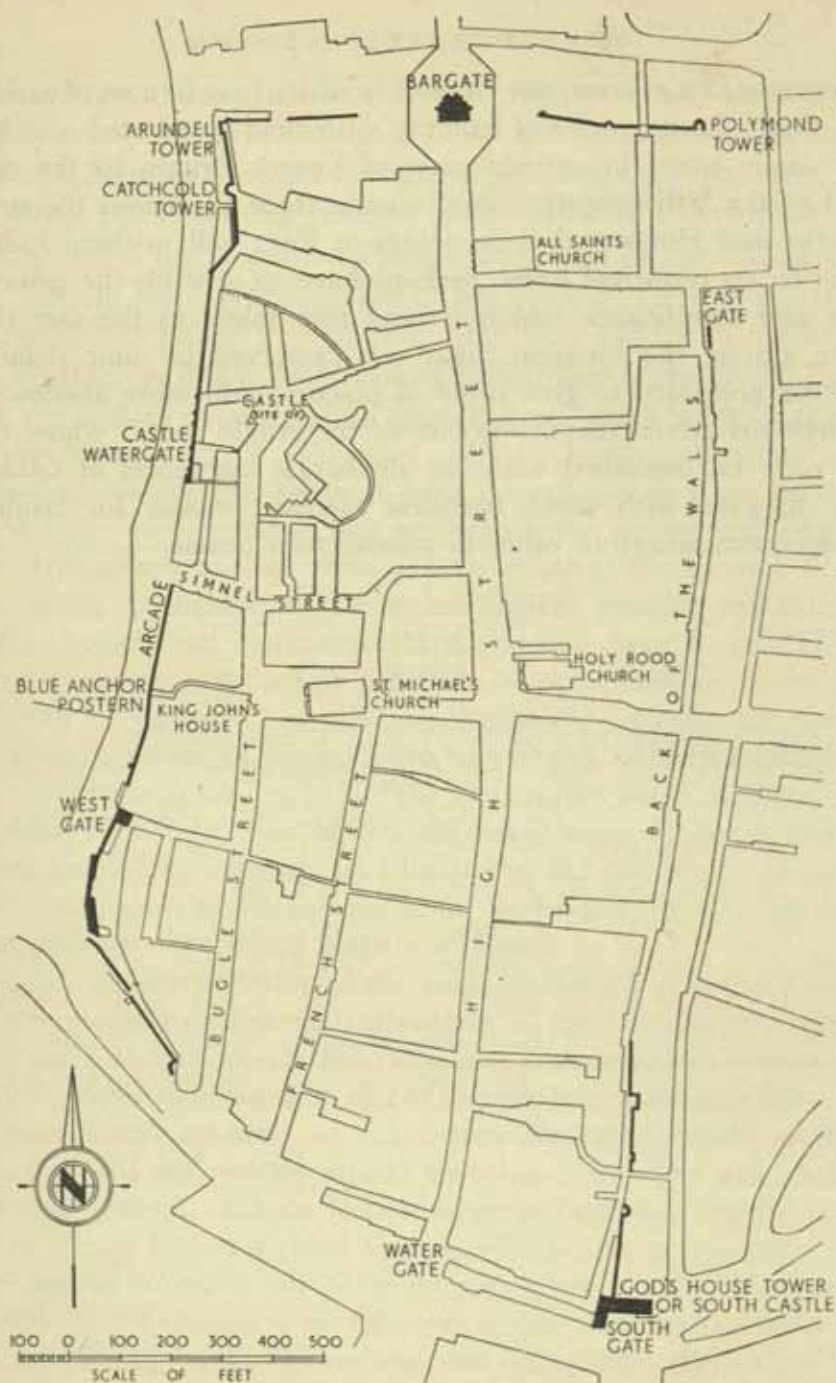


Fig. 58. Outline-plan of Southampton showing remains of town wall
(South Gate is also known as God's House Gate)

SOUTHAMPTON TOWN WALL

By B. H. ST. J. O'NEIL

SOUTHAMPTON possesses one of the most impressive and most important Town Walls in Britain (Fig. 58). It is impressive in its good state of preservation and important in that, owing to its very gradual growth, it exhibits many styles of work, unlike the town walls, such as those of Conway, which were built in a short space of time, or even the walls, such as those of Great Yarmouth, which may have taken long to build, yet were mostly made in one pattern.

Of recent years little has been written about Southampton Town Wall in spite of the Corporation's zeal for its proper treatment. This may be due to the comparative neglect of medieval studies amongst archaeologists of the past few decades. Perhaps on the other hand there may have been a feeling that all had been written which could be written on the subject; for past generations of archaeologists have made notable contributions to the subject. G. T. Clark¹ devoted nine pages to it in his collected work, and the Rev. J. Sylvester Davies² treated of it in masterly style, as indeed he did of the whole of the town and its history. The account in the Victoria County History is still more valuable.³

Nevertheless it remains true to say that all these accounts of the walls, invaluable as they are from the historical standpoint, are little more than a perambulation of the structure with occasional attempts to date its various portions from the architectural evidence which remains. No one has yet tried to bring the historical record and the architecture together, in order to set out as clear an account as is now possible of the gradual growth of the defences of the town. This paper is an essay to this desirable end, and it should be stated at the outset that no such attempt would have been made by this pen,

¹ *Medieval Military Architecture in England*, 1884, II, 472 ff.

² *A History of Southampton*, 1883.

³ *V.C.H. Hants*, III, 495-503.

had it not been for the devastation of so much of the medieval town by enemy action. The surveys of Norman and other early medieval houses, newly brought to light in the ruins, led to attempts to date them by a comparative study of their rubble walling. This was assisted by a scrutiny of certain dateable parts of the town wall and led in turn to a detailed examination of the defences. At all times close at hand was the help and encouragement of Mr. O. G. S. Crawford. The writer is also indebted for help to Mr. N. C. Cook, to the National Buildings Record for a loan of photographs and permission to reproduce them, Mr. A. H. Foster-Smith for additional historical information, and the Minister of Works and the Controller of H.M. Stationery Office for permission to reproduce the Ministry's drawings of the Arcade on the Western Shore and the plan (Fig. 58).

The earliest certain reference to the fortification of Southampton is dated in the year 1203, when John granted the citizens £100 "towards the closing in of their town."⁴ At about the same time the East Gate is first mentioned.⁵ In 1248 the Rector of St. Michael's gave his nephew a piece of land with stages (?=stalls), curtilages, and a garden in English (=High) Street, in the parish of Holy Rood, extending to the Town Ditch.⁶ It is legitimate to suggest that, had there been a stone wall to the town at this spot at this time, it would have become the boundary of this property. With but a bank and palisade, however, the normal line of demarcation might well be the centre of the ditch. Although this is but one reference and it would be somewhat far-fetched to argue from it to a conclusion about the whole defence, as will be seen below, it is in accord with the present evidence of the remaining structure, as also with general probability, to suggest that as late as 1248 the town defences consisted of earth and timber, save for two stone gateways, the North, or Bar, Gate, the East Gate and some of the East Wall. Confirmation comes, however, from the tenement mentioned in footnote 5. In the Cartulary of St. Denys

⁴ Pipe Roll, 5 John (1203), p. 145. *Et Hominibus de Sudhant' e li ad claudendam villam suam. per idem breve. per breve quod quod attulerunt de computandis sibi ec li quod est in Marescalii anni praeteriti, etc.*

⁵ Cal. Anc. Deeds, ii, 404. It was certainly in existence by 1217: v. Cart. St. Denys, B.M. Add. 15, 314, fol. 35, where a tenement is described as "*Intra Burgum Hampton juxta portam orientalem versus austrum.*"

⁶ *ibid.*, II, 397.

PLATE X



A



B



C

Southampton Town Wall

- A. The north (outer) elevation of the Bargate. (Photo : S. A. Chandler, Southampton)
 B. The Arundel Tower : interior. C. The West Gate. (Photos : O. G. S. Crawford)

(*loc. cit.*) an undated document, perhaps of *c.*1220 but certainly before 1243, describes it as "*Super fossatum Hampton*," whereas in 1297 in the same Cartulary it is described as having the "*murus*" of Southampton as its eastern boundary. The Bargate was certainly in existence *c.* 1251.⁷

The year 1260 marks the beginning of a series of grants of murage to the town, which were undoubtedly designed to replace the earlier defences with a stone wall. Since the muragers' accounts seem not to be preserved, it is impossible to say on which parts of the wall each grant was expended, and the historian is often left with the impression that much of the money was diverted to illegitimate ends. Nevertheless the grants are an indication of work intended and to some extent of work performed.

Murage for 10 years was granted on November 11th, 1260 and for a further 5 years on November 12th, 1270.⁸ After a short interval murage for 3 years was granted on March 23rd, 1282,⁹ but with a mandate a few days later to apply the money to the repair of the castle under the supervision of the constable as well as to the walling of the town. Then in 1286 there was a murage grant for 5 years¹⁰. These grants, taken at their face value, indicate almost continuous work on the town wall between 1260 and 1291.

There is then a gap of 30 years ; for the next murage grant, for 3 years, is dated May 26th, 1321, followed by a grant for 6 years, dated March 18, 1327.¹¹ A chance reference of this time is of great interest : "For the hire of one man, in repairing the new curtilages this year [1322] because they were laid waste through the construction of a new fosse through the middle of them by the County of Southampton."¹² The position of this new fosse is not stated in the document, but it can hardly have been on the southern or western side of the town, since there lay the sea. Yet the whole of the northern and eastern sides were already protected by a ditch, if the character of the defences

⁷ *ibid.*, II, 386, No. B.3280.

⁸ *Cal. Pat. Rolls*, 1258-66, 126 and 1266-72, 492 respectively.

⁹ *ibid.*, 1281-92, 13.

¹⁰ *ibid.*, 229.

¹¹ *ibid.*, 1317-21, 590 and 1327-30, 64 respectively.

¹² *Hist. Mss. Comm.*, VI (1877 Appendix), 366.

c.1200 has been correctly determined. On the other hand, as will be mentioned below and as Leland states in 1546, in the later Middle Ages Southampton undoubtedly was peculiar in having a double ditch on these two sides of its enceinte. It seems, therefore, that this chance reference gives the only known indication of the date of the cutting of at least some part of the outer ditch.

On March 20th, 1336, the burgesses of Southampton were granted quayage and murage (1d., $\frac{1}{2}$ d., $\frac{1}{4}$ d.) because, on the command of Edward II, they have begun to repair their quay and to wall their town and have built a defence called a "barbican" of wood towards the sea, and now intend to build a barbican of stone for the better defence of their town against hostile attackers.¹³ Presumably the stone barbican was to replace the wooden one; otherwise it might have been supposed to refer to the projection in front of the twin towers of Bargate, which will be referred to in due course. On March 18th, 1341, this grant of barbicanage was renewed for 5 years,¹⁴ but on July 6th of the same year a "commission of enquiry was appointed as the mayor, bailiffs and goodmen of Southampton are said to have converted the money thus collected to their own use for the most part."¹⁵

An interesting Inquisition of 1353 relates to this period, 1339.¹⁶ After recounting the munitions of war then in the town for its defence, crossbows with quarrels, springalds with bolts, shields with lances, two magnels and a small engine called a tripoget, it proceeds: "None of the timber of the parapets or the engines has been removed; the parapet on the eastern wall was made with poplar boards and earthen walls for a length of two quarentaines, and has been destroyed by wind and rain to the danger of the town." This shows that by 1339 even the east wall was incomplete, although there is no suggestion that more than the parapet was then of earth and timber.

Murage for 6 years was granted in 1345,¹⁶ for 4 years in 1347.¹⁷

¹³ *Cal. Pat. Rolls*, 1334-8, 240-1.

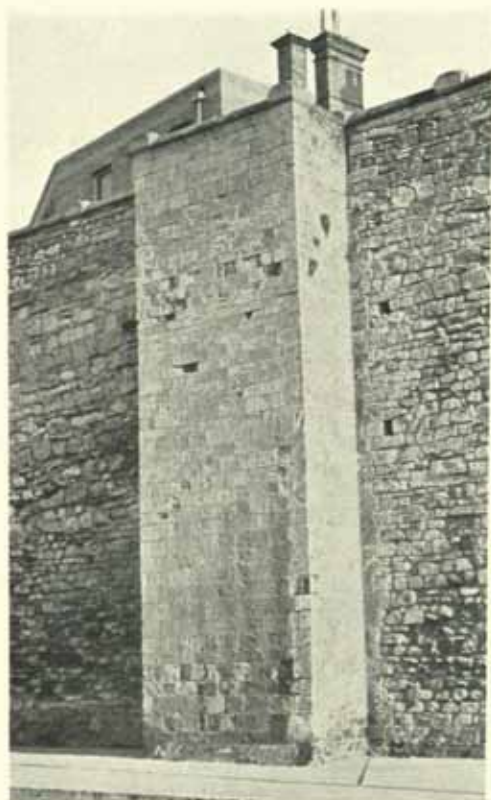
¹⁴ *ibid.*, 1340-3, 136 and 312 and 326.

¹⁵ *Cal. of Inquisitions*, Misc. III (P.R.O. 1937), 113, p. 38.

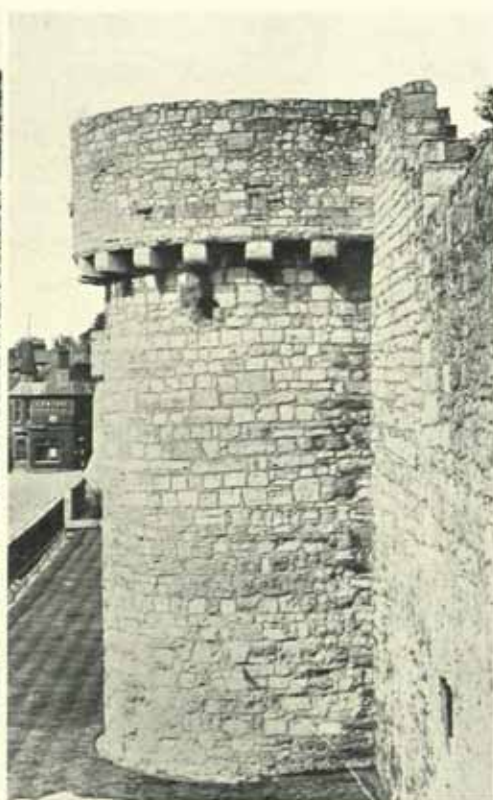
¹⁶ *Cal. Pat. Rolls*, 1343-5, 467.

¹⁷ *ibid.*, 1345-8, 279.

A



B



C



Southampton Town Wall

- A. Norman buttress on west wall. (*Photo* : O. G. S. Crawford)
- B. The Catchcold Tower. (*Photo* : F. C. Richardson)
- C. The Arcade. (*Photo* : O. G. S. Crawford)

Perhaps these grants were to run consecutively; for at the expiry of their sum total in 1355 another grant was made for 10 years.¹⁸ Once again, therefore, as in the latter part of the XIIIth century, the murage grants suggest sustained activity for a generation, but it should not be forgotten that in 1341 there was a commission of enquiry because the townsfolk were suspected of having used the money for a wrong purpose.

Whether this irregularity, if such it was proved to be, was one cause of the disaster of 1338 or one of its results is debateable, but the fact remains that on October 4th of that year the French and their allies were able to land at the south-western side of the town—the Gravel near Square Tower is the traditional place¹⁹—and to plunder and burn the town at pleasure until the citizens rallied the next day and drove them away.²⁰ The damage caused can, of course, be exaggerated, but it is clear that it was mostly in that quarter of the town which lay nearest to the place of the invaders' landing.²¹ It is nowhere stated in the records, but may now be put forward as a working hypothesis that the real reason for the ease with which the French landed was that on the south-western side of the town there was then no defence. That the murage grant of 1336 was intended to fill this gap in the wall and that the citizens had turned the money to other uses, thus contributing to their own downfall, is a possibility, but it is as likely that after the disaster they used the money collected as murage for the repair of their damaged houses.

The year 1360 is memorable as that of a document which must be quoted in full for its great importance in this study.²² It is a "Writ to Henry Peverell, Keeper of the Town of Southampton, to inquire as to the obstruction of the defence of the Town by porches and gardens adjoining the wall, the defects in the wall itself, and the engines and other appliances there for defence. By Thomas, the King's Son, guardian of England, Westminster, April 8th, 34 Edward III. By K. and C."

"Inquisition taken by three juries, Southampton, Saturday before the Close of Easter."

¹⁸ *ibid.*, 1354-8, 254.

¹⁹ Davies, *History of Southampton*, 94.

²⁰ *ibid.*, 463.

²¹ *ibid.*, 456.

²² *Cal. Inquisitions Misc.*, III (P.R.O. 1937), p. 154, No. 425.

"It would be well to have the gate at Pylgrimesputte walled up and the wall beyond it raised (*meoth en haunce*). The little postern of the cellar of John Wytegod should be closed with a wall as thick (*auxi en pes*) as the wall of the cellar. All the doors and windows of the houses towards the sea should be walled up three feet thick or more at the cost of the lords. All the great gates and posterns of the town should be thickly walled up except Northgate, Suthgate, Westgate, Estgate, and the gate of Neweton. A common way should be made within the walls and enclosures around the town of the width of 12 royal feet, and every man having gardens within the town should take away all the dung (*fungus*) lying in the way, each against his own plot. All the gardens outside the Town should be destroyed from the Town Ditch to the ditch of Saltemarch. All the houses in the suburb which might be hurtful to the Town in time of war should be removed by view of the Keeper. A double ditch should be made round the Town from end to end. A ditch should be made towards the sea from Pilgrymsputte to the gate of Bolestrete. A cutting should be made from Houndwell to the Town Ditch so that the running water may have its way to the ditch. One sentry box (*garite*) or more should be made round about the town between [every] two towers. A wall of earth or stone should be made on one side of the Town for the length of 500 paces."

There follows a letter from the Keeper :

"My Lord, the Town of Southampton is well repaired since you were there, the moats dug out and faced, some of the ditches scoured, and several turrets and breastworks made ; but twelve more are needed. I have begun to cut down apple-trees and pear-trees outside the town. I have viewed the people in arms ; and there are 30 well armed, 30 others armed, 30 archers, and others with clubs up to 200 ; but if the town is well guarded in time of war, there should be 100 men-at-arms and 100 archers. John le Clerk was grievously angry on account of his garden which was to be destroyed and threatened the people and said he would break their heads and made a great disturbance (*deray*) and bade them go into the Town, saying that the King's commission did not order the destruction of gardens outside the Town. A writ came to me *sub pede sigilli* with the copy of the inquest of Suthampton, commanding me to do all things contained in the said copy which had not been done by my negligence. I therefore pray that you will order a commission that the gardens and houses on the ditches may be removed to the width of 300 royal feet, and that no apple-tree or pear-tree may be therein so high that a ladder of 10 or 20 feet can be made thereof. Adam Inwes [*recte* 'Juweys' : O.G.S.C.], mayor of the Town and John Fifmark, burgess, came to me and prayed that I would suffer the garden of John le Clerk to be taken away without cutting anything, which I granted on condition that he would pull down the walls and trees on the ditches to the width of two carts till he could sue before my lord and you for a *supervisideas* within nine days ; and they agreed to bring me one. The people of the Town are very angry because of what has been pulled down, and their condition ; and the other people want another ditch round the town on the land side. Pray let me know your pleasure, my lord, if you will be pleased to believe what the bearer hereof will tell you from me concerning the Town and myself. If it pleases you, discharge me of this office, and appoint others in my place, as I can no longer endure the labour ; and if it please you that I should remain, let me have wages for myself and two squires and other people. Par vostre povere bachelor Henri Peverel."

It is clear from this illuminating document that the works listed in the Inquisition were ordered to be performed, and it seems likely from Peverel's pleading letter that many of them were carried out to his own discomfort through unpopularity. It is now probably impossible to identify all the ditches, but at least, as the sequel will show, the walling up of the doors of the houses towards the sea is yet visible and assists in the study of the 14th century masonry.

In 1374 the Mayor and Community of the town gave to the Friars Minors of Southampton "a certain house which the said Friars have lately built for the defence of the said Town."²³ On December 8th, 1377, a commission was sent "to the mayor and bailiffs of Southampton to survey its walls and compel all who have possessions within the Town and its liberty to contribute according to their means towards the walling of the Town, by distresses if necessary, the King having heard that the French invasion is imminent and that they project an attack on Southampton."²⁴ There follows, in 1382, a "Pardon to the mayor burgesses and good men of Southampton for the better guarding and maintenance of their walls, of £100 yearly from the farm of their town for 3 years from December 1st next, at which date a previous pardon for 3 years of their whole farm, granted in aid of the building of the said walls expires."²⁵ These last two references may perhaps be read as indicating that the actual building of the enceinte was complete by 1382, and that subsequent grants were in aid merely of the maintenance of the existing fabric. It is true that in 1400 the mayor and bailiffs were "licensed to take stone free from the Isle of Wight for defence of the town (as much as before) together with the necessary labour,"²⁶ and that in the charter of 1426 there is a reference to fortification in the time of Henry IV,²⁷ whilst there was certainly work being carried out at God's House Tower in the 9th year of Henry V.²⁸ Nevertheless there is not in the

²³ *Hist. Mss. Comm.*, 11th Rep. App., Part 3, 1887, p. 69. In the Terrier of 1454 this is styled a garet, which the Friars Minors maintain, and which had nine loops for defence.

²⁴ *Cal. Pat. Rolls*, 1377-81, 80.

²⁵ *ibid.*, 1381-5, 184.

²⁶ *Cal. Pat. Rolls*, Hen. IV, i, 239.

²⁷ The Charters of Southampton, *S. Record Soc.*, I (1909), 42-3.

²⁸ *Black Book of Southampton*, I, 78, note 1.

XVth century that spate of references to work on the Town Wall, which occurs in the previous century, nor does the surviving masonry suggest that much new construction then took place. It may, therefore, be allowed that the town was completely walled by 1382 or a little later.

Before leaving this historical account of the Town Wall a little more must be said about God's House Tower (Plate XII, B), because its structure is of great interest. Unfortunately there is no reference which enables one to state the exact time of its erection, although, as just mentioned, work was being done to it in 1424. In 1546 Leland described it as "welle ordinaunced to bete that quarter of the haven"²⁹, and it is suggested by details of 1432 that this was its prime purpose from the beginning. In that year a French fleet threatened the town, and the Stewards' Books record "Item, payed for V^{ll} of candells that were wasted in Godeshous towre and in the bolewerke, that nyght the ffirst affray was V^d," and later there are items of expenditure on the repair of guns, one of them standing in Godeshous yeate.³⁰

Thereafter there are only references to the decay of the walls and to the construction and use of outer defences for artillery, all of which, having now disappeared, are no concern of the present study.

The historical record, therefore, gives evidence of three periods of construction of the town's defences, firstly c.1200, when King John gave financial help, secondly during the generation 1260 to 1291, when there was an almost continuous series of murage grants, and thirdly from 1321 until 1382, in which year the wall seems to have been complete. There is more than a suggestion that during this third period work was by no means continuous, but of this aspect of the matter more will be said hereafter. It is now time to view the evidence of the masonry of the wall as it can be seen today, and to enquire how it can be equated with this historical record.

The innermost arch of Bargate is semi-circular in shape. It was originally of three orders, but the first has had its voussoirs taken out, in order to widen and heighten the opening for traffic. The outer

²⁹ *Hants. F.C. Proc.*, VI Suppl. (1913), 56.

³⁰ Stewards Books, first volume, s.a. 1432.

PLATE XII



A



B

Southampton Town Wall

- A. God's House Gate (left) and Tower
B. God's House Tower (or South Castle) looking west
(Photos : O. G. S. Crawford)

angles of the jambs are rounded, not chamfered. This arch is undoubtedly Norman, and has indeed been recognized as such at least since 1884.³¹ The rubble walling associated with this arch is difficult to discern owing to the later additions to the Gatehouse, but it does seem from the plan of the structure that no curtain was attached to the Gateway at the time of its erection. It will be recalled that the earliest reference to the defence of the town occurs in 1203, and it may be inferred that the first stone Bargate formed part of the work of that period or earlier. There is now no means of ascertaining the character of the first stone Eastgate, since it no longer exists, and prints only show later versions or additions to it, but its existence at about this date enables one to include it amongst works of this same time.

This article does not set out to deal with Southampton Castle, and will not therefore describe in detail that part of the castle wall on the Western Shore, which also formed the Town Wall; but it is useful here to remark that its character is exactly that of the latter part of the XIIth century, as attested by its Norman buttresses (Plate XI A). Its rubble walling consists of small, cubical blocks of stone (c. 12 in. long and 4 to 5 in. high), like large bricks, quite well coursed or at least made up to level beds every foot or so in height in a manner which is traceable by eye for long distances. Similar, but even better walling, as befits a house rather than a Town Wall, occurs in the walls of "King John's House," which is attributed to c.1150.³² This is here called Style I.

Prolonged study of the medieval houses of Southampton has shown that the rubble walling of the next half century, say c.1200, is vastly different from that of c.1150, as just described. It is random rubble, often in very small pieces of all shapes, but sometimes including larger blocks, e.g. broken ashlar. All dressings are done in square ashlar. The best example of this style occurs in No. 79½ High Street in close association with a chimney of c.1200.³³

The only masonry in the Town Wall proper which resembles that of the Castle Wall on the Western Shore is to be found in the

³¹ G. T. Clark, *Medieval Military Architecture in England*, 474.

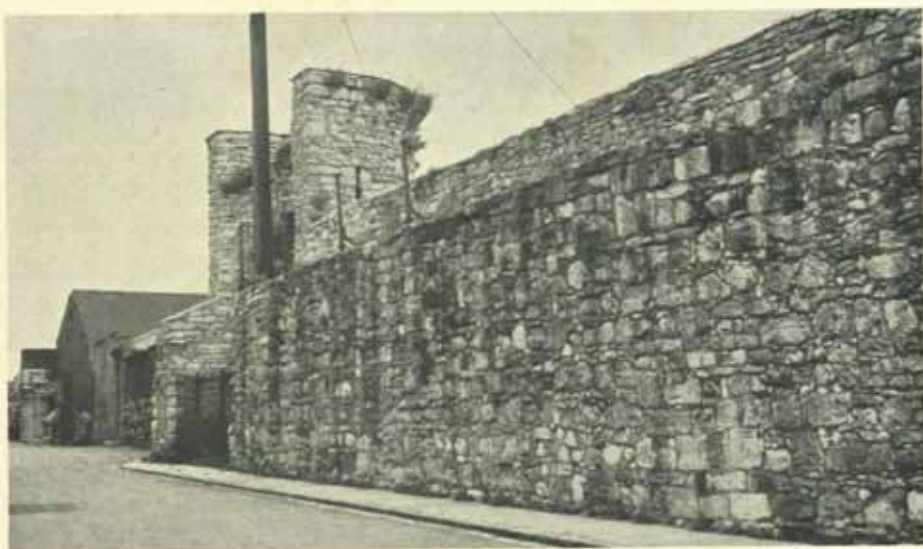
³² *Arch. Journ.*, XCII, 181-4.

³³ Unpublished, but complete survey made by the staff of the Ministry of Works.

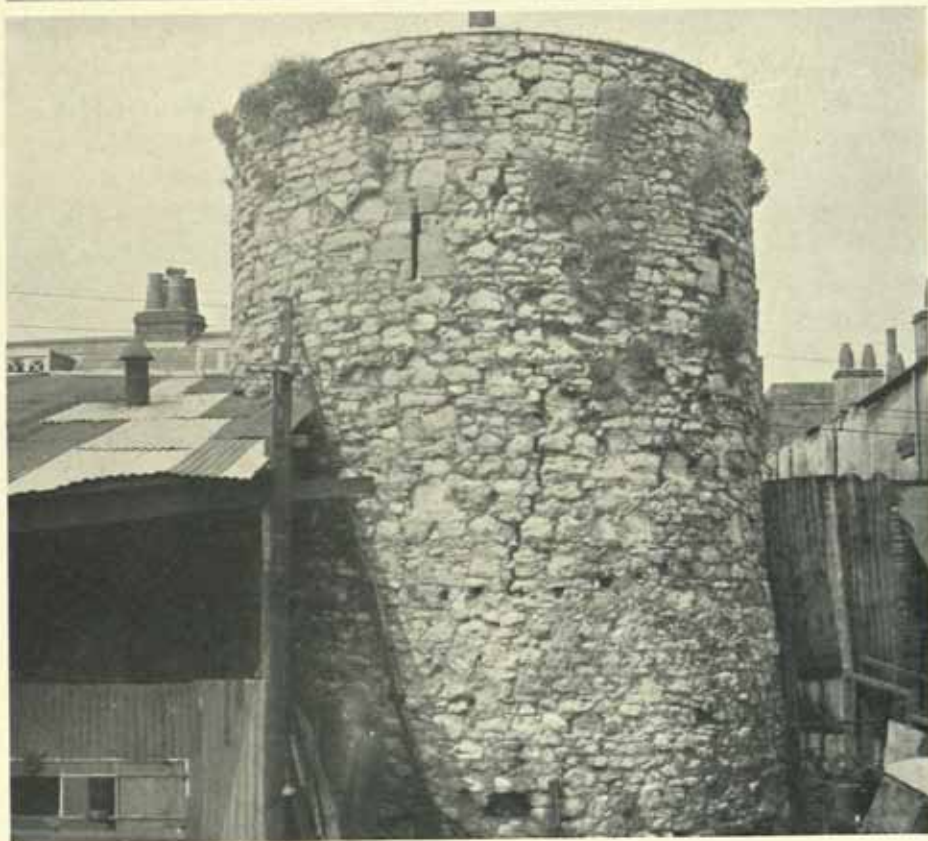
two rectangular projections and the curtain between them in the southern part of the East Wall. The masonry here, however, is not so good as in the castle wall, since it is smaller and approximates to that of the next style, but its general appearance, coupled with the small projection of the towers or turrets and the dressed stone quoins, does allow it to be placed in the late XIIth or early XIIIth century. The smaller or southern rectangular turret and most of the curtain is much obscured by modern buildings, but sufficient is clear at the junction of the curtain with the larger rectangular turret, to show that the two are of one build at least for half or two-thirds of the height of the curtain. The upper part has been rebuilt at a later date. On the northern side of the larger rectangular turret, however, the curtain, which is of Style III (see below), is clearly built against it with a straight joint. The occurrence of this short length of early wall may well be connected with the Friars Minors, who settled in this part of the town *c.* 1230. In 1374 they were granted a house which they had built for the defence of the town (see above), and it is clear from the terrier of 1454 that the house (garett) was precisely at the larger rectangular turret now under discussion.

By 1200, therefore, or a few decades afterwards it seems that the defences consisted of an earth bank with palisade and ditch, supplemented by two gates of stone, north and east, and a short stretch of stone curtain with two turrets near the southern end of the east wall. It may be, of course, that more stone curtain once existed, but has later been refaced or destroyed.

The next addition appears to have been the Arundel Tower at the north-western corner of the town (Plate X, B). Recent repair and cleaning of the masonry have made it somewhat difficult to compare the work with that in uncleaned parts of the Town Wall, but it seems in the main to be built of small uncoursed rubble with only a few larger stones (Style II). Certainly the lower part of the inner face of the north curtain adjoining for 20 feet or so seems to resemble the rubble walling of No. 79½ High Street and other buildings of *c.* A.D. 1200 or a little later, more closely than does any other part of the town wall. On the other hand the embrasures of the arrow-



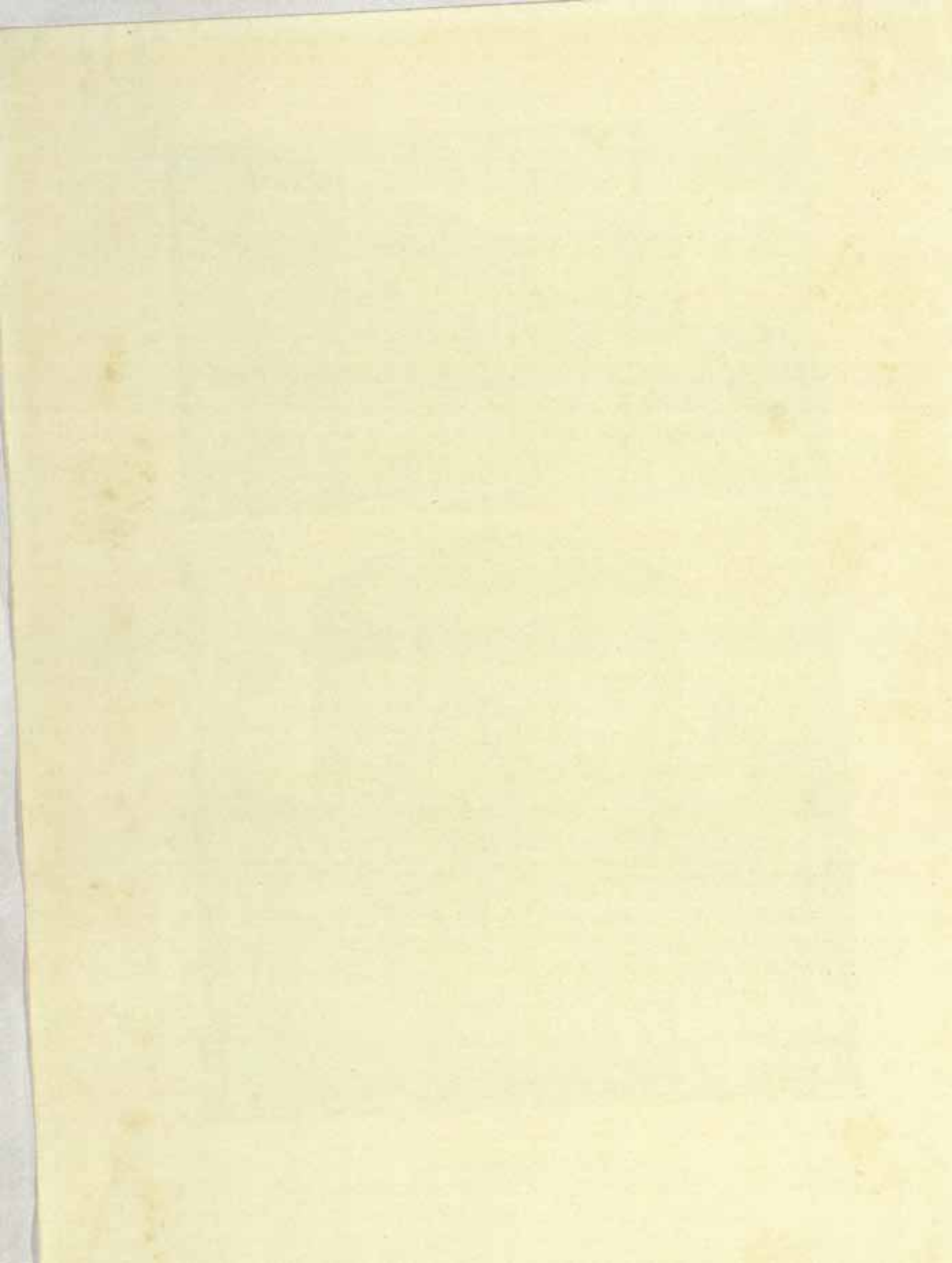
A



B

Southampton Town Wall

- A. The interior of the east wall
B. The first tower on the east wall, north of God's House Gate
(Photos : O. G. S. Crawford)



slits in the tower with their narrow chamfered, bluntly-pointed ashlar quoins suggest a somewhat later date, as does the fact that the tower has always been open at the gorge. Moreover a short piece of curtain to the west, which is apparently of one build with the tower and has ashlar quoins of the same very shelly stone as occur everywhere in the original work of the tower, has its wall-walk carried on heavy corbels. It seems best, therefore, to assign this tower with adjacent short pieces of curtain to west and east to the first half or middle of the XIIIth century and perhaps even as late as 1260. The curtain to the east may well have had a ragged end built into the earthen bank, as sometimes occurred at this period. At Membury in Wiltshire for instance a single round tower with short pieces of curtain was the only part of the defence of the medieval house which was of stone.³⁴

The walling of the round towers of Bargate (Plate X A) and of the neighbouring eastern towers of the North Wall, including the original work in the Polymond Tower, is not unlike that of the lower part of the Arundel Tower (Plate X, B), but it contains more medium sized stones and occasionally shows evidence of coursing. This is Style III. Associated with this walling in Bargate there are openings with shouldered-headed lintels, sometimes called Caernarvon arches from their occurrence in Caernarvon Castle. These heads occur elsewhere in Southampton, as in Lankester's vault in High Street and in the north and south walls of No. 58 French Street. In the last example in particular the associated rubble walling is of the same type as is found in Bargate, medium to small, sometimes vaguely coursed. Shouldered lintels of this specialized form do not seem to occur in England much before 1280, and in the north of England and indeed elsewhere they are freely found in the earlier part of the XIVth century. In Southampton, however, they may safely be used to date this associated masonry to the building period 1260-90, which is attested by the documents.

The curtain linking these towers has masonry which is very similar to that of the towers themselves, but is more often coursed

³⁴ Information from Mr. W. F. Grimes, whose report is forthcoming.

than not. In the long piece between Bargate and Arundel Tower it is regularly coursed or at least brought up to a level bed every two feet or so, and this type of masonry clearly is built over the earlier work adjacent to the latter tower. Similar coursed medium to small rubble occurs in the East Wall wherever it is preserved, save in the short piece between the rectangular turrets, which has already been described, and save for refacing in Style IV for much of the length internally between the Round Tower and God's House Tower, and a short distance externally in the same position. The Round Tower next north of God's House Tower (Plate XIII, B) is in the same style, but indifferently coursed, and is open at the gorge, in the manner of the towers on the Town Wall of Conway (1282 onwards). No masonry of this style is now to be seen in the South or West Wall.

Whilst, therefore, it is possible that Bargate and other towers were not only built before intervening lengths of curtain but also remained free-standing for some time, i.e. between 1290 and 1320, the year when building began again according to the murage grants, it seems more logical to class together all this rubble masonry of similar although not identical style, and to say that by 1290 or soon afterwards the North and East Walls were complete, but that no attention had been paid to the south and west sides of the town, which were washed by the sea. Certainly in 1299 there was no town wall immediately south of God's House, because stone was then brought to a new quay opposite the chapel near the sea.³⁵

As mentioned already, the murage grants began again in 1321, but for some years there is no indication of the character or position of the work involved save for the digging of the second ditch. By 1336, however, it is clear that work beside the sea had been done, but the disaster of the French sack of 1338 seems to indicate that not much had by then been completed. It is possible that little was done before the Inquisition of 1360, although there is one feature which obscures this question.

The masonry, which is clearly of the XIVth century, although distinctive, is not abundant. One reason for this is that very little of

³⁵ *Davies, History of Southampton*, 455.

SOUTHAMPTON THE ARCADE EAST SIDE

SCALE OF FEET 10 20 30 40 50

SCALE OF METRES 1 2 3 4 5 10 15

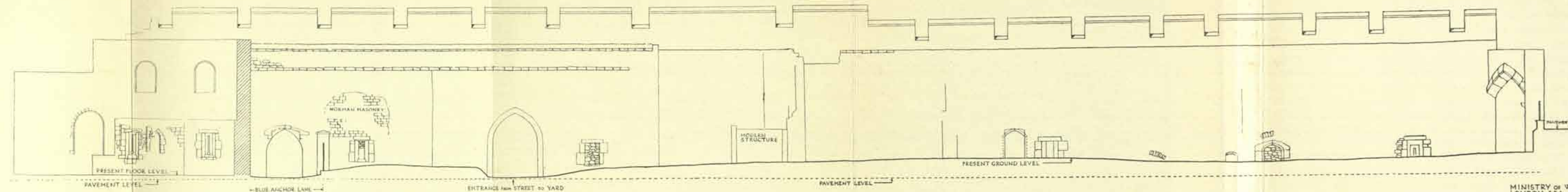


Fig. 50. Internal elevation of the Arcade, Western Shore, Southampton

MINISTRY OF WORKS
LONDON S.E.1
L. MONROE DESIGNS ET DELT

SOUTHAMPTON THE ARCADE WEST SIDE

SCALE OF FEET 10 20 30 40 50

SCALE OF METRES 1 2 3 4 5 10 15

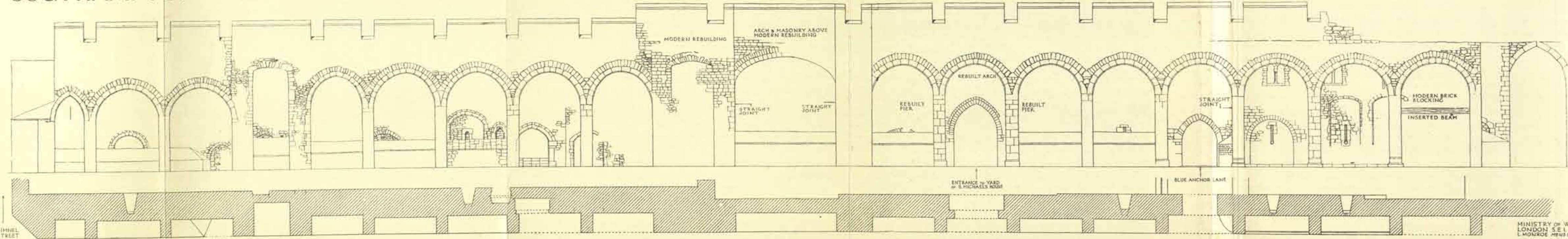


Fig. 60. External elevation and plan of the Arcade, Western Shore, Southampton

MINISTRY OF WORKS
LONDON S.E.1
L. MONROE DESIGNS ET DELT

the South Wall has escaped destruction. The other is that owing to the existence on the West Wall of earlier buildings, such as the castle and many houses of the XIIth and XIIIth centuries, the builders of that West Wall in the XIVth century had only to fill in gaps of one kind and another. It is possible that, if more of the South Wall were preserved, it would be possible to relate some of it to an early phase of the XIVth century work. As it is, one can only point to some masonry that seems to date from *c.* 1360, some which is certainly later, and some which may be earlier.

The distinctive characteristic of this style is the use of large, often square, blocks of yellow or nearly white sandstone. The masonry is still rubble, but it is roughly dressed and normally fairly well coursed. There are many small stones, but the square blocks (1 ft. or so square) are always prominent. This is Style IV. A variety of this style, Style V, is less well coursed and has even larger blocks of sandstone, which sometimes produce a resemblance to a chequer design. Similar walling occurs in Swainstone Manor, Isle of Wight, and it is common knowledge that masonry high in the course, whether ashlar or rubble, is a feature of later medieval work in many parts of the country.³⁶

Masonry of Style IV occurs everywhere in the West Wall between Arundel Tower, where it is built against the earlier curtain west of that tower, and the castle wall, except for Catchcold Tower and the curtain for 15 ft. on either side of it, which is of Style V. Style IV occurs also in the West Gate (Plate X, c) and the curtain south of it beside the Guard House. Between the Royal Standard, which adjoins the north side of West Gate, and the next buttress to the north the wall throughout is of Style V. Style IV on a somewhat smaller scale, as befits that position, forms the rubble of the Arcade both in the West Wall proper and at the south-west corner of the town, and also apparently the filling of the large openings in the West Wall of King John's Palace. This filling may safely be equated with the orders given as a result of the recommendations of 1360, and it seems legitimate to date the Arcade with its round arches of late XIVth

³⁶ e.g. at Castle Rushen, Isle of Man (late XIVth century).

century character (Plate XI, B ; Figs. 59-60) to the same phase of activity. Owing, however, to the smallness of these particular pieces of work, both in scale and in quantity of rubble, it is impossible to argue from their precise character to that of larger pieces of curtain. It is, therefore, by no means impossible that some of the work of Style IV dates from before 1360. It may well be that some of the work of the period 1320-60 consisted of the construction of gateways and gates across the vennels or passages between the houses on the Western Shore. Several of these, later blocked according to the order of 1360, are still visible, e.g. immediately south of King John's House.

The filling of the earlier openings in the west wall of King John's House, as also some in the West Wall further north, contain openings with long narrow slits, ending at the bottom in circular holes, 5 to 6 in. in diameter. The beds of the embrasures to these openings are flat and are 3 to 4 ft. above present floor level. It is probable, although not certain, that these openings are for small cannon, and, if so, they are the earliest of their kind so far recognized in Britain. Such openings with somewhat larger round holes are common from 1380 onwards, as for instance in Canterbury West Gate, begun in that year.

In Catchcold Tower (Plate XI, B) there are three similar openings, which have much larger round holes and shorter slits than in King John's House. These are certainly for cannon, and very similar gunports occur in Canterbury, dateable to 1390-6, but also in Carisbrooke Castle, c.1475. It is not, therefore, possible to use them as independent dating evidence for Catchcold Tower.

As has been mentioned, this tower and its adjacent curtain for 15 ft. is in Style V, and is a plain insertion into earlier work. It may well be that it was built not long before its first mention in documents (1438), but any such statement seems to carry with it the implication that the West Wall was still incomplete after the last murage grant ended in 1392.

God's House Gate and God's House Tower, alias South Castle (Plate XII, A, B), have so far hardly been mentioned. The latter is plainly built against part of the former, and is itself of Style IV.

It contains a number of "keyhole" gun-ports such as occur in a slightly less developed form in Canterbury West Gate (1380) and Bodiam Castle (1386). At Southampton this developed form with the bed of the embrasure almost at floor level may well date from 1380-90, but there are many pitfalls for the unwary in the study of gun-ports, and it is unfortunate that the tower is not mentioned in documents until 1420. God's House Gate which is earlier than the Tower, has no real parallel in style in Southampton, but it shows much yellow sandstone rather smaller in scale than in the adjacent tower, and may well date from the XIVth century before 1360.

It is, therefore, possible but by no means certain that the enceinte was complete by 1382, the date indicated by the documents.

Two later additions or alterations should also be mentioned, the outermost part of Bargate, and the insertion of gun-ports in the western face of West Gate. The former is largely of ashlar on its outer face, although its inner face has some large, square, yellow or white stones, which connect it with Styles IV and V. It has no gun-ports; indeed all the openings in it except the cross-slit facing due north in the centre are modern and erroneous. But it has arches with four-centred heads and column bases, which are more likely to date from the XVth century than the XIVth, and its erection is probably part of the work which is not recorded in the documents. The two gun-ports in West Gate, now restored but substantially as found about twelve years ago, correspond with those normal in castles of c. 1540.

This brief account of Southampton Town Wall has by no means exhausted the subject. It has but emphasized its complexity, and not until there is an accurate survey of all existing masonry will it be possible to deal with it in detail. Nevertheless it does appear that there is a general correspondence between the historical record and the remains, which enables the main outline of development to be traced.

THE FENLAND RESEARCH COMMITTEE, ITS PAST ACHIEVEMENTS AND FUTURE PROSPECTS

BY C. W. PHILLIPS

THE Fenland Research Committee was founded at a meeting held on June 7th, 1932, in the Upper Parlour at Peterhouse, Cambridge.

It was the outcome of developments which had been going forward for a number of years previously in the Fenland area. The chief of these were in the fields of archaeology and botany. It is invidious to single out the work of any individual for special notice where many were active, but there can be no doubt that the researches of Major Gordon Fowler of Ely in Fen topography played a great part in bringing interest in Fenland affairs to a head.

Fowler's demonstration of the roddon phenomenon¹ by which a large part of the extinct waterway system of the Fenland could be traced out on the ground came at a moment when researches were being inaugurated in various departments of the University of Cambridge, which, while of wider geographical scope, found a peculiarly favourable field in this hitherto insufficiently appreciated region; in particular Dr. H. Godwin was planning to elucidate, chiefly by means of pollen analysis, the development of vegetation in Britain in post-glacial times, and Dr. J. G. D. Clark was seeking to establish his Mesolithic cultures in stratigraphical relationship to post-glacial deposits, so as to set up a correct sequence of cultures, each in its appropriate natural setting. At the same time the writer and Dr. Clark, inspired by Crawford's example, had become aware of the great possibilities of air-photography in elucidating later stages in the human history of the area, especially in relation to the Bronze and Romano-British periods. T. C. Lethbridge had also been active in extending his researches on the Dark Ages into the

¹ *Geographical Journal*, LXXXIII, No. 1 (Jan. 1934), 36. 30-39.

Fenland, chiefly round the Isle of Ely. While these various approaches were being made to the archaeology and botany of the Fenland Dr. (now Professor) H. C. Darby was preparing two books of the first importance dealing with the historical geography of the area.² The last attempt to deal with this topic effectively had been made as long ago as 1878 when Miller and Skertchley published a full-length description of the Fenland from the stand-point of their time which must always remain a standard work,³ and was an important factor in arousing and maintaining interest in the area. Equally important was Dr. (now Sir) Cyril Fox's classic *Archaeology of the Cambridge Region*, a book which, by emphasising the importance of studying human settlement in relation to external environment, in effect pointed to the necessity of establishing the character of that environment at successive stages; some of the distribution maps, in particular those of the Neolithic and Bronze Ages, themselves bore witness to the changes which must have occurred in those parts of the Fenland included in his region. So far as the actual founding of the Committee was concerned, however, the overriding factor was the realization that little could be effected save by co-operative effort in which every resource of modern science could be brought to bear on each problem in turn, and this resulted in the ultimate association of 42 specialists for the purpose.

What are these problems? The chief one is the question of the relationship of man to the area since post-glacial times. The view of the average reasonably well-instructed person is that before the beginning of the XVIIth century the Fenland in general was more or less empty of human inhabitants, and that, at the most, a few folk were settled on certain natural islands or entered the area from time to time in pursuit of fish and fowl, or to harvest reed and sedge. There was a tendency to contrast the vast agricultural development of the Fenland in the last two centuries with its previous desolate character. While this contrast is substantially true, those who interested themselves in the archaeology of the area were constantly puzzled by the record of finds made in various unpromising parts of

² H. C. Darby, *The Medieval Fenland*, Cambridge, 1940; *The Drainage of the Fens*, Cambridge, 1940.

³ S. H. Miller and S. J. B. Skertchley, *The Fenland Past and Present*, Wisbech, 1878.

the Fenland, and these were too numerous and too definite in their implications of settled life to be dismissed as the casual losses of fishers and fowlers. Of particular interest were the records of numerous Romano-British finds given by the antiquary, William Stukeley, who, as a native of Holbeach, retained a special interest in the antiquities of his native place even though his main preoccupation was with the country as a whole. At this point two important events occurred ; a good series of air-photographs of the Lincolnshire silt lands between Crowland and Holbeach came into the hands of the writer, and Godwin became interested in the problem of relating specific archaeological finds to the exact horizons at which they were found in the peat. The photographs, when verified by ground survey, showed that Stukeley had ample justification for his reports because the area south of Holbeach had once had an extensive settlement of Romano-British cultivators, and Godwin, who had valid independent reasons for relating the various peat phenomena of the Fenland to well-established climatic phases in post-glacial times which were based on work carried out and correlated in various parts of north-west Europe, was able to show how, when proper allowances had been made, archaeological objects found in peat could be more closely dated than before by means of the climatological time-scale now securely established by pollen analysis.

But the photographs showed more than large areas of Romano-British cultivations. On the Welland side of the Fens appeared a much earlier system of fields probably referable to the Early Bronze Age and comparable in close detail with the similar complexes which have been shown to be of that age in the Upper Thames gravel spreads round Oxford as well as numerous Bronze Age barrows in situations which were waterlogged before 1650. The pre-drainage system of waterways could be seen in full along with their relationships to the Romano-British settlement. Many extinct meres appeared in the form of large tracts of shelly marl out in the peat areas, and the Roman causeway from near Whittlesey to Denver in Norfolk could be seen through nearly the whole of its length. Light was also thrown on some post-Roman features of the Fen, notably the Asendyke near

Crowland, and the survey methods employed by the drainers in the XVIIth century became more clear. Thus the only obstacle to clearing up the whole question of the Roman occupation of the Fens was the sheer magnitude of the task, and the need for carrying out a series of test excavations to define the exact relationship of various sites to each other in age during the period A.D. 50-400, and also to various water features natural and artificial.

The second large problem was how to provide an adequate explanation of the recurrent occupations and abandonments of the Fen area, the chief periods of activity being the Bronze Age, the Roman period, and the last two and a half centuries. It was obvious that the periodic disappearance of population could not be due to political factors, but to the onset of conditions which made the area physically incapable of being lived in except in the most limited fashion. Nothing less than this could account for the collapse of the Roman phase, for however backward the Anglo-Saxon invaders were in politics, they would never have allowed large tracts of good arable land to go out of use for long. Decay of land communications also fails to supply an adequate excuse for the decline, since at all times the roads were subordinate in importance to the waterways.

Turning to the botanical side there was the question of the extinct forests which once covered large tracts of the area, and which continually reappear in the form of tree trunks in the peat or stools of trees still in place on buried land surfaces. These had to be sorted out and given their places in the time scale, while the extinction of many of them while still in their prime had to be explained.

Problems for the quaternary geologists and the geographers also abounded, for the question of the relations in level between land and sea at different times is fundamental to the question of life in the Fens. A matter of particular interest was the sheet of partly marine clay, locally known as "buttery clay," found widely spread over much of the lower part of the Fen basin deposited between upper and lower beds of peat. This suggested a major irruption of the sea extending its influence in some places nearly as far as the high lands round the Fen edge, and it required a physical explanation and a date.

The Committee also recognized from the beginning that the general problem of the Fenland is only a department of that of the history of the formation of the North Sea, to which attention had recently been directed by the dredging in September 1931, of a Maglemosian fish-spear prong from moorlog submerged at a depth of about 19 fathoms between the Leman and Ower Banks off the Norfolk coast.⁴ Since important evidence bearing on land submergence was known to be forthcoming from the coastline of Essex, it was decided to form an Essex Coast sub-committee to relate the information, which was being gathered by Mr. Hazzledine Warren and others, about the submerged Neolithic and Early Bronze Age land surface revealed on the foreshore, to the progress of work in the Fens.

These, therefore, were in broad outline the questions which the Committee set itself to answer, and effective and sympathetic leadership was given to its efforts when the late Sir Albert Seward consented to be President, an office which he held with vigour to his death in 1942. Major Gordon Fowler became Vice-President and Dr. J. G. D. Clark Honorary Secretary.

Besides early associating itself with the Cambridge Antiquarian Society, the Prehistoric Society and the Norfolk Research Committee, the new Committee recognized the prime importance of the cartographic aspect of its work both in the matter of evidence afforded by early maps of the Fenland, and also through the need to express the results of its work in map form. An approach was therefore made to the Ordnance Survey with the result that on March 23, 1933, Mr. O. G. S. Crawford was appointed the Survey's representative on the Committee. This gave official form to an association with work in the Fens which had already existed for some time, since it had been through Crawford's interest that air-photographs taken by the R.A.F. in the course of duty flights had been made available, and, as the pioneer of the use of the air-photograph in archaeological research, he had at once realised their great possibilities. Since the writer was at that time carrying on a general examination of Lincolnshire antiquities, partly for the Ordnance Survey, Crawford had delegated

⁴ *Antiquity*, VI (1932), 218.

the field work in connection with the photographs to him. In all phases of the Committee's archaeological work before it was forced to suspend activities in 1940 Crawford was a tower of strength, and the most important individual contribution made by him was to organize and carry through the preparation by direct photography from 6 in. maps of the first four of a special series of sheets on the scale of 1 to 31,680. The detail was printed more faintly than on the 6 in. originals, and the sheets were of great value in plotting the information gained from air-photographs. It is hoped to carry through the programme of providing sheets of this type and scale for the whole of the Fenland.

The first considerable enterprise undertaken by the Committee in the autumn of 1932 was the excavation of a sandhill site at Plantation Farm, Shippea Hill, seven miles east-north-east of Ely.⁵ The existence of several low sandhills emerging from the peat close to the extinct course of the Little Ouse at Shippea Hill had been known for some time, and the surfaces of these showed a remarkable scatter of archaeological material dating mainly from Late Mesolithic and Early Bronze Age times. It was realised that as these sandhills were outliers from the nearby Breck country and were firmly based on solid geology they would have been slowly submerged by the peat deposits as they grew, and would equally have been revealed once more as the peat wasted away after the drainage of the local fens. Thus occupation of the site at various times would be accompanied by scatters of debris out over the peat at the levels at which it stood in relation to the sandhill, and in this way it should be possible to get an exact correlation between different archaeological periods and the peat in its different stages of development. As the buttery clay was also known to abut on the hill under the upper peat knowledge would be gained of its relation in time to the human occupation of this part of the Fens. A further point of great importance was the nearness of the extinct course of the Little Ouse which meandered past as a well-developed roddon. The relation between the sandhills and the river bed could be examined by a series of borings.

⁵ Grahame Clark, "Report on an Early Bronze Age site in the south-eastern Fens," *Antiquaries Journal*, April (1933), XIII, No. 2.

These expectations were fulfilled. It was found that the Early Bronze Age material found so freely on the summit scattered out from the sandhill at a level close to the bottom of the upper peat and just above its junction with the buttery clay, thus making the latter older than the Early Bronze Age occupation of the hill. The line of borings revealed that the adjacent old river bed had been built up in two phases, the lower one cutting through the lower peat which rested on sand and underlay the buttery clay. Thus the bottom of the earlier channel had been some twenty feet lower than the top of the sandhill, while in its last stage, when the river was flowing through the upper peat on a levée of silt of its own depositing, its bottom was some five feet above the then submerged sandhill top.

A second sandhill excavation took place on another example at Peacock's Farm, about 350 yards north-west of the scene of the 1932 work, and on the other side of the Little Ouse roddon.⁶ It had already been seen in 1932 how the successive human occupations of a site of this kind could be sorted into different levels by the progressive accretion of the peat against the sandhill, and the second site was more promising since microlithic material of Late Tardenoisian character had been found on it as well as a large quantity of Early Bronze Age debris. The 1934 excavations were on a larger scale, and were carried down to a point 24 feet below sea level. The results of 1932 were confirmed and amplified, the Early Bronze Age phase continuing to appear at the base of the upper peat, but new features were Neolithic A and Late Tardenoisian phases scattering out into the lower peat underneath the buttery clay at depths of 12 and 15 feet respectively below the modern surface of the field.

Although the site of these excavations was far inland in the south-east corner of the Fenland there could be no doubt of the general validity of the conclusions to be drawn from them for the peat regions of the Fens as a whole. Dr. and Mrs. Godwin studied the peat at all the critical points, and by pollen analysis were able to fix the place of the three archaeological phases whose precise stratigraphical levels had been determined in the forest history of the area as a whole.

⁶ Grahame Clark, "Recent Excavations at Peacock's Farm, Shippea Hill, Cambridgeshire," *Antiquaries Journal*, XV (1935), 285-317.

The peat was also examined in detail by Dr. M. H. Clifford, and a large number of plant remains were identified, thus throwing light on the flora which lived round the sandhill at the different times.

The buttery clay, which formed a bed some six feet thick between the upper and lower peats, was examined for its foraminifera content by Dr. W. A. Macfadyen,⁷ and it was shown that the water in which this clay was deposited was distinctly brackish, and this at a distance of some 50 miles from the present coastline. An examination of the silt forming the roddon of the Little Ouse showed still more decisively tidal characteristics. This buttery clay has a large spread in the southern Fenlands, and is dug by farmers to scatter on the overlying peat to increase its fertility. No work has yet been concentrated on this clay as one of the latest geological features of the Fenland, but it is agreed that it must be the product of a great irruption of the sea which produced a stretch of brackish lagoons more or less under the influence of the tides, and which persisted for some time until the sea barred itself out again and freshwater conditions were re-established, leading to the growth of the upper peat which persisted till the drainage of the Fens, and which is now wasting away on the modern surface. These excavations have placed the episode quite narrowly between Neolithic A times and the Early Bronze Age. A modern event which probably illustrates the establishment of the buttery clay phase in the Fens is the breaking of the sea into Horsey Mere on the coast of Norfolk in 1938 under the combined influence of a high tide and a north-easterly gale.⁸ 7,500 acres were flooded with salt water, and would in time have been covered with something comparable to the buttery clay had immediate steps not been taken to close the breach.

These Shippea Hill excavations are the main work of the Committee so far on the vertical relationships of prehistoric occupations in the Fens, but, as mentioned above, there is scope for surface survey of Bronze Age features by air-photography in several parts of the Fens. The lower Welland Valley requires study in this connexion,

⁷ *Antiquaries Journal*, XIII (1933), 289-292.

⁸ *Trans. Norfolk and Norwich Naturalists' Society*, XIV, Part IV (1938), 334-390.

and there is a large concentration of Bronze Age barrows in the March-Chatteris-Manea area,⁹ as well as on the western verge of the Lincolnshire Fens. These imply some degree of settlement, and are normally associated with gravel spreads which have been covered by peat in later times, and are now once more coming to the surface. The occupation of the Shippea Hill sandhills was probably seasonal, the folk coming from the higher land to the south-east where there is evidence of quite dense Bronze Age settlement round the Fen edge.

Space does not permit further consideration of the work on archaeological periods previous to the Iron Age, but a list of publications will be found below.

Apart from a few finds made in the rivers the Iron Age is a blank in the main mass of the Fenland, the only settlement sites known being found round the edges. There are interesting signs of Iron Age activities, including salt-boiling, on an old land surface which appears on the foreshore at Ingoldmells on the extreme north-east corner of the Lincolnshire Fenland,¹⁰ and further research may reveal more signs of settlement on the Fen islands, notably at Stonea, where there is an enigmatic earthwork which may belong to this period; but it is with the opening of the Roman Age that the region comes fully to life again.

The influx of population was so swift and complete as to imply that the land was once more physically ripe for exploitation through an improvement in conditions, and also that the Romans made its use a point of policy. At present we have no certain knowledge of the events which led up to this, but it may be suspected that the rebellion of Boudicca in A.D. 61 had something to do with it. After Suetonius had amply avenged the revolt more moderate counsels prevailed, and the establishment of peace and prosperity was undertaken by Classicianus and Turpilianus. The little archaeological evidence we possess, chiefly from coins, suggests that the Fenland fell within the boundaries of the Icenian territory, and it may be that this

⁹ *Victoria County History, Cambridgeshire*, I, 276-7.

¹⁰ Dr. H. H. Swinnerton, "The Post-Glacial deposits of the Lincolnshire Coast," *Quarterly Journal of the Geological Society*, LXXXVII, Part 2 (1931).

was confiscated after the revolt and turned into an Imperial domain. On the other hand the Romans may have seen the possibilities of the area, formerly a no-man's-land, and resolved to colonize it. Whatever is the true explanation, it is certain that a large influx of population took place, and the cultivation of all the more suitable tracts of land was undertaken. The Roman Fenland shows no signs of centuriation, nor has any obvious administrative centre been found within it, though this may have been placed at the western verge of the area at DVROBRIVAE (Castor—Water Newton), which is the probable western terminus of the Fen causeway, and has good water communications with the whole area.

The types of agriculture so far identified are two in number. The Celtic system greatly predominates, and could be regarded as general were it not for occasional traces of something quite different. While most of the agricultural holdings are broken up into the normal patchwork of small more or less rectangular fields divided by ditches, there are a few instances where a system of long strips can be seen which is reminiscent of later medieval cultivation. Any chance that these are in fact medieval is disposed of by the fact that the local system of Fen droveways of Roman age clearly respects them, and the associated dwelling sites have the same scatter of Romano-British rubbish found round them as in the case of those belonging to the Celtic fields. The probable explanation of the presence of two types of cultivation is that colonists were brought in from most of southern Britain, and that the strip cultivations may represent a Belgic element. They are certainly not Saxon or medieval.

A complete study of the agricultural methods used by the Romano-Britons in the area is a future work of the Committee, but because not less than half a million acres are involved it is not feasible to undertake it until complete air-photographic cover of the whole region has been obtained. In general the region of most complete cultivation is the relatively high silt land south of the Wash, but scarcely any part of the area is without its quota of ancient fields, though in the lower part of the Fens these tend to be placed round the edges as in the area directly north and west of Cambridge and also

along the Huntingdonshire border. There is also a very interesting ribbon development of small sites along the ancient waterways in the south and east.

This raises the question of how far the Roman occupation of the Fens was made possible by drainage works. No effective answer can yet be given, but it now seems clear that the so-called Roman Bank which skirts the south edge of the Wash from Skegness round to King's Lynn is not Roman, and does not relate to the coast line of Roman times. Its lay-out does not suggest the work of a Roman administration, but, on the contrary, bears clear marks of having been constructed piecemeal by the various medieval communities of the region. A full study of medieval records relating to sewers and drainage will probably confirm this.

The two stretches of the Car Dyke, the short one north of Cambridge, and the much longer work connecting the Nene at Peterborough with the Witham at Lincoln,¹¹ though certainly Roman, are also not conceived as drainage works, but supplement the natural system of waterways, confirming Stukeley's suggestion that the Car Dyke was dug to carry corn from the Fens to the military districts of the North.

A puzzling feature of the drainage question is the fact that for some miles of its course the Roman Fen causeway runs along the sloping side of a large straight levée east of March. The watercourse which formed this levée is undoubtedly artificial, and yet must have been of considerable age before the road was run along it unless the rate of silt deposition in it was unusually rapid. As we do not yet know anything about the date of the road within the Roman period the road itself may be a late feature, while the canal—for such it must have been—may belong to the earlier phase of the occupation. A critical point which will require excavation is where this canal debouches into the old course of the Nene. The occurrence of Romano-British pots as much as six feet deep in the silt bed of streams suggests very rapid deposition in Roman times.

In the south-east Fens there is much ribbon development of

¹¹ C. W. Phillips, "The Present State of Archaeology in Lincolnshire," *Archaeological Journal*, XC (1934), 118-122.

Romano-British date along the levées of old streams. A good example of this occurs in Welney Washes where an oxbow of the old main drainage channel of the central Fens, the Well Stream, was already nearly cut off in Roman times, although there are signs that the tides still penetrated into it. A small group of huts with associated cultivation plots has been tested by excavation along the bed of the stream, and it has been shown that there were two periods of occupation in Roman times, from the Ist to the IIIrd centuries, and from the IIIrd to the IVth, separated by a band of tidal silt six feet thick in the stream bed. The later one shows signs of crisis, for its arable plots are surrounded by banks as if to keep out periodic floods of brackish water which may have overflowed at high tide from the central channel along the top of the levée and poured down the banks into the surrounding flat pastures. There are even indications of a system of distribution channels to get rid of this water as soon as possible whenever an overflow occurred, and the large bed of silt between the phases suggests a flood disaster some time in the IIIrd century from which there was only partial recovery. Some possible confirmation of this came from an excavation carried out at Nordelph to examine the way in which the Fen Causeway crossed a small stream. In the course of this it was observed that a silt phase intervened between two successive gravelled surfaces of the road, and it may have the same source.¹²

The Welney site now awaits thorough excavation, but the tests already made suggest that in the later phase the inhabitants were having a difficult time. No doubt they did not depend entirely on their little fields and had cattle grazing on the surrounding low grounds. It is at Welney that we get a strong hint of what caused the general abandonment of the lower parts of the Fenland at the close of the Roman period. There was another general subsidence in progress which not only caused ponding of fresh water coming down from the high lands and a consequent resumption of the growth of peat, but also the lowering of the river channels inland by the same process probably caused increased overflows of brackish water at high tide.

¹² E. J. A. Kenny, "A Roman Bridge in the Fens," *Geographical Journal*, LXXXII, No. 5 (Nov. 1933).

Suffice it to say that we have so far no evidence of continuity of husbandry through from Roman times into the early Middle Ages, though there may have been some on the Fen islands. The account of conditions in the Fens in Anglo-Saxon times which may be got from chronicles gives a conflicting picture, but it is evident that many regions became a complete desolation as they had been in Iron Age times, and that general farming in the Fenland became a thing of the past.

Godwin has already suggested that the building up of coastal silt banks and river levées is a feature of certain types of coast during a period of submergence which is followed by an inrush of the sea and the creation of great brackish lagoons like those responsible for the formation of the buttery clay.¹³ The rapid deposition of marine silt in the Fen streams in the later part of the Romano-British period may thus be a plain indication of the onset of conditions which were to expel most of the cultivators after the beginning of the Vth century, and prevent the Anglo-Saxons from taking their place.

Enough has been said to show the large task which lies before the Committee in seeking to clear up all these points, but much progress has been made, if only in showing the nature of the problem which was itself obscure before. One of the most striking results has been the plotting of a graph showing the relation of land-level to sea-level from 8000 B.C. to the present day, and this has been achieved by correlating a great deal of botanical work in many parts of the Fens. The graph shows a rapid decline of the land height from some 180 feet above sea level to about 20 feet in Neolithic times when there occurs the first big submergence which brings on the buttery clay phase shortly before 2000 B.C. This carries the land surface to slightly below sea level, whence it recovers fairly rapidly to a height of about 15 feet in the Bronze Age. This is followed by another slump to a minimum of about five feet below sea level in Iron Age times. Another recovery then occurs in Romano-British times with a still further submergence beginning before that period closes and con-

¹³ H. Godwin, "Studies in Post-glacial History of British Vegetation," *Phil. Trans. Royal Society*, Series B, No. 570, Vol. 230, pp. 289-90.

tinuing slowly down to sea level at the present day. The extinct forests can be explained in terms of these fluctuations of level as well as the human invasions and retreats.

The Committee has now to resume its work under the difficult conditions of the post-war world. Economy will be necessary, and the only reasonable way to tackle the work is to produce complete air-photograph cover for the whole area from which all surface indications can be plotted on to good scale maps as a preliminary to the excavation of critical points. In this way the giant bulk of the Romano-British problem can be reduced, and when this has been cleared away the picture of man's relationship to the Fenland in post-glacial times will be virtually complete.

BIBLIOGRAPHY

- Baden-Powell, D. F. W. "On the marine gravels at March, Cambridgeshire," *Geological Magazine*, Vol. LXXI, No. 839. May, 1934.
- Clark, J. G. D. "An early settlement at Runciton Holme, Norfolk. Part I: Neolithic and Beaker remains," *Proc. Prehistoric Society of East Anglia*, Old Series, Vol. VII, Part 2, 1933, pp. 200-202.
- "Report on an Early Bronze Age site in the South-eastern Fens" (Plantation Farm, Shippea Hill), *Antiquaries Journal*, April 1933, Vol. XIII, No. 2, pp. 266-296.
- "Recent researches on the post-glacial deposits of the English Fenland," *Irish Naturalists Journal*, V, 1934, p. 144.
- "Recent excavations at Peacock's Farm, Shippea Hill, Cambs.," *Antiquaries Journal*, Vol. XV, 1935, pp. 285-317.
- "Report on a Late Bronze Age site in Mildenhall Fen, West Suffolk," *Antiquaries Journal*, Vol. XVI, 1936, pp. 29-50.
- Victoria County History, Cambridgeshire*, Vol. I. "Early Man," pp. 247-303.
- Clifford, M. H. See Godwin and Clifford.
- Darby, H. C. "The Fenland frontier in Anglo-Saxon England," *Antiquity*, VII, 1934, p. 185.
- Windmill Drainage in the Bedford Level*. Official Circular No. 125, British Waterworks Association, 1935.
- The Medieval Fenland*, Cambridge, 1940.
- The Drainage of the Fens*, Cambridge, 1940.
- Fowler, Gordon. "The old river-beds of the Fenland," *Geographical Journal*, LXXIX, 1932, p. 210.
- "Shrinkage of the peat-covered Fenlands," *Geographical Journal*, LXXXI, No. 2, February 1933.
- "Fenland Waterways, past and present, South Level District, Part I," *Proc. Cambridge Antiquarian Society*, XXXIII, 1933, p. 108.
- "Fenland Waterways, past and present, South Level District, Part II," *ibid.*, XXXIV, 1934, p. 17.
- "The extinct waterways of the Fens," *Geographical Journal*, LXXXIII, 1934, p. 30.
- Fox, Sir Cyril. *The Archaeology of the Cambridge Region*, Cambridge, 1923, pp. 179-180 and pp. 222 seq.
- Godwin, H. and M. E. "Pollen analysis of Fenland peats at St. Germans, near King's Lynn," *Geological Magazine*, Vol. LXX, No. 826, April, 1933, pp. 168-182.
- Godwin, H. and M. E., Clark, J. G. D., and Clifford, M. H. "A bronze spear-head found in Methwold Fen, Norfolk," *Proc. Prehistoric Society of East Anglia*, Old Series, Vol. VII, Part III, 1934, pp. 395-398.
- Godwin, H. and M. E., and Clifford, M. H. "Controlling factors in the formation of fen deposits, as shown by peat investigations at Wood Fen, near Ely," *Journal of Ecology*, Vol. XXIII, No. 2, August 1935, pp. 509-535.

- Godwin, H. "The Origin of Roddons," *Geographical Journal*, XCI, 1938, p. 241.
- Godwin, H., and Clifford, M. H. "Studies in the post-glacial history of British vegetation. I. Origin and stratigraphy of Fenland deposits near Woodwalton, Hunts. II. Origin and stratigraphy of deposits in the Southern Fenland," *Phil. Trans. Roy. Soc. London*, Series B, Biological Sciences, No. 562, Vol. 229, December 12th, 1938, pp. 323-406.
- Godwin, H. "Studies in the post-glacial history of British vegetation. III. Fenland pollen diagrams. IV. Post-glacial changes of relative land- and sea-level in the English Fenland," *ibid.*, No. 570, Vol. 230, February 13th, 1940, pp. 239-303.
- Victoria County History, Cambridgeshire*, Vol. I. "Botany of Cambs.," pp. 35-76.
- Hawkes, C. F. C. "An early settlement at Runcton Holme, Norfolk. Part II. The second occupation: A peasant settlement of the Iceni," *Proc. Prehistoric Society of East Anglia*, Old Series, Vol. VII, Part 2, 1933, pp. 231-262.
- Kenny, E. J. A. "A Roman bridge in the Fens," *Geographical Journal*, LXXXII, No. 5, November, 1933.
- Leaf, T. S. "The excavation of two sites in Mildenhall Fen, Cambs.," *Proc. Cambridge Antiquarian Society*, XXXV, 1933-34, pp. 106-127.
- Lethbridge, T. C. "An Anglo-Saxon hut on the Car Dyke at Waterbeach, Cambs.," *Antiquaries Journal*, VII, 1927, pp. 141-146.
- "Investigation of the ancient causeway between Fordy and Little Thetford, Cambs.," *Proc. Cambridge Antiquarian Society*, XXXV, 1933-34, pp. 86-89.
- Lynam, Edward. "Early maps of the Fen District," *Geographical Journal*, LXXXIV, No. 5, November, 1934, pp. 420-423.
- Macfadyen, W. A. "The Foraminifera of the Fenland Clays at St. Germans, near King's Lynn," *Geological Magazine*, LXXX, No. 826, April 1933.
- "Report on the silts and clays, Plantation Farm, Shippea Hill, Cambs.," *Antiquaries Journal*, XIII, 1933, p. 289.
- "Post-glacial Foraminifera from the English Fenlands," *Geological Magazine*, LXXXV, No. 891, September, 1938.
- Phillips, C. W. "A Roman ferry across the Wash," *Antiquity*, VI, 1932, p. 342.
- "The Present State of Archaeology in Lincolnshire," Part II, *Archaeological Journal*, XCI, 1934, pp. 123-4 (for the "Roman" sea bank).
- "Early Bronze Age fields at Barnack, Northants," *Proc. Prehistoric Society*, New Series, Vol. I, 1935, p. 156.
- The Cambridge Region*, Romano-British times, ed. by H. C. Darby, 1938, p. 90.
- Victoria County History, Cambridgeshire*, Vol. II, Earthworks article (for Stonea Camp).
- Swinerton, H. H. "The Post-glacial deposits of the Lincolnshire Coast," *Quarterly Journal of the Geological Society*, LXXXVII, 1931, p. 360.
- Warren, S. Hazzledine with Piggott, S., Clark, J. G. D., Burkitt, M. C., and Godwin, H. and M. E. "The Archaeology of the submerged land surface of the Essex coast," *Proc. Prehistoric Society*, New Series, Vol. II, Part 2, 1936 pp. 178-210.

STONEHENGE REVIEWED

BY STUART PIGGOTT

WHEN Sir Richard Colt Hoare wrote of Stonehenge a hundred and thirty years ago he described first the emotions of "the ignorant rustic with a vacant stare" contemplating the monument, and then those of the "antiquary, equally uninformed as to its origin" who regrets that "its history is veiled in perpetual obscurity." Today our stare is perhaps not quite so vacant as that of the rustic, nor our ignorance so profound, but Stonehenge does remain veiled in a rather remarkable amount of obscurity despite the excavations on the site itself and the comparative material now at our disposal from elsewhere. It is, I think, worth while going over the available evidence in the hopes of clarifying some at least of the many problems that this unique monument presents.

The internal evidence from the site itself is in the main derived from the excavations by the Society of Antiquaries between 1920 and 1926. The interim reports which alone were published¹ are, it must be confessed, inadequate, often very obscure, and without sufficient plans and sections: the small finds have never been published though they are fortunately accessible to the student in the Salisbury Museum. Newall, who took part in the excavations, has published a brilliant summary of the structural sequence of the monument as revealed by the excavations,² but other attempts at synthesis have usually been prejudiced by pre-conceived theories.

A conclusion of major importance emerging from the excavations is that there were two main constructional periods in the building of Stonehenge, the first represented by the Ditch, the Bank, the Aubrey Holes and a cremation cemetery, and the second (itself divisible into more than one phase) by the stone structures as they now stand.

¹ *Antiq. Journ.*, I, 19; II, 36; III, 13; IV, 30; V, 21; VI, 1; VIII, 149.

² *Antiquity*, III (1929), 75.

This "two-date theory" has been disputed but without valid proof to the contrary, and I accept it here on the evidence summarized so well by Newall, though, as will be seen, a recent review of the evidence, and new excavations, have shown that the Aubrey Holes were neither post-holes nor, as has been sometimes suggested, sockets for the Blue Stones in an earlier structural phase.³ The third (Early Iron Age) phase is briefly commented on at the end of this essay.

The evidence for dating the construction of the Ditch and its internal Bank is scanty but reasonable. In the primary silt was a sherd of Groove Ware, a type of pottery belonging to the late Neolithic in southern Britain and allied to the Peterborough rather than to the Windmill Hill tradition, and to some extent contemporary with the earliest (Type B) beakers. Also in the primary silt were numerous flint flakes and implements of rough forms which do not present any very distinctive types but which as an assemblage strongly resemble those from the local flint-mines (as for instance Easton Down). Reginald Smith pointed out "Cissbury type" implements among these from Stonehenge (i.e. flint-mine forms)⁴ and there is a piece of what appears to be a narrow axe-like tool comparable to others from the flint mines on Easton Down⁵ and at Martin's Clump,⁶ and a dwelling-pit at Winterbourne Dauntsey associated with Peterborough pottery.⁷ (The Easton Down mines appear to have been exploited by a people with mixed Peterborough and Beaker cultural strains). Chalk balls similar to those from the primary silt at Stonehenge occur also at Grimes Graves,⁸ Windmill Hill and in the Avebury Ditch,⁹ with probable stone parallels at Rinyo in Orkney¹⁰—all in late neolithic or Early Bronze Age contexts. A bone chisel from Stonehenge is a not very distinctive type but has parallels elsewhere in similar contexts. On top of the primary silt, in a position suggesting they

³ As suggested for instance by J. & C. Hawkes, *Prehistoric Britain* (1943), 57.

⁴ *Antiq. Journ.*, VI, 22.

⁵ *Wilts. Arch. Mag.*, XLV, 359, Fig. 17.

⁶ *Proc. Hants. Field Club*, XII, 178, Fig. 3.

⁷ *Wilts. Arch. Mag.*, XLVI, 449, pl. 2.

⁸ *Grimes Graves Report* (1915), 210.

⁹ *Arch.*, LXXXIV, 147.

¹⁰ *Proc. Soc. Ant. Scot.*, LXXIII, 28.

were trodden in, were sherds of at least two beakers, apparently one of Type A and one of Type B.

There is no evidence of date actually deriving from the Bank (through which only one cutting was taken), so we must now turn to the Aubrey Holes. The function of these is discussed below: they seem to have been ritual pits, sometimes deliberately refilled, and in some the filling or silting of the first phase has been again dug into, and the resultant hole filled. Deposits of cremated bones were also made in almost every instance.¹¹ Two flint objects are known to have come from primary filling in Holes 13 and 16, and both are the flaked rods of D-section usually known as "fabricators."¹² This type of tool occurs in Windmill Hill contexts (but both probably late) at Hembury¹³ and Corfe Mullen,¹⁴ in the Peterborough-Groove Ware settlement preceding the West Kennet Avenue at Avebury,¹⁵ in the Beaker village on Easton Down,¹⁶ and in a Peterborough-Groove Ware-B Beaker horizon on the submerged land surface of the Essex Coast.¹⁷ Fabricators appear in Early Bronze Age (Food-Vessel) contexts in for instance Yorkshire¹⁸ and Wales¹⁹; at Martins-town in Dorset apparently contemporary with two burials, one with a bowl in the Beaker tradition and another with a "Wessex Culture" bronze dagger,²⁰ with "A" beakers at Gorsey Bigbury, and with an Early Bronze Age grave-group with a flat knife-dagger in Barrow 9, Oakley Down, Dorset.²¹ An origin in the late neolithic cultures ancestral to the Food Vessel complex seems therefore likely for the type.

¹¹ These conclusions were arrived at after the 1950 excavations of Holes 31 and 32.

¹² *Antiq. Journ.*, I, Figs. 7 and 8 show the location of these flints in the chalk rubble filling.

¹³ *Third Hembury Report* (1932 Season), 178.

¹⁴ *Proc. Dorset N.H. & Arch. Soc.*, LX, 73.

¹⁵ In the Museum at Avebury.

¹⁶ *Wilts. Arch. Mag.*, XLVII, 75, No. 11.

¹⁷ *Proc. Prehist. Soc.*, 1936, 204.

¹⁸ e.g. Mortimer, *Forty Years*, 44, 143, 303; Greenwell, *British Barrows*, 552.

¹⁹ *Arch.*, LXXXVII, 132.

²⁰ *Proc. Dorset N.H. & Arch. Soc.*, XXVI, 6; *Proc. Prehist. Soc.*, 1938, 98.

²¹ *Wessex from the Air*, 178. Cf. also the fabricator apparently contemporary with an overhanging rim cinerary urn of typologically early profile from Chippenham, Cambs. (*Camb. Ant. Soc. Proc.*, XXXVI (1936), 153.)

In connection with these flints I should like to draw attention to finds within the central area at Stonehenge, which though not related to any structural phase, seem relevant here. These comprise two further fabricators, a plano-convex knife, and three scrapers with polished edges, which although surface finds seem significantly linked. The plano-convex knife is again a type known not only from numerous Food Vessel contexts and with "A" beakers at Gorsey Bigbury, but from the submerged land surface of the Essex Coast,²² from the late neolithic site at Grovehurst, Kent,²³ from the silt of the Avebury Ditch,²⁴ and from several chambered tombs in Ulster and in West and North Scotland, in one instance associated with Peterborough pottery.²⁵ The polished edge scrapers are an odd form, known from the Peterborough site on the West Kennet Avenue already referred to,²⁶ and from the West Kennet Long Barrow (with Peterborough and A Beaker sherds),¹⁷ and are in turn related to the polished edge knives which occur in the Essex Coast series, with Groove Ware at Ipswich and near Ely²⁸ and allied pottery at Skara Brae and Rinyo in Orkney,²⁹ as well as in the Ronaldsway culture, in late neolithic graves in Yorkshire, and in Scottish chambered tombs.³⁰

The Stonehenge evidence therefore suggests that the sherds of Groove Ware from the Ditch, together with certain flint types from primary associations in Aubrey Holes and scattered over the inner area of the monument are referable to a late neolithic culture which in Britain is distinct from those of Western neolithic derivation (e.g. Windmill Hill) and which includes the Peterborough and the Groove Ware styles of pottery among its types, and has a distinctive flint series. In this connection I would draw attention to a flint industry, which though known only from surface finds is remarkably

²² See footnote 17.

²³ *British Museum, Stone Age Guide* (1926), 105. Cf. also the Seamer Moor (Yorks.) late Neolithic context for such a knife.

²⁴ *Arch.*, LXXXIV, 141.

²⁵ *Proc. Soc. Ant. Scot.*, LXXXIII (forthcoming).

²⁶ *Antiquity*, 1936, 422.

²⁷ Thurnam in *Arch.*, XXXVIII, 417.

²⁸ In Ipswich Museum, and Museum of Arch. and Ethnol., Cambridge (both unpublished but cf. Clark in *Proc. Prehist. Soc. E. Anglia*, VI, 46, for the Ely association).

²⁹ *Proc. Soc. Antiq. Scot.*, LXXIII, 28.

³⁰ *Proc. Prehist. Soc.*, XIII (1947), 149.

homogeneous, from the ridge east of Stonehenge on which the "King Barrows" lie. Here there occur a polished edge knife, fabricators, and the "petit tranchet derivative" type among other forms, the whole assemblage suggesting to its discoverers comparison with the Stonehenge Ditch series in technique, and rightly assigned by them to a late neolithic or Early Bronze Age date.³¹ If I am correct in interpreting the foregoing evidence, the construction of the first phase of Stonehenge (a monument consisting of a ring of ritual pits within a ditch with internal bank) would be attributable to this culture, which at present hardly has a name but which must essentially have played a very important part in the ancestry of the almost equally mysterious Food Vessel Culture of the Early Bronze Age. It is worth while taking our enquiries a stage further.

It has been usual to assign the inception of our "Henge" monuments, since their recognition as a type, to the Beaker Folk. But while it is clear that these forceful people must have taken a considerable hand in the making of such monuments as Avebury (the B Beaker aspect of the culture) and Gorsey Bigbury (with A type vessels in use),³² there is evidence that other cultural strains were present as well. At Avebury, the relatively abundant B Beaker burials against standing stones have to be set off against the plano-convex knives, the probable single-piece sickle and the Peterborough sherds from the Ditch silt, and the petit tranchet derivatives from under the Bank of the Great Circle and in the post-holes at the Sanctuary (with Peterborough Ware again), as well as a Groove Ware sherd from a stonehole of the Avenue.³³ And at the nearest comparable site to Stonehenge, that of Woodhenge, sherds of a B Beaker were found on top of the primary silt of the ditch (in fact in a position comparable to those at Stonehenge itself), while in the primary silt, under the bank and in the post-holes were the Groove Ware sherds and the petit tranchet derivative flints so characteristic of the site.³⁴

³¹ *Wilts. Arch. Mag.*, XLVIII, 150. Cf. also the comparable industry from Stourpaine, Dorset (Pitt Rivers Mus., Farnham: unpublished).

³² *Proc. Univ. Bristol Spelaeolog. Soc.*, V (1938), 3-56.

³³ *Antiquity*, 1936, 425 with refs.

³⁴ Cunningham, *Woodhenge*, 150: B Beaker sherds "found scattered just under the lowest old turf line in the ditch on west side of the entrance"; cf. section of ditch at this point, pl. VI, Fig. 2.

True, the presence of similar sherds in the ditch of a barrow containing an A Beaker burial suggested that the distinction was cultural rather than chronological, but it is none the less important. In fact the evidence all points to two classes of Henge Monuments: single-entrance sites associated with late neolithic cultures of the Rinyo-Ronaldsway-Peterborough group, with "ritual pits" or posts, and double-entrance monuments usually with stone uprights and of Beaker date.

At Stonehenge evidence for Beaker influence is negligible. There are scattered sherds from the surface in addition to the Ditch finds, and if the evidence of the burials in barrows in the immediate region has significance, the preponderance of A Beakers over those of Type B is noticeable. The Gorsey Bigbury site in the Mendips shows A Beaker folk involved in Henge-making, but the heavy rustication of much of their pottery no less than the flint types (*petit tranchet* derivatives, plano-convex knives, fabricators and microlithic survivals) shows the presence of the non-Beaker element in no uncertain manner.

Recent work, especially that of Atkinson at Dorchester-on-Thames, has shown certain British late neolithic cultures (which, with a mesolithic substratum implied by riverine and coastal settlements, pots sometimes based on basket originals—best known at present in the Peterborough and Groove-Ware Groups—and arrowheads of mesolithic *petit tranchet* derivation, were themselves ancestral in a marked degree to the Food Vessel culture of the Early Bronze Age), counted among their achievements the making of circular sanctuaries, sometimes with wooden structures. Of these timber monuments, Woodhenge is the most notable, with its unambiguous post-holes, but Stonehenge I belongs to a more curious type of ritual structure, first defined at Dorchester-on-Thames³⁵ but later identified in an allied form at Cairnpapple Hill in Scotland,³⁶ where a series of pits that had the function neither of post-holes or stone-holes were arranged in an arc or a circle, with or without an encircling bank and

³⁵ *Arch. News Letter*, Dec., 1948, 8.

³⁶ The earliest phase Holes A—G were originally interpreted as stone-holes. Reconsideration in the light of new evidence from the 1948–49 Dorchester excavations led to the adoption of the view that they were ritual pits (*Proc. Soc. Ant. Scot.* LXXXII, (1947–8) 68).

ditch. The Dorchester sites showed a mixture of late Windmill Hill pottery traditions (as represented by the well-known Abingdon site near by) with a stronger "non-Western" element in stone and bone objects such as petit tranchet derivatives, "fabricators," and pins of a type discussed below; at Cairnpapple these pins again occurred, and the pits there could be shown to be earlier than a double-entrance Henge Monument of Beaker date.

The presence of these curious "pit monuments" has led to a re-examination of the Aubrey Hole evidence, and the excavation in April, 1950, of two holes additional to those examined in 1921-26 (Nos. 31 and 32),³⁷ taken in conjunction with the previous records, showed that in every essential they were the counterparts of those at Dorchester and Cairnpapple. Stonehenge I, on the evidence both of structure and of finds, can be seen to belong to a late neolithic, pre-Beaker group of ritual monuments, and this is further borne out by the evidence of the cremation cemetery, which is discussed below.

The inter-action between these non-Beaker elements and the Beaker cultures themselves both in Britain and on the Continent was obviously considerable—the ultimately Neolithic ancestry of the plastic surface ornament in some Dutch Beakers, and indeed its survival into the Late Bronze Age, has been stressed by Hawkes³⁸—and at sites such as Gorsey Bigbury and Arminghall it is difficult or impossible to disentangle the two strains. The rusticated and grooved pottery is clearly only one of the expressions of the culture, and the flint industry which I have roughly defined, another. But in any evaluation of the components of the Early Bronze Age in Britain, these late neolithic elements outside the "Western" group must be taken into consideration. Already at the dawn of the Early Bronze Age a so-called Food Vessel culture had become explicitly recognizable in the Stonehenge region, based on late neolithic traditions, and the remarkable monument in Fargo Plantation shows a grave containing an A Beaker and a Food Vessel within a double-causewayed ditch in the "Henge" tradition.³⁹ To the less well defined traces of the

³⁷ *Arch. News Letter*, June, 1950.

³⁸ e.g. *Proc. Prehist. Soc.*, 1942, 43.

³⁹ *Wilts. Arch. Mag.*, XLVIII, 357.

Food Vessel culture in the Wessex Early Bronze Age we shall turn in due course.

No complete inventory and very few details of the cremations found in 1921-26 have been published. We gather, however, that they occurred in the south-east quadrant of the earlier monument and several came from the silting of the ditch, mainly from the upper silt, or dug down through this, and partly into the chalk wall of the ditch.⁴⁰ One cremation, however, was found on the floor of the ditch in the primary silting, and is therefore early.⁴¹ Further cremations (at least nine) were found on the inner edge of the Bank,⁴² partly dug into made soil and partly into solid chalk, while in every Aubrey Hole except one similar cremations were found.⁴³ The cremations in the Bank and Ditch silting therefore were subsequent to its construction, but their deposition must have begun soon after the digging of the ditch, and as we must accept the Aubrey Hole as contemporary with the Bank and Ditch, we must therefore assume that the cremations in them were also deposited either at the time of their digging, or in subsequent ritual performances in or near them.

At Woodhenge, we must remember that a cremation was found in hole C.14, where it seems to have been originally against the standing post.⁴⁴ The Aubrey Hole cremations are, however, essentially part and parcel of those at the tail of the bank, with which they constitute a cremation cemetery, and indeed in some instances the cremation was in a shallow hole adjacent to the true Aubrey Hole (Nos. 29 and 32 for instance).⁴⁵ We have in fact a late neolithic cremation cemetery.

There is now a growing body of evidence for the practice of cremation and the deposition of cremated burials in cemeteries among certain late neolithic cultures in Britain. The Ballateare cemetery in the Isle of Man, belonging to the Ronaldsway culture, is a noteworthy example, while at Dorchester and Cairnpapple such

⁴⁰ *Antiq. Journ.*, IV, 33; VI, 4; VI, 5; VIII, 151, 152, 154.

⁴¹ *ibid.*, I, 34 and Fig. 12.

⁴² *ibid.*, V, 33; VI, 2; VIII, 157.

⁴³ *ibid.*, I, 30; VIII, 157. In the 1950 excavations a cremation was found in Hole 32, but none in 31.

⁴⁴ *Woodhenge*, 83.

⁴⁵ *Ant. Journ.*, III, 17.

cemeteries were found in association with the "ritual pit" monuments already described. At Stonehenge, bone pins were found in at least four of the Aubrey Hole cremations,⁴⁶ implying a fastening for a bag containing the burnt bones, and precisely similar pins were found with cremations at Dorchester and Cairnpapple as well as with late neolithic burials at Howe Hill, Duggleby, E.R. Yorks. The custom, though not the characteristic pin type, survived of course in Middle Bronze Age cremations in Wiltshire,⁴⁷ Yorkshire⁴⁸ and elsewhere. From Aubrey Hole 29 (or rather from the cremation partly in the hole and partly on its edge) came a curious vessel which I compared in 1938 to certain incense cups in the Wessex Culture,⁴⁹ but since that time an equally good, or better, analogue in Groove Ware has been found near Woodhenge.⁵⁰ From a cremation in the tail of the bank came a small polished stone mace-head, closely paralleled by an example from a chambered cairn in Scotland⁵¹ and comparable with others associated with such flint types as polished edge knives and petit tranchet derivatives in Scottish chambered tombs, and one from a Dorchester site. The evidence from the Stonehenge cremations is therefore consistent, and implies a late neolithic cemetery in which burials were deposited over some period of time, ranging from that of the first digging of the ditch to one when it was half silted. Like the first phase monument of Bank, Ditch and Aubrey Holes with which it is intimately associated, its analogies lie with the single-entrance Henge Monuments at Dorchester-on-Thames and other sites such as the first period at Cairnpapple Hill, West Lothian.

Before turning to the second constructional phase at Stonehenge, a passing reference must be made to the enigmatical earthwork known since Stukeley's recognition of it as the Cursus. This elongated bank-and-ditch enclosure, 3,030 yards long by 110-145 yards across, lies half a mile north of Stonehenge with a roughly east-west alignment.

⁴⁶ Nos. 5, 12, 13 and 24.

⁴⁷ Thurnam in *Arch.*, XLIII, 432.

⁴⁸ Greenwell, *British Barrows*, 15, 31; Mortimer, *Forty Years*, xi.

⁴⁹ *Proc. Prehist. Soc.*, 1938, 76.

⁵⁰ *ibid.*, 1949, 125.

⁵¹ From Tormore, Arran: *Proc. Soc. Antiq. Scot.*, XXXVI, 100.

Stone's excavations of 1947⁵² showed the ditch to be similar in character to that of Stonehenge itself, and although no direct evidence of date was obtained, general considerations and comparison with other "cursus" monuments imply a late neolithic date—i.e. it should be contemporary with Stonehenge I. The Blue Stone and other foreign rock fragments from the western end of the Cursus are discussed below.

When we turn to the central stone structure—the essential Stonehenge as it is known to the majority—we have, most unfortunately, no direct archaeological evidence from excavation to help us in fixing a date to it. It is earlier than the Z and Y Holes, themselves of the Early Iron Age or even Roman period, and is later than the Bank, Ditch and Aubrey Holes, but the stones, and their associated earthworks of the Avenue, provide no clue other than those analogies will produce.

What comparative material can we bring to bear on the monument of Stonehenge II—the complex of lintelled circles and horse-shoe settings of sarsen, and the horse-shoe and circle of geologically foreign Blue Stones, with an Avenue aligned upon its axis? The latter has analogies (as stone settings, though not as banks and ditches) at Avebury and at Stanton Drew in Wessex, and the latter site seems also to have had a branching or Y-shaped lay-out which might be comparable to Stonehenge were Stukeley's branch leading to the Cursus established. The stone structure is typologically unique, but as was first pointed out by Petrie must be considered as a skeuomorph: a huge copy in stone of a wooden original, and utilizing the carpenter's techniques of mortice-and-tenon joints.⁵³ An almost precise parallel to such translation from wood to stone is afforded by Buddhist shrines of the IIInd century B.C. at Sanchi in India,⁵⁴ where a circular-lintelled fence of uprights and cross-bars, approximately of the same diameter as the outer sarsen circle at Stonehenge, is rendered in very sophisticated stonework but with all the timber features (including mortice-and-tenon joints) preserved. For Stonehenge, the wood prototypes are implied by the great post-holes of Woodhenge or Arminghall at

⁵² *Arch. Journ.*, CIV (1948), 7.

⁵³ *Stonehenge* (1882), 27.

⁵⁴ *Antiquity*, 1943, 1-10.

the dawn of the Bronze Age, and, with the butts of the oak posts still preserved, in the Middle Bronze Age monument at Bleasdale, while the large morticed beam from the submerged land surface of the Essex Coast shows that such techniques were early appreciated and used.⁵⁵ There is therefore nothing inherently improbable in the stone structure at Stonehenge being a Middle or Early Bronze Age translation of a familiar type of wooden sacred structure, possibly even replacing such a feature on the site itself.

It seems almost certain that the sarsens used came from north Wiltshire and probably from the Avebury region: their transport across the downs and over the Pewsey Vale can have been no mean achievement. At Avebury, there is no evidence of megalithic construction being carried on after the beginning of the Early Bronze Age, but it is noteworthy that there is a remarkable concentration of Wessex Culture barrows and grave-goods around the Avebury region, while it may be significant that in the erection of the Stonehenge sarsens two techniques well known at Avebury were employed—the use of anti-friction stakes set in the stonehole opposite the ramp, and the occasional use of hard puddled chalk as a packing material.⁵⁶ This might suggest that not only the sarsens, but at least the foremen erectors, might have been brought from north Wiltshire, and the implement of Blue Stone found near the West Kennet Long Barrow and the fragment from the secondary occupation of Windmill Hill might be cited as another possible link between the two regions.⁵⁷

The tooling of the surface of the sarsens (and of the Blue Stones) is however something unique in English megalithic monuments. It has been ably discussed by E. H. Stone,⁵⁸ who draws attention to the system of working grooves or furrows across the stone by means of mauls, the intervening ridges being later bashed level by further maulwork (well seen for instance on Stone 54). To my knowledge this is paralleled in North European megalithic monuments only at

⁵⁵ I have discussed these monuments in *Arch. Journ.*, XCVI, 193–222, with refs.

⁵⁶ *Antiq. Journ.*, I, 26, 28; II, 39–41 (Stonehenge); *Antiquity*, 1936, 417; 1939, 223–233 (Avebury).

⁵⁷ *Antiq. Journ.*, III, 252n; *Devizes Museum Cat.*, II (1934), 15. The Windmill Hill fragment is unpublished. See also Stone, *Antiq. Journ.*, XXX (1950), 145–151.

⁵⁸ *The Stones of Stonehenge*, 84.

the passage-grave of New Grange in Ireland, where one stone⁵⁹ has a series of similar furrows representing an unfinished surface which in other stones was finished level to take the elaborate incised patterns so characteristic of the site. At New Grange this working appears to have been done with granite mauls, a large number of which, battered from use, lie in the cairn material which is otherwise composed of limestone boulders.⁶⁰ (The stone basins in the Boyne series of chambered cairns must, incidentally, have been worked by a similar process.)

It is of course the Blue Stones that constitute the most puzzling feature of Stonehenge. Their origin at least is now beyond dispute, thanks to Thomas' identification of their source in the Presely Mountains of Pembrokeshire, but still insoluble is the problem of their re-use in their present position. The large dressed block from Boles Barrow,⁶¹ a long barrow near Heytesbury, implies not only the presence of at least one finished Blue Stone there, but at a date that on the otherwise consistent evidence must be pre-Beaker in Wiltshire. The occurrence of Blue Stone and Cosheston sandstone fragments as surface finds in a restricted area near the western end of the Cursus suggests the possibility of an earlier monument in this area, perhaps again in pre-Beaker times. At Stonehenge itself evidence for re-use of the Blue Stones is provided by the two lintels with mortices utilized as uprights in the extant setting, and traces of a tenon almost entirely dressed flat on the top of another upright.⁶² It must be noted that the Aubrey Holes were filled, and the Ditch silted up, by the time Blue Stone and sarsen chips were scattered over the Stonehenge area.

But we may more profitably turn to the question of the connections between Wiltshire and west Wales in late neolithic or Early Bronze Age times. The trade in foreign stones for axes between Wessex and west and north Britain began in Windmill Hill times—at all events axes of Cornish stones came to Hembury and Maiden Castle during this phase—but the main trade seems to have been

⁵⁹ Coffey, *New Grange*, 34.

⁶⁰ This important observation was made to me by Mr. R. P. Ross Williamson on the site in July, 1946.

⁶¹ Cunnington in *Wilts. Arch. Mag.*, XLII, 431.

⁶² For the second morticed Blue Stone lintel, *Antiq. Journ.* X, 152—the two stones are Nos. 36 and 50. The tenon is on No. 70 and was pointed out to me by Mr. R. S. Newall.

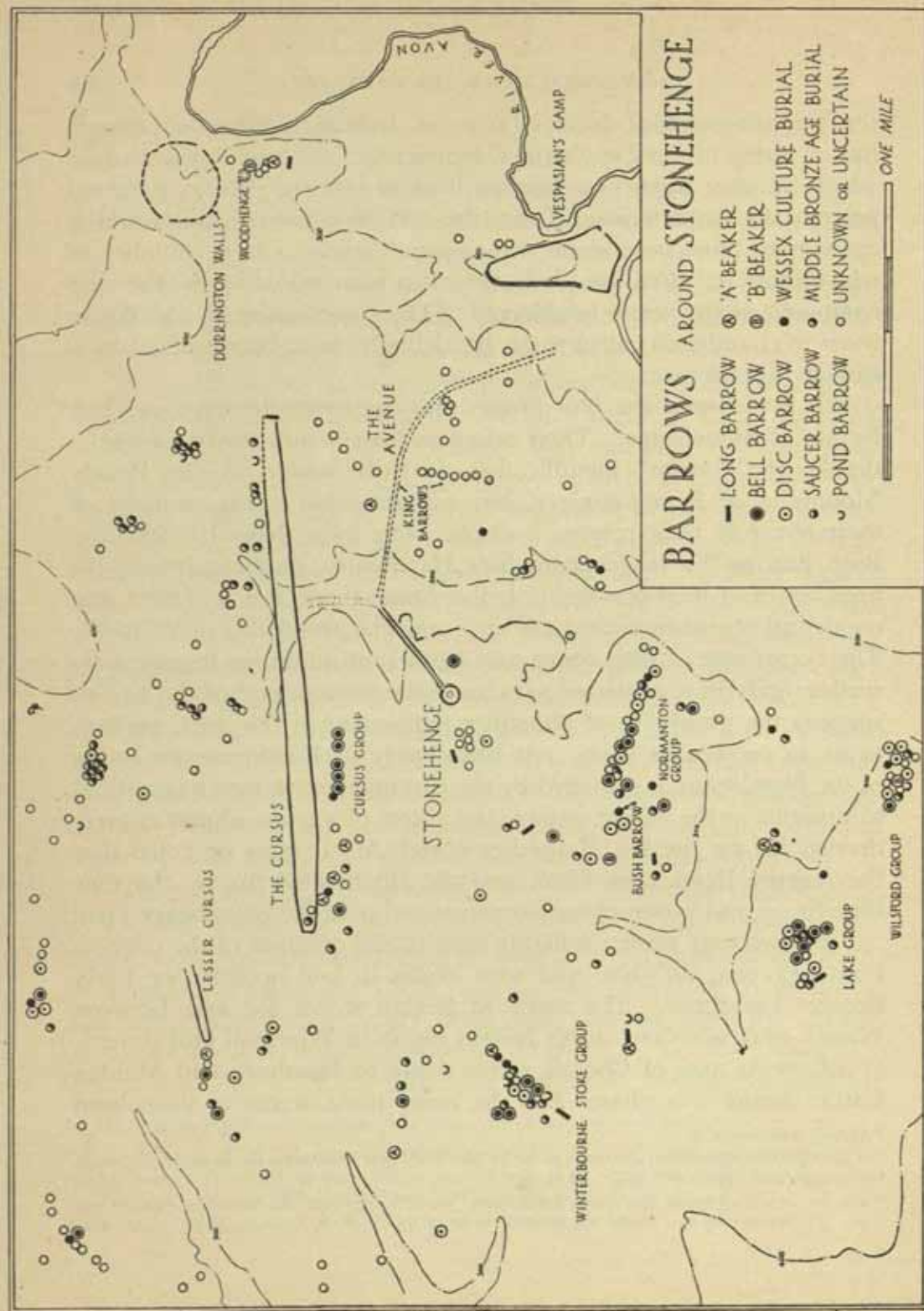


Fig. 61

carried out at the eve of the Early Bronze Age, and by the Peterborough folk. Wessex had three main sources of supply—Cornwall, the axe-factory at Graig Lwyd in north Wales, and another in Westmorland near Langdale Pike.⁶³ But that the Presely stones were used for other than megalithic purposes is shown by more than one axe or fragment including that from West Kennet already mentioned and another small axe from Stockton Earthworks in Wiltshire and two from Antrim, all of the characteristic ophitic dolerite from that region. And in Wales itself have been found at least five stone battle-axes, of the type proper to the A Beaker complex, of this same stone, and coming from Merioneth, Carmarthenshire, Radnor and Pembrokeshire.⁶⁴ We have already noted the preponderance of A Beaker over B Beaker graves near Stonehenge, and A Beaker material (pots and stone types) is sufficiently common in south Wales to show that it was a cultural province of this phase. It is therefore possible that links between Presely and Salisbury Plain were established before the rise of the Wessex Culture: the route through the Frome Gap was known by Neolithic times, and the A Beaker finds at Gorsey Bigbury and Wick Barrow are significant.

But there is no evidence of A Beaker people being the instigators of the building of Stonehenge II. We may at this point turn to an aspect of Stonehenge often commented upon, its position as a focal point around which an enormous number of Bronze Age graves under barrows were built (Fig. 61). This concentration is obviously significant, and has been used more than once in the argument for date: Abercromby⁶⁵ tried to show a concentration of beaker burials, but this was based on an acceptance of Colt Hoare's words "Drinking Cup" as an equivalent of "Beaker," but it is now known that he used this term indiscriminately for any vessel not containing burnt bones in a grave. I have attempted an analysis of the barrows and grave-goods in the Stonehenge region and presented the results on a map; I have used great caution in interpreting Colt Hoare's text

⁶³ *Proc. Prehist. Soc.*, 1941, 50; 1947, 47; 1949, 1.

⁶⁴ For axes and battle-axes of Presely stone see *Antiquity*, 1936, 220; Grimes, *Guide to Prehist. Colls. Nat. Mus. Wales*, 61. Stone has published further examples in *Antiq. Journ.*, XXX (1950), 145-151.

⁶⁵ *Bronze Age Pottery*, II, 92.

when the actual grave-goods do not survive, but it has been possible to divide the more certain material into Beaker burials, Wessex Culture burials, and cremated burials, sometimes in urns, presumably of the Middle Bronze Age since evidence of Late Bronze Age burials is almost non-existent in the area. The Wessex Culture picture is filled out by the inclusion of the distinctive types of bell, disc, saucer and pond barrows, which Grinsell's work in conjunction with my own has shown to be an integral part of that culture.⁶⁶

It will be seen that numerically, Beaker burials are no more important than Long Barrows, but the Wessex Culture concentration is most impressive, and can hardly be unconnected with the monument around which the graves cluster. The evidence of the fragments of Blue Stone and Sarsen found in certain Middle Bronze Age barrows is not absolutely definite,⁶⁷ but suggestive. If my map of the Wessex Culture graves in southern England is taken into conjunction with Grinsell's plotting of the distribution of the distinctive barrow types mentioned above, it will be seen that the Stonehenge region represents the greatest concentration in Wessex, with secondary groups in southern Dorset and in the Avebury region. Central to the chalk massif which formed the nucleus of the Wessex Culture territory, no better place could be found for a holy place that would mark the consolidation of a dynasty able to command the labour and the material for such a monument.

The Wessex Culture was formed by a small immigrant aristocracy who ably exploited the resources of the country and people as they established their position in a new land. Their wealth in corn and hides, in barley beer or woollen cloth, are archaeological intangibles, but their command of the trade in copper, tin and gold, amber and jet, is attested by an impressive array of finds from richly furnished graves. But how were these trade contacts established in the first place? Behind the dazzle and glint of Wessex gold and amber we can glimpse the people among whom the invaders rose to power, and see in them the Food Vessel folk whose culture is more clearly

⁶⁶ Grinsell in *Proc. Prehist. Soc. E. Anglia*, VII, 203; *Proc. Prehist. Soc.*, 1941, 73; Piggott in *Proc. Prehist. Soc.*, 1938, 90.

⁶⁷ See Mrs. Cunningham's discussion in *Antiquity*, 1929, 273.

perceived in those areas such as Yorkshire or Scotland where it is not overlaid with intrusive foreign elements. They were a people early connected with the metal trade, and I would stress their Peterborough and even their Mesolithic ancestry in this respect—the hunters who knew the cross-country trails through forests and over moorland where the more sedentary farmer would have no incentive to go, the fishers who in coracles or dug-outs had threaded their way up the overgrown and marshy river valleys, and above all the folk who had opened up trade from the west in foreign stone axes. Here is the background to the richness of the Wessex Culture, and I believe that this metal trade may have a bearing on the building of the second phase of Stonehenge.

By what routes did Irish copper and gold reach Wessex? It is usually considered that the route was that from north Wales⁶⁸ (itself perhaps of Graig Lwyd ancestry), but another possibility presents itself. I have pointed out the evidence for some contacts between south and west Wales and Wiltshire in A Beaker times, and that Glamorgan at least was included in the Wessex Culture province is shown by such barrows as those at Breach Farm, Sutton and Simondston,⁶⁹ all with grave-goods allied to Wessex and Brittany. That the A Beaker contacts westwards did not stop in Wales is shown by the Lough Gur discoveries near Limerick in southern Ireland, with at least one A Beaker precisely paralleled by one of the Wick Barrow (Somerset) vessels,⁷⁰ and B Beaker sherds from Lough Gur with a cordon beneath the rim suggest again contacts with West Wales and the B.i.β Beakers discussed by Fox.⁷¹ It therefore seems reasonable to enquire whether some at least of the Wessex metal did not come, perhaps from Beaker times onwards, by a route from Ireland which, touching south-west Wales, crossed the Bristol Channel and thence came along the Mendips overland.

The gold discs found with a B Beaker at Mere, and with barbed-and-tanged arrowheads at Farleigh Wick in Wiltshire are explicitly

⁶⁸ As first demonstrated by Crawford (*Geog. Journ.*, 1912, 184): see also Fox, *Personality of Britain* (4th ed.), 45.

⁶⁹ *Proc. Prehist. Soc.*, 1938, 107; *Arch.*, LXXXIX, 89; *ibid.*, LXXXVII, 129.

⁷⁰ Childe, *Prehist. Comm. of British Isles*, 110.

⁷¹ *Arch. Journ.*, XCIX, 23; *Arch.*, LXXXIX, 89. The Lough Gur B Beaker sherds were shown to me by Prof. S. P. Ó Ríordáin in July 1946 and are referred to here by his kind permission.

Irish, but the Wessex Culture gold-work is *sui generis*. It is noteworthy however that it does not include the gold basket ear-rings, certainly traded from the north, which appear in the Upper Thames in Beaker times.⁷² In Ireland there is little evidence as yet to show any reflex of ideas at the time of the Wessex Culture, though I would draw attention to a curious dagger in the Killaha hoard, Co. Kerry,⁷³ containing also flat axes and a halberd, which has rivet-holes and a rudimentary tang in the manner of the *languette* of the Breton and certain of the early Wessex Culture daggers. It has also been pointed out that the pestle-shaped amber pendants in the Wessex Culture have their best parallels in stone pendants in the Irish passage-graves⁷⁴—this would of course imply a survival of the megalithic culture until the middle of the second millenium B.C., but this is by no means an impossibility, and while one hesitates to draw the conclusion, the distinctive tooling of the stones at New Grange and Stonehenge may have some closer link than that of common stonemason's practice (found for instance also in ancient Egypt).

If then we can with reason regard the building of Stonehenge II as an achievement of the Wessex Culture of the Bronze Age, perhaps about 1500-1300 B.C., may we not see in the westerly trade-routes to Wales and beyond, a plausible link with Presely at this time? The Boles Barrow stone and probably the Cursus fragments, imply the presence of Blue Stones in Wiltshire in late neolithic times, so contacts would have been established two or three centuries before.

To sum up, then, it seems likely that Stonehenge I (Bank, Ditch and Aubrey Holes, just possibly a central timber structure on the site of the present stone settings,⁷⁵ and the Cursus) was built at the point of transition from the Neolithic to the Early Bronze Age by people whose ancestry seems to lie in the Neolithic cultures having affinities

⁷² From Radley, Berks., with a B.i.β Beaker burial of a young man (*Oxoniensia* XIII (1948), 1-17.

⁷³ *Journ. Roy. Soc. Antiq. Ireland*, LXIX, 116. Cf. also de Navarro in *Early Cultures of N.W. Europe* (1950), 89.

⁷⁴ Childe, *Prehist. Communities*, 68.

⁷⁵ The erection of the stones would have destroyed almost all remains of such a structure, but there seem to have been a large number of postholes still surviving within the area excavated, some of quite respectable dimensions.

with north-eastern rather than with western Europe, and known best by pottery of the Peterborough and Groove Ware styles, and certain flint types. While not apparently directly connected with the immigrant Beaker movements, these folk do seem to have formed some sort of close alliance with at least the A Beaker group, and probably with the B group as well, and were certainly concerned in setting up circular monuments for some religious purposes, usually with an enclosing bank and ditch and settings of posts or ritual holes. These non-Beaker elements in the population of Early Bronze Age Britain appear as the Food Vessel folk in such areas as Yorkshire and north Britain where invasive elements are lacking, and in Wessex, where Breton immigrants were arriving by about 1500 B.C., the culture is masked but still perceptible. The late Neolithic trade in foreign stone for axes seems to have formed the background for the later trade in copper, tin and gold from Ireland and the west into the centres with considerable purchasing power in the more fertile parts of England.

The underlying Food Vessel element in the Wessex Culture lends colour to the idea that it was this vigorous and original dynasty which was responsible for the grandiose reconstruction of the site as Stonehenge II, when a stone-built structure copying wooden techniques was built, certain outlying stones set up, and an Avenue built towards the Avon. In this great reconstruction sarsens from North Wiltshire were employed, and constructional features common to Stonehenge II and Avebury suggest the surviving megalithic traditions necessary for such a construction were found in north Wiltshire as well as the raw material. As well as the sarsens, stones from the Presely Mountains in Pembrokeshire were employed: there is apparently definite evidence that at least one of these stones was in Wiltshire at such an early date that it was incorporated into a Long Barrow of the Windmill Hill Culture—a type of tomb which all the Wessex evidence goes to show was not built even as late as the arrival of the Peterborough Neolithic people in the region. At Stonehenge itself there is evidence of the re-use of the Blue Stones from an earlier, lintelled monument. Connections between west Wales and Wiltshire

Irish, but the Wessex Culture gold-work is *sui generis*. It is noteworthy however that it does not include the gold basket ear-rings, certainly traded from the north, which appear in the Upper Thames in Beaker times.⁷² In Ireland there is little evidence as yet to show any reflex of ideas at the time of the Wessex Culture, though I would draw attention to a curious dagger in the Killaha hoard, Co. Kerry,⁷³ containing also flat axes and a halberd, which has rivet-holes and a rudimentary tang in the manner of the *langnette* of the Breton and certain of the early Wessex Culture daggers. It has also been pointed out that the pestle-shaped amber pendants in the Wessex Culture have their best parallels in stone pendants in the Irish passage-graves⁷⁴—this would of course imply a survival of the megalithic culture until the middle of the second millenium B.C., but this is by no means an impossibility, and while one hesitates to draw the conclusion, the distinctive tooling of the stones at New Grange and Stonehenge may have some closer link than that of common stonemason's practice (found for instance also in ancient Egypt).

If then we can with reason regard the building of Stonehenge II as an achievement of the Wessex Culture of the Bronze Age, perhaps about 1500-1300 B.C., may we not see in the westerly trade-routes to Wales and beyond, a plausible link with Presely at this time? The Boles Barrow stone and probably the Cursus fragments, imply the presence of Blue Stones in Wiltshire in late neolithic times, so contacts would have been established two or three centuries before.

To sum up, then, it seems likely that Stonehenge I (Bank, Ditch and Aubrey Holes, just possibly a central timber structure on the site of the present stone settings,⁷⁵ and the Cursus) was built at the point of transition from the Neolithic to the Early Bronze Age by people whose ancestry seems to lie in the Neolithic cultures having affinities

⁷² From Radley, Berks., with a B.i.β Beaker burial of a young man (*Oxoniensis* XIII (1948), 1-17.

⁷³ *Journ. Roy. Soc. Antig. Ireland*, LXIX, 116. Cf. also de Navarro in *Early Cultures of N.W. Europe* (1950), 89.

⁷⁴ Childe, *Prehist. Communities*, 68.

⁷⁵ The erection of the stones would have destroyed almost all remains of such a structure, but there seem to have been a large number of postholes still surviving within the area excavated, some of quite respectable dimensions.

with north-eastern rather than with western Europe, and known best by pottery of the Peterborough and Groove Ware styles, and certain flint types. While not apparently directly connected with the immigrant Beaker movements, these folk do seem to have formed some sort of close alliance with at least the A Beaker group, and probably with the B group as well, and were certainly concerned in setting up circular monuments for some religious purposes, usually with an enclosing bank and ditch and settings of posts or ritual holes. These non-Beaker elements in the population of Early Bronze Age Britain appear as the Food Vessel folk in such areas as Yorkshire and north Britain where invasive elements are lacking, and in Wessex, where Breton immigrants were arriving by about 1500 B.C., the culture is masked but still perceptible. The late Neolithic trade in foreign stone for axes seems to have formed the background for the later trade in copper, tin and gold from Ireland and the west into the centres with considerable purchasing power in the more fertile parts of England.

The underlying Food Vessel element in the Wessex Culture lends colour to the idea that it was this vigorous and original dynasty which was responsible for the grandiose reconstruction of the site as Stonehenge II, when a stone-built structure copying wooden techniques was built, certain outlying stones set up, and an Avenue built towards the Avon. In this great reconstruction sarsens from North Wiltshire were employed, and constructional features common to Stonehenge II and Avebury suggest the surviving megalithic traditions necessary for such a construction were found in north Wiltshire as well as the raw material. As well as the sarsens, stones from the Presely Mountains in Pembrokeshire were employed: there is apparently definite evidence that at least one of these stones was in Wiltshire at such an early date that it was incorporated into a Long Barrow of the Windmill Hill Culture—a type of tomb which all the Wessex evidence goes to show was not built even as late as the arrival of the Peterborough Neolithic people in the region. At Stonehenge itself there is evidence of the re-use of the Blue Stones from an earlier, lintelled monument. Connections between west Wales and Wiltshire

are seen to exist in the A Beaker phase, and the Irish evidence shows that the line of contact extended to Limerick. This suggests that the Wessex Culture metal trade followed these routes to and from Ireland, and that such westerly contacts might provide a background for the transport of the Presely Stones to Stonehenge—though the religious motives which lay behind this fantastic act are beyond the limits within which the archaeologist can hope, by any and every means at his disposal, to elucidate the past.

Finally, and briefly, Stonehenge III. The evidence for this is afforded by the Y and Z holes, dug perhaps as post-holes, around the already partly ruinous sarsen ring of Stonehenge II. The Belgic pottery from these holes is presumably to be associated with the westward penetration of Belgae in *c.* A.D. 10-25, but the circumstances of the re-dedication of an ancient shrine after a lapse of at least a thousand years, by a priesthood who can only have been Druids, must remain unexplained.

I am indebted to the late Mr. Frank Stevens, F.S.A., the Director of the Salisbury Museum, for his kindness in placing the Stonehenge finds unreservedly at my disposal. It is hoped to publish a full description of the whole material, with illustrations, before long.

A ROMAN ARTERIAL SIGNALLING SYSTEM IN THE STAINMORE PASS

By I. A. RICHMOND

THE Stainmore Pass, between Yorkshire and Westmorland, and the Ouse and Eden basins, has always been one of the major traffic routes¹ of northern Britain. In prehistoric times it carried the brilliant La Tène metal-work from East Yorkshire to Dumfriesshire, Galloway and Ireland. In Roman days it was at first the main line of penetration into Cumberland, from the great base fortress, or legionary headquarters, at York and presently became the main road to the western end of Hadrian's Wall (Fig. 62). In subsequent ages the Roman highway determined the shape of things to come. On this route, as described² in a famous Saga, fell Erik Bloodaxe in 954 at the battle of Rey Cross, on the very summit of the pass. By this road, and their great castles³ strung out along it from Bowes to Carlisle, the Norman Kings broke the regional traditions of Strathclyde and in the event settled that Cumberland, like Northumberland, should be English and not Scottish. Later still, when commerce became the very life-stream of English prosperity, pack-horse tracks and an arterial coach-road followed with tolerable closeness the Roman road; and, last of all, the pass was occupied by a railway which carries, over the highest railroad summit in England, a heavy mineral traffic between the north-eastern coalfields and the north-western shipyards and furnaces. But, apart from road and rail, the hand of man has lain lightly upon the pass itself. Wild moss and moorland hem it in, for the Pennine grit-stones, supporting only thin and sour soil, have not yet given way to the Westmorland limestone, clothed in rich and verdant turf. Agriculture indeed creeps up the roadside from Bowes, but it does not venture far and

¹ W. G. Collingwood, *CW*², XXVII, 8.

² *CW*², XXVII, 8-9.

³ Hamilton Thompson, *Military Architecture in England during the Middle Ages*, 130.

ROMAN FORTS AND SIGNAL-STATIONS IN THE STAINMORE PASS

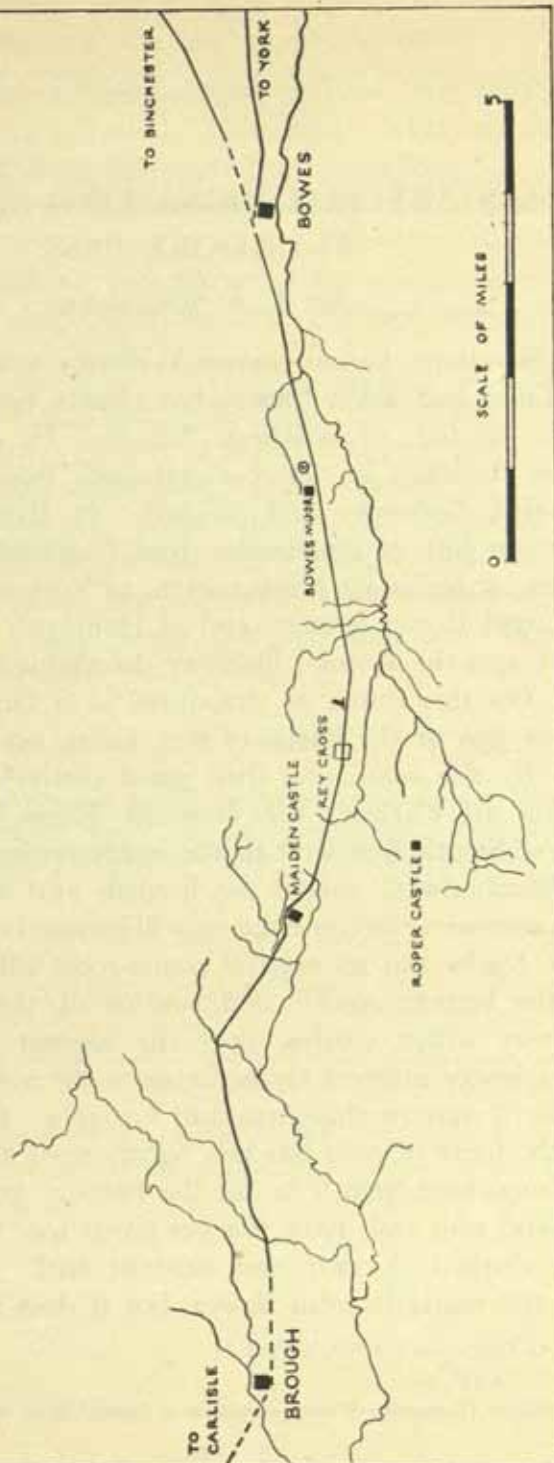


Fig. 62

austere peat-mosses, checked but hardly reduced by draining, soon attest that here Nature reigns untamed.

In this remote and wild spot antiquities also survive secure. The summit of the pass is crowned by the only Roman marching-camp⁴ yet identified in the Pennines, representing the temporary quarters of a legion on the march, heading for the Eden valley. Almost as well known is the permanent Roman post at the west end of the pass, the fortlet⁵ of Maiden Castle, though some of its features at least will bear a reconsideration, in view of discoveries elsewhere.

Maiden Castle belongs to a class of fortlet now widely recognized in Northern Britain as typical of the Antonine Age, when the northward expansion of the frontier area into Scotland demanded a dispersal of the whole garrison over a wider area. This was achieved by widening the mesh of the fort-network and filling the larger gaps between them with convoy-posts, to serve the convenience and ensure the safety of official traffic, and with signalling-posts, to secure rapid transmission of urgent news or alarms. The Roman frontier zone in Lowland Scotland is now recognized⁶ to be studded with these minor posts, but they have less commonly been identified in the Pennines. A good example⁷ is Castleshaw II (Yorkshire); Apperley Dene⁸ (Northumberland) is another; and Mellor Moor⁹ (Lancashire) is probably a third. Maiden Castle, which is 150 by 120 ft. in size¹⁰ over its rampart crests, must be added to the same group, with the proviso that its situation suits well either signallers or convoy-guards. It stands on a shoulder of Beldoo Hill, commanding a magnificent and noble view of the entire descent from Stainmore to the Eden valley, by way of Augill and Brough, with Brough Castle, five miles away, in full view, on the site of the Roman fort of *VERTERAE*. Here signallers could work with unimpeded outlook towards the west.

⁴ *CW*², XXXIV, 50, Fig. 1.

⁵ *CW*², XXVII, 170-177, by R. G. Collingwood.

⁶ *J.R.S.*, XXX, 160-162.

⁷ *Huddersfield in Roman times*, Fig. 29.

⁸ *N.C.H.* XV, 70: see also *op. cit.* vi, 13, 143-144.

⁹ *V.C.H. Lanes.*, II, 553; Watkin, *Roman Lancashire*, 218-19.

¹⁰ *CW*² XXXVII, 173.

ROPER CASTLE

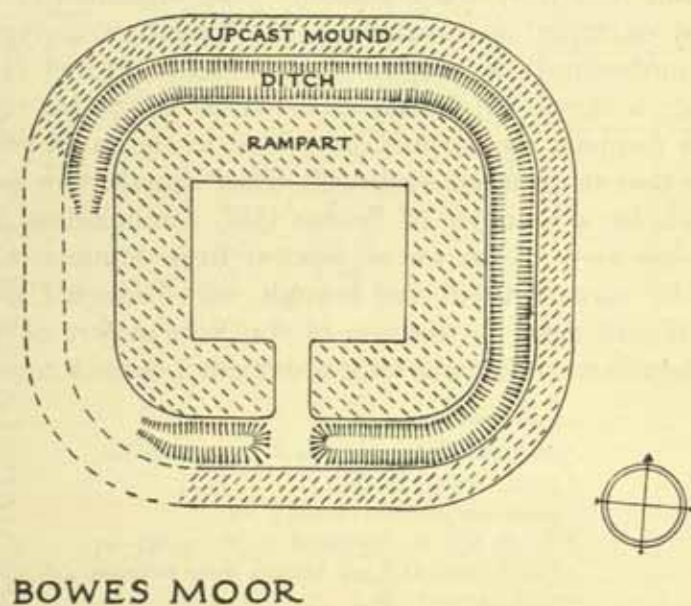
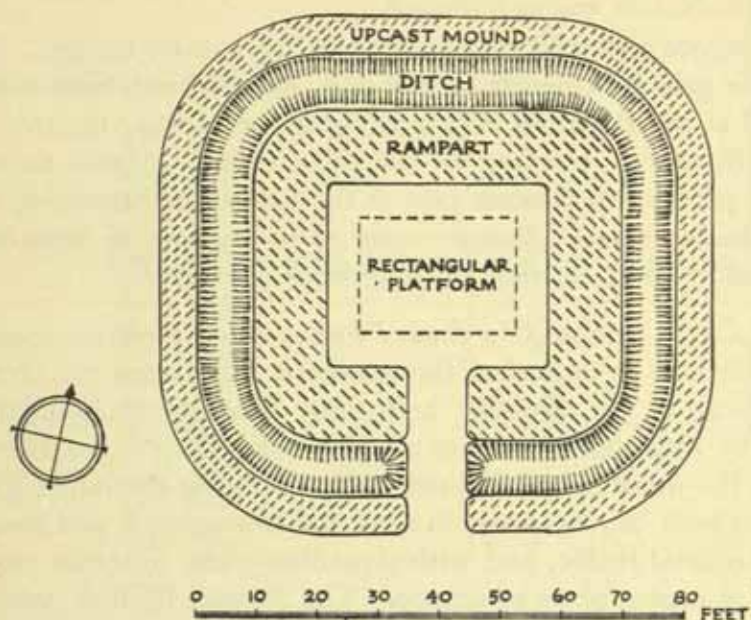


Fig. 63. Plans of signal-stations at Roper Castle and Bowes Moor

But the ascent from Brough is a long one, and here, at its head, convoys would naturally halt either to rest or to change horses or to discard extra draught-animals employed on the heavy incline.

The exact relationship of the fortlet to the Roman road is not, however, apparent. Although pack-horse tracks,¹¹ which in general fashion are following the Roman line, cut across and circumvent the fort, it is not evident that any one of them occupies precisely the line of the Roman road, which may, indeed, lie below the 18th century coach-road that here swerves to north-eastwards, to descend the hill by a zig-zag course and easier gradient. Further away, however, it cannot have been, for available ground is restricted by the steep hillside to north. On the whole, it seems likely that the road avoided the fortlet, as normally in Roman practice, and therefore lay to north of it, demanding an entrance centrally placed in its shorter side. But, if surface indications are equivocal, there is at least good evidence that the fortlet was very solidly built. Its defensive wall, 6 ft. thick, and its internal buildings were all of stone, and its occupation¹² lasted from Antonine times into the last quarter of the 4th century.

Maiden Castle, however, is not the only Roman post on this pass. In its eastern mouth, on Bowes Moor, 250 yards east of the New Spital, now the Bowes Moor Hotel, and 26 yards to north of the centre-line of the modern highway here superimposed upon the Roman road, there lies a little oblong post set parallel with the road line (Fig. 63). This work, as was shown in a trial trench cut in 1933 by Mr. James McIntyre, F.S.A., and the writer, has a turf rampart 10 ft. thick, and a single V-shaped ditch, also 10 ft. wide, with upcast mound outside it. The work measures 60 ft. by 47 ft. over the ramparts and has a narrow entrance, now some 6 ft. wide, in the middle of the long side, nearest the road. The angles are rounded externally but squared internally, like those of a Turf-Wall mile-castle.¹³ There are no surface indications of internal buildings, as

¹¹ *ibid.*: cf. R.C.H.M., *Westmorland*, 216.

¹² *CW*², XXVII, 174 for a list of finds. These are now in possession of Mrs. Pickersgill, the daughter of the Rev. T. Westgarth, at Bowes, where I have seen them. To the coins should be added a third brass of Gratian, with the reverse *Securitas reipublicae*, a *Gloria Exercitus* of Constantius II, and a *consecratio* coin of Divus Claudius II. The Huntcliff ware from the site does not exhibit the internal groove, but there is a late flanged bowl, suggestive of occupation after A.D. 369.

¹³ *Handbook to the Roman Wall* (10th ed.), 178: *J.R.S.*, XXV, 7.

if these had been not of stone but of timber. The outlook is good towards the west, covering the whole pass up to Rey Cross, where the road begins to swing round the shoulder of Beldoo Hill, while the south side of the pass is visible as far as the north-east slopes of Moudy Mea. Towards the east, however, a low spur, at Vale House, impedes the view towards Bowes. The problem of looking in both directions is to be solved only by occupying both points, and this would have to be done if the Bowes Moor post belonged to a signalling-system.

The hypothesis that a signalling-system may have been installed by the Romans on this arterial road was tentatively advanced by the present writer¹⁴ in a description of the Roman camp at Rey Cross, on the eastern summit of the pass. Within that camp there is a small squarish mound, which lies just north of the road, about midway between the east and west ramparts, and looked not unlike the site of a Roman watch-tower. When, however, the site was revisited, in 1946, the caterpillar-tracks of armoured vehicles were found to have bitten deep into the mound in question, revealing its composition to be wholly natural and entirely devoid of worked stone. The mound can thus no longer be regarded as an antiquity, chance interference having in this case provided enough evidence to render systematic excavation unnecessary. But the discarding of the mound at Rey Cross called for a simultaneous consideration of an undoubtedly artificial work which had meanwhile been published¹⁵ in the survey of Westmorland by the Royal Commission on Historical Monuments for England. This work is known as Roper Castle, and its features as illustrated¹⁶ much resemble a circular Roman signal-station with single entrance, even though the form has been delineated as ovoid rather than circular. When the site was visited by the writer, on September 3rd 1946, it became clear that the ovoid shape was in reality due to the outward spreading of a rampart belonging to an oblong with rounded angles, similar in size and plan to the Bowes Moor earthwork already described. It measures 60 ft. by 46 ft. over its ramparts, the ditch is 10 ft. wide and has an upcast mound

¹⁴ *CW*², XXXIV, 58.

¹⁵ *R.C.H.M., Westmorland*, 217, where it is placed among unclassified monuments.

¹⁶ *ibid.*

outside it (Fig. 63). The entrance is also considerably spread and its original size difficult to estimate. The actual position of Roper Castle turned out to be highly significant. It lies unusually far from the Roman road, 1,645 yards south-south-west from the seventh milestone west of Bowes, across unpleasantly wet and boggy terrain. But it commands a full view of the Bowes Moor earthwork, just over three miles further down the pass to the east, and, much more unexpectedly, looks straight at Maiden Castle, one mile three furlongs distant, through a notch in the shoulder of Moudy Mea. In short, the position is deliberately and skilfully chosen, in order that Roper Castle may serve as the link between Maiden Castle and Bowes Moor, and its distance from the Roman road emphasises the point that it can have had no connexion whatever with convoy-duty. The sole purpose of Roper Castle and the system to which it belongs was manifestly signalling, whatever other duties may also have been imposed at a point like Maiden Castle.

We may now return to Bowes Moor, where, as already observed, a difficulty in connexion with signalling further eastwards is presented by the Vale House spur. The Bowes Moor post itself represents the best sky-line position from which to view the indispensable key point of Roper Castle. No point further east will serve. But an eastward intermediate position then becomes necessary to circumvent the Vale House spur, and the solution adopted, at once easy and simple, was to establish an auxiliary post on the spur itself. This takes the form of a circular 10 ft. rampart and 10 ft. ditch, 54 ft. in overall diameter, with entrance on the north side, capable of containing a signal-tower or analogous contrivance. From this point, which lies 80 yards north of the road and 165 yards west of Vale House, the fort at Bowes is clearly visible, just over three miles away.

The impression thus gained is that in the relatively wild terrain of the Stainmore Pass the earthworks of a Roman signalling system have survived in their entirety. At this point, however, the resources of the field-observer are at an end and the excavator comes into his own; for only excavation is now likely to establish the nature of the system. But a search for analogies reveals some points which are

worth stressing, pending skilled use of the spade. The oblong posts at Roper Castle and Bowes Moor differ from normal Roman signal-towers,¹⁷ whether of stone or timber, which are well known to be enclosed by circular or square earthworks. On the other hand, the absence of all trace of any adjacent tower upon the undisturbed and open ground surrounding both positions enforces the conclusion that the oblong works themselves do in fact represent the sole structures on each site. Roper Castle contains an oblong platform some 20 by 27 ft. long, but there is no clear evidence for the character of the internal arrangements. The possibilities in types of signal are, however, clear. Ancient authority,¹⁸ written or graven, attests various kinds of visual signal, running from flags to semaphores, and from torches to flares and beacons. Beacon-posts may be ruled out, for they would certainly have been much more widely spaced. Here, moreover, the scene of action is not a frontier-line, where sudden alarms and rapid signalling of limited scope and immediate urgency are the order of the day. The Stainmore posts lie upon an arterial road and their relatively close spacing can be understood only as intended to facilitate the regular transmission of varied messages. The requirement implied is, in fact, the routine field-telegram rather than the danger-signal, and the simplest, surest and speediest visual instrument for achieving this result is the semaphore, which is described in the clearest terms by Vegetius,¹⁹ together with other Roman military signals. Posts for this purpose would require a block-house with observation post and semaphore attached or, as at Vale House, a simple semaphore tower worked in association with an adjacent block-house, itself equipped as described. In this connexion it must be noted that all the positions chosen are sky-line positions in relation to one another, where a semaphore in action would most easily be read. The posts of the Stainmore pass cannot, of course, have stood alone. They are in fact comprehensible only as part of a major installation. And on this road another signalling post has

¹⁷ R. G. Collingwood, *The Archaeology of Roman Britain*, 57, fig. 13.

¹⁸ *P.B.S.R.* XIII, 34-36.

¹⁹ Vegetius, *de re militari*, III, 5: *aliquanti in castellorum aut urbium turribus appendunt trabes, quibus aliquando erectis aliquando depositis indicant quae geruntur.*

already been observed, at Barrock Fell,²⁰ between Old Penrith and Carlisle, while an intermediate fortlet has been suspected²¹ at Castrigg, near Appleby, and another small post, of the Roper Castle and Bowes Moor type, at Maidenhold.²² All are similarly placed on sky-line sites. But special attention must be drawn to a circular signal-station at Brackenrigg, north-east of Appleby and north of the Roman road, of which the clear intention is to by-pass the long and difficult undulating hog-back chosen for the Roman road-line between Julian's Bower and Castrigg and to signal straight through a natural gap by its side on the direct line between Castrigg and Brough. This earthwork, which was discovered and shown to the writer by Mr. James McIntyre, F.S.A., provides a useful parallel to Roper Castle in its relation to the through telegraph system which we have been describing, and to Vale House in plan. In other words it becomes evident that the trunk road, between Hadrian's Wall and the seat of the Northern Command at York, was supplied with a military telegraph intended to afford rapid two-way communication²³ between base and frontier.

A telegraphic connexion of this kind, however valuable, would nevertheless represent a heavy commitment in man-power and specialist staff at that. Consideration of this point will in itself probably suffice to explain why no such posts are to be observed along Dere Street, which links the eastern sector of Hadrian's Wall with York. It must further be stressed that, if it is asked why the west rather than the east was chosen as the nerve-centre of frontier-communications, an immediate answer is furnished by the concentration at Stanwix²⁴ of the senior military unit on the Wall. The milliary *ala Petriana*, there stationed, was the sole cavalry unit of this large size in the British province.²⁵ Again, the establishment²⁶ in the west of the

²⁰ *CW*², XXXI, 111-118.

²¹ *R.C.H.M.*, *Westmorland*, p. xl; also p. 169 where the earthwork is entered as unclassified. Its form and site, however, leave no real doubt in the matter.

²² Nicholson and Buon, *History of Westmorland*, I, 351, mention this little work, now occupied by a plantation.

²³ A very similar system must have linked Rome and Capri under Tiberius: Suetonius, *Tiberius*, 65, 2: *speculabundus ex altissima rupe identidem signa quae, ne nuntii morarentur, tolli procul, ut quidque factum foret, mandaverat.*

²⁴ *J.R.S.*, XXXI, 129-30.

²⁵ Cheesman, *The auxilia of the Roman Imperial Army*, 146-7.

²⁶ *CW*², XXXVIII, 197-8.

three primary out-post forts beyond the Wall and of elaborate coastal defences show clearly that the west flank was reckoned the more vulnerable and was considered likely to be the principal theatre of action by contemporary strategists.

This is not to say that the telegraph system itself must necessarily be Hadrianic. A study of the initial building-scheme for Hadrian's Wall reveals²⁷ an attitude of light-heartedness towards the problem, despite its complexity and the drastic adjustments thereby induced. The same optimism is reflected by the ready abandonment of Hadrian's line twenty years later for a new frontier of improved plan further north. The real test came later, when the Brigantian revolt of A.D. 155-158 subjected the extended frontier-zone to severe internal strain and was followed by recrudescant aggressiveness among the tribes beyond the frontier itself. It would be in these circumstances that the need for rapid connexion between the nerve-centres of the system would become imperative.

So far we may go, only to remind ourselves that the spade has not yet had its say and that its testimony cannot but be awaited with interest. Yet there are some problems in excavation upon which attention can best be concentrated by a preliminary survey of the material, and who is a more able expositor of this type of approach than the supreme field-worker in whose honour these studies are written? An essay of this kind is therefore offered as an expression of the gratitude and stimulus owed by one of his many devoted colleagues to O. G. S. Crawford.

²⁷ *Handbook to the Roman Wall* (10th ed.), 19-22.

A SURVEY OF PIONEERING IN AIR-PHOTOGRAPHY

By J. K. ST. JOSEPH

THE recent war, like that of 1914-18, has led to many advances in the art and technique of air photography, and it seems appropriate at the present time to review some of the results achieved by the application of this instrument of research to archaeology. None has been more active in this work than Mr. O. G. S. Crawford, who was an air-observer in the first world war and has since devoted himself to air observation and photography and to making known the work of others in the same field. Thus, besides his own books on the subject,¹ each volume of *Antiquity* contains either air-photographs as illustrations, or some reference to air-photography. It is to Mr. Crawford's kindness in providing him with photographs and other material and in inviting him to take part in an aerial tour of south Scotland before the war that the writer owes his interest in air-photography. He is glad to make this acknowledgment in the present commemorative volume, in the form of this review of research much of which, so far as this country is concerned, has either been undertaken by Mr. Crawford himself or owes something to his inspiration and suggestion.

A considerable mass of published archaeological air-photographs now exists, and a review of this material might indicate how much archaeology owes to observation from the air, while it should become clear at the same time, just what are the powers and limitations of this method of research. Some of the earliest archaeological air-photographs are those of Stonehenge, taken in 1906 from a balloon, which show in vertical and oblique view the standing-stones, the ring-ditch and bank, and the avenue.² Reconnaissance undertaken in the first world war does not seem to have yielded many archaeological

¹ O. G. S. Crawford and A. Keiller, *Wessex from the Air*, 1928; Crawford, *Luftbild und Vorgeschichte*, 1938.

² Colonel J. C. Capper, *Archaeologia*, LX (1907), p. 571, pls. lxxix-lxxx.

discoveries in Europe, perhaps because much of the flying was over areas where large earthworks are not common, while the significance of such crop markings as may have been recorded was probably not understood by those who saw them. It was in the Middle East that the most striking discoveries were made. Photographs taken by the Royal Flying Corps operating in Iraq revealed in astonishing detail the ancient cities of the Euphrates plain, while the German Air Force secured remarkable photographs of deserted cities in south Palestine.³

It was only somewhat later that air-photographs of archaeological sites in Britain became generally available. The earliest results were achieved by the Royal Air Force when opportunity occurred for photography incidental to training or on cross-country exercises. The value of these air-photographs in revealing entirely new sites or for illustrating sites already known but inadequately recorded, was soon realised; and a fortunate arrangement, by which air-photographs of archaeological importance taken by the Royal Air Force were available to the Archaeology Officer of the Ordnance Survey, led to many discoveries.⁴ Such new features could be incorporated on the official large scale Ordnance maps as these came up for revision, and a selection from the more striking early air-photographs has been published by Mr. Crawford in two Professional Papers.⁵

In these Papers the general principles of the new instrument of research were described. Mr. Crawford pointed out that in air-photography the important function of an aircraft is to provide a view-point sufficiently distant for large-scale features to be seen in true proportion and perspective. There were different ways in which ancient sites might be revealed, and study of the conditions prevailing at each was necessary to achieve the best results. The well preserved earthworks on chalk downland early attracted attention, and it was soon observed that, with careful regard to lighting, photography

³ Lieut.-Col. G. A. Beazeley, *Geographical Journal*, LIII (1919), pp. 330-5 (for Iraq); T. Wiegand, *Wissenschaftl. Veröffentl. d. Deutsch-Türkischen Denkmalschutzkommandos*, I (1920), for Sinai.

⁴ *Wessex from the Air*, 1928, p. 5; *Antiquity*, I (1927), p. 388.

⁵ O. G. S. Crawford, *Air Survey and Archaeology*, 2nd ed., 1928; *Air-photography for Archaeologists*, 1929 (O.S. Professional Papers, Nos. 7 and 12).

PLATE XIV



A



B

A. Air photograph of Roman fort at Carriden, West Lothian
 Crop-markings disclose the position of three ditches of the fort along the east and south sides and round the south-east angle
 B. Air photograph of Roman fort near the Watling Street at Stretton Mill, Staffordshire
 Two ditches of the fort show clearly as crop-markings, enclosing an area of about 4½ acres
 (Photos: J. K. St. Joseph; copyright reserved)

could record most details of form and shape more intimately and rigorously than any drawing or contoured plan. The smallest earthworks, even when much reduced by weathering or agriculture, may thus be recovered, long after they have ceased to strike the eye of an observer on the ground.

The plough, chief means of destruction of ancient earthworks, provides the conditions by which another class of sites may be photographed. Differences in colour of freshly-turned soil, providing, for example, the contrast between the white chalk of a barrow-mound and the black silt of its surrounding ditch may afford a sure, if transient, guide to the existence of a feature otherwise obliterated.⁶ Furthermore, vegetation reacts to depth of soil, its moisture content and degree of compaction, and so gives a clue to features buried beneath. Photography of such 'crop-markings' has now become one of the most important sources of new discoveries⁷ (Plate XIV).

Nearly all the early air-photographs are thus from the chalk lands of Wiltshire, Hampshire and Dorset. No other area of Britain is so rich in well-preserved earthworks, free of masking vegetation, and this was why systematic air-photography of ancient sites in this country was first applied in Wessex. In 1924 Mr. Crawford organized with Mr. Keiller an expedition in the same area expressly for archaeological photography from the air. The monograph in which their results are published establishes a new standard amongst archaeological books.⁸ It displays the regional archaeology of a district, illustrated in many of its phases by air-photographs, showing for example, great hill-forts, native villages, remains of primitive agriculture, religious centres and burial sites. But it is not the purpose of this review to refer to individual discoveries, however rich in interest, but rather to enquire what may be learnt about the conditions under which such surveys should be undertaken, if they are to be successful.

From Mr. Crawford's description of the expedition it will be

⁶ *Air-photography for Archaeologists*, pp. 3-4; cf. also Crawford, *Antiquity*, VIII (1934), pp. 216-218, pls. xii-xiii.

⁷ *Air-photography for Archaeologists*, pp. 4-5.

⁸ *Wessex from the Air*, 1928.

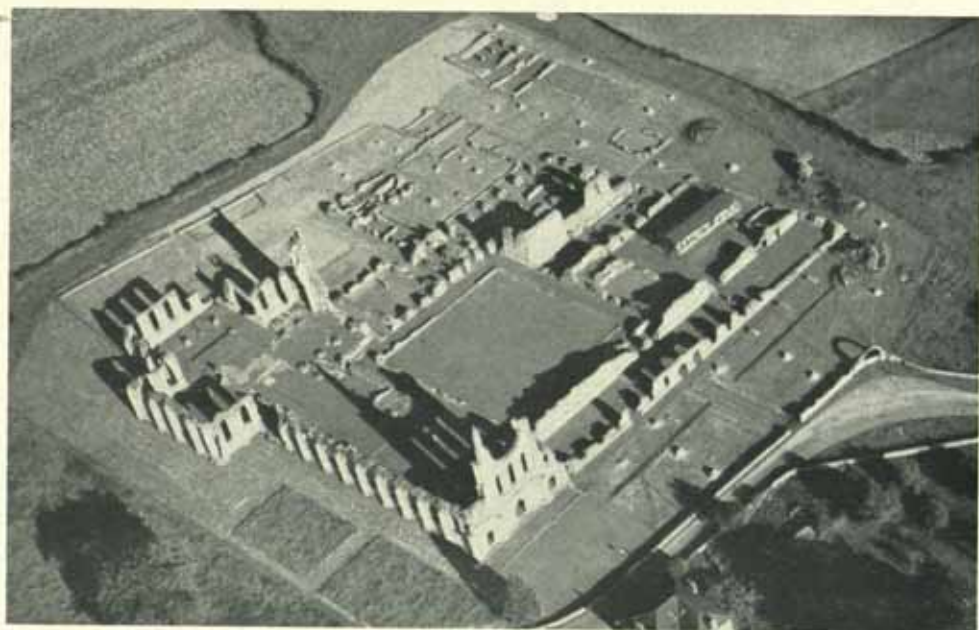
seen at once that the taking of archaeological air-photographs is not so simple as the good published results suggest (many bad and uninformative photographs being suppressed). The main controlling factor is the weather, not only at the moment of flight, but, if differences in colour of vegetation are being photographed, during the preceding season. For sites which still show in relief, the intensity and direction of lighting are all-important, since, with skilled use of shadows, an air-observer may record many small but often highly significant features indistinguishable on the ground. Much of this work, therefore, is in essence a reconnaissance of country so far archaeologically unexplored, since the observer is setting out to discover features which are not previously known to exist. For this reason it is essential that a trained archaeologist, himself practised in air observation, should not only share in the direction of the work, but take part in the flight. The outstanding success of Crawford and Keiller's expedition in Wessex or those of Father Poidebard in Syria, to which reference is made later, was fundamentally due to this condition being observed.

The peculiar value of archaeological photographs like those in *Wessex from the Air* lies in the recording power of the photograph, which can display the character of ancient earthworks far more effectively than any plans yet available (Plate XV, A). For teaching purposes these pictures provide excellent material which can be still more notably improved by stereoscopic views. But in archaeology the air-photograph besides being of value for teaching is a most powerful research weapon as an instrument of new discoveries. In grass-covered chalk downland any artificial disturbance appears in sharp contrast to smooth rounded slopes of natural weathering, so that the smallest man-made feature may be detected. For example, a low bank the purpose of which is not immediately clear on surface inspection may be seen by an air-observer to form a part of ancient field-boundaries. The ground worker is here at a disadvantage, for he may see only weathered and isolated fragments, without being able to recognize to what they belonged. Moreover, where earthworks of different ages are superimposed, air-photographs may be able not only to demonstrate the existence of distinct systems, but to establish

PLATE XV



A



B

A. Air photograph of Herefordshire Beacon Camp, Malvern Hills

B. Air photograph of Cistercian Abbey, Byland, Yorkshire

(Photos: J. K. St. Joseph ; copyright reserved)

their relative ages.⁹ Thus, to take examples published by Mr. Crawford, air-photographs have demonstrated at Bathampton Down and at Ogbury the relationship between hill-forts and Celtic fields, at the Soldier's Ring and Pertwood Down that between lynchets and other ancient earthworks, or at Thornham Down between Celtic and Saxon fields.¹⁰

Careful observation at such key sites will reveal the history and purpose of the earthworks that still remain in many areas of unploughed downland. Hitherto attention has largely been focussed on native hill-forts (Plate XV A) and on traces of primitive agriculture. The special contributions of air-photography to knowledge of the former have been three-fold: the revelation that a number of Iron Age hill-forts had been constructed on the site of far older Neolithic camps, the realization that there exist hill-forts like Ladle Hill which have never been completed and display to the present time the methods of their builders, and thirdly the recognition that it is possible at well-preserved sites like Maiden Castle to read from photographs the structural development of these fortresses.

Probably the most numerous of all earthworks in southern England are the traces of early agriculture, though their slender character often makes them a difficult subject, even for air-photography. As an example of the information they reveal, Mr. Crawford published in 1923 maps of the Celtic fields on Salisbury Plain and in central Hampshire, and demonstrated the essential difference between Celtic and Saxon field-systems.¹¹ Remains of ancient agriculture have also been studied by Dr. Curwen, who has been able to prove their age and purpose.¹² In Sussex, detailed surveys made with the aid of photographs have enabled field-systems to be related to village sites. Evidence has been obtained there for agricultural communities settled for several centuries in the Roman period in small villages and

⁹ *Air Survey and Archaeology*, 1928, pp. 3-5.

¹⁰ *Wessex from the Air*, 1928, pp. 144-47, pl. xxiii (Bathampton Down); *ibid.*, pp. 150-152, pl. xxiv (Ogbury); p. 252, pl. xlix (Soldier's Ring); pp. 158-160, pl. xxvi and *Air-photography for Archaeologists*, pp. 8-10, pls. i-ii (Pertwood Down); *Antiquity*, IX (1935), pp. 89-91, pl. i (Thornham Down).

¹¹ Crawford, *Geographical Journal*, LXI (1923), p. 342; reprinted in *Air Survey and Archaeology*, see maps facing p. 42; *Celtic Earthworks of Salisbury Plain* (map), Ordnance Survey, 1934.

¹² E. C. Curwen, *Antiquity*, I (1927), pp. 261-289, pls. i-v.

hamlets, surrounded by small rectangular corn-fields.¹³ But a few flights are enough to show that remains of many types of agriculture are still visible on the surface of Britain. The writer has noticed long, narrow strips of rig-and-furrow ploughing round abandoned medieval villages in Leicestershire and Buckinghamshire. It should be possible to find and to record traces of Domesday agriculture. The high ridges of XVIth and XVIIth century cultivations formed by a heavy "swing" plough are visible in many counties. Examples in Gloucestershire have been published by Mr. Crawford.¹⁴ Many districts, now pasture or moorland, have at one time been cultivated; there are areas of heavy clay soil in Northamptonshire and Leicestershire which show old plough-ridges, while further north in the Border Country large parts of the eastern Cheviots have in the past been ploughed as high as the 1,500 foot contour. The most likely age of this development is the period of the Napoleonic wars, while a much greater age is probable for the abandoned strip-cultivations visible in Buchan.

"Crop markings," differential colouring of vegetation caused by differences in the soil beneath, have also been fully described by Mr. Crawford, who more than once forecast that they would be the medium of innumerable fresh discoveries.¹⁵ We now know how right he was. But recognition of their value to archaeologists has perhaps come more slowly than for photographs of earthworks, partly as they are less easy to obtain, and partly because of difficulties of interpretation. It was remarkable individual discoveries, such as the prehistoric timber monuments of Woodhenge in Wiltshire and Arminghall in Norfolk, or the Stonehenge Avenue or the complete Roman town plans at Caistor-by-Norwich and St. Albans, that pointed to what was to come.¹⁶ In the silt fens of Cambridgeshire and Lincolnshire photographs taken in 1932 at the suggestion of the

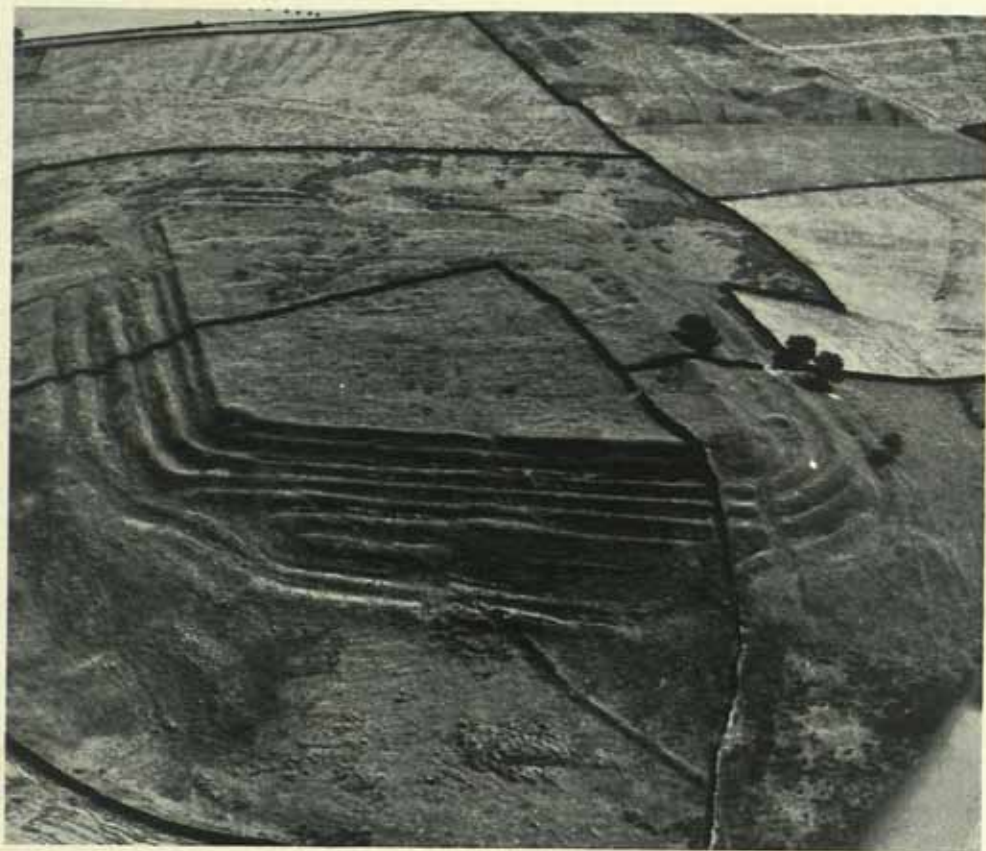
¹³ G. A. Holleyman, "The Celtic field-system in south Britain," *Antiquity*, IX (1935), pp. 443-454.

¹⁴ O. G. S. Crawford, *Luftbild und Vorgeschichte*, p. 55 (Mere Bank, Gloucester).

¹⁵ Crawford, *Antiquity*, III (1929), p. 455; VII (1933), pp. 290-6; XIII (1939), p. 290; XX (1946), pp. 169-171.

¹⁶ Cunnington, *Antiquity*, I (1927), pp. 92-5, pls. i-ii (Woodhenge); *Antiquity*, III (1929), p. 257, pl. i (Arminghall); Crawford, *Air Survey and Archaeology*, pp. 13-14, pl. i (Stonehenge Avenue); R. E. M. Wheeler, *Antiquity*, III (1929), pp. 182-187, pl. (Caistor); P. Corder, *Antiquity*, XV (1941), pp. 113-124, pls. i-iii (St. Albans).

PLATE XVI



Air photograph of Roman fort, Whitley Castle, Northumberland
(Photo: J. K. St. Joseph ; copyright reserved)

Fenland Research Committee, displayed an astonishing profusion of crop markings, which revealed not only ancient settlements and agriculture but also features of geological significance, like abandoned river courses.¹⁷ About the same date as this, the late Major G. W. G. Allen, using his own aircraft, began to survey the Oxford district, where the river gravels of the middle Thames and its tributaries yielded a great variety of crop sites. Year after year from 1932 to 1939 he continued to photograph new discoveries. Probably most of Allen's photographs are of crop markings, though he sometimes extended the range of his activities over the chalk lands and other regions within reach of a Puss Moth based upon Oxford. Many of his photographs have been published in *Antiquity* and *Oxoniensia*.¹⁸ His collection of negatives, now housed in the Ashmolean Museum, is especially remarkable both for the amount of new information it contains and for the extraordinarily high pictorial quality that he managed to achieve in many of his pictures, which has caused them to be in such demand for archaeological illustrations.

These developments in archaeological air-photography demonstrated that the importance of this new method of research would be just as great in other areas of the country than Wessex, where its value had been demonstrated beyond doubt. The chalk downs and the Thames valley are, however, exceptionally favourable areas: the arable fields of the Midlands (Plate XIV B) and the north, and the moorlands of the Highland Zone (Plate XVI) require careful study if the best conditions for photography over this more difficult terrain are to be found. Reconnaissance flights in the north by Wing Commander Insall in 1930 and by Mr. Crawford in the same year tested this archaeologically unexplored country. The first resulted in the identification, in Cumberland, of two small Roman forts, revealed as crop markings¹⁹: the second was notable for the discovery, on the flight north, of a Roman fort at the crossing of the Nene by

¹⁷ *Antiquity*, VII (1933), p. 292.

¹⁸ E.g., *Antiquity*, VII (1933), pp. 290-296, pls. i-vi. Each volume of *Oxoniensia* contains air-photographs taken by Allen; others have been published in *V.C.H. Oxfordshire*, Vol. I (1939).

¹⁹ R. G. Collingwood, *Antiquity*, IV (1930), plate facing p. 472; J. E. Spence, *ibid.*, VI (1932), p. 466, pls. viii-ix.

Ermine Street.²⁰ Perhaps even more important are Mr. Crawford's comments on individual sites such as the Roman Wall, and on earthworks in Scotland, and sometimes comments about features which he looked for, but did not see. These suggest that in the north there is great scope for obtaining photographs of earthworks often imperfectly recorded on the national plans, but that crop markings have to be sought with care, if they are to be seen at all.

In contrast to the south, the moorland country of the Highland Zone often supports long grass or bracken, so that even for well preserved earthworks it is the more important to choose the best possible conditions for photography (Plate XVI). Thus a series of photographs of Hadrian's Wall taken in October, 1930, though providing interesting views of well-known features, yielded singularly few new discoveries. Again, the few air-photographs so far published of Northern Ireland are chiefly valuable not for the new features that they reveal, but as pointing the way to further discoveries both of earthworks and crop markings.²¹ Nevertheless, Mr. Crawford did not hesitate to forecast that the agricultural areas of the north, such as Strathmore, the Edinburgh coastal plain and the Tweed basin would yield results to patient study (Plate XIV A).

In Britain new archaeological discoveries since 1930, resulting from air reconnaissance, have come mainly from photographs taken by the Royal Air Force or by individual enthusiasts like Major G. W. G. Allen. The Air Force photographs display archaeological features of a kind easily recognized from the air and include magnificent vertical views of large earthworks. Major Allen's flying was undertaken specially with a view to archaeological photography, and as a result he has recorded many features as crop markings which would ordinarily be missed on routine flights at any time of year. The two kinds of work are to some extent complementary: the first has yielded relatively high altitude views of earthworks as shadow sites, with stereoscopic overlap; the second, low level obliques of objects requiring skilled observation if they are to be recognized at all. Moreover, Allen was able to watch crop markings as they developed

²⁰ *Antiquity*, IV (1930), pp. 273-277; C. F. C. Hawkes, *ibid.*, XIII (1939), pp. 178-190.

²¹ D. A. Chart, "Air-photography in northern Ireland," *Antiquity*, IV (1930), pp. 453-9, pls. i-vii.

PLATE XVII



Air photograph of XVIIth century Civil War fort known as The Bulwark, Earith, Huntingdonshire
(Photo: J. K. St. Joseph ; copyright reserved)

and thus choose the very best moment for photography, so that some of his photographs reveal an exceptional amount of detail. Those of the Roman villa at Ditchley, the field-systems at Stanton Harcourt and the cemeteries at Eynsham are remarkable in this respect.²² His pictures illustrating medieval industry, monastic remains and town-plans show how air-photographs illuminate other periods besides the prehistoric.²³ Allen's work has stimulated much research in the Oxford district, but as well as bringing new discoveries the photographs have raised fresh problems such as the explanation of many of the enclosures round Dorchester and Stanton Harcourt; photography of comparable areas in other river valleys may help towards a solution of these problems. A definitive publication of the best of Allen's material which is understood to be in hand, will be invaluable, particularly as the most comprehensive collection of pre-war archaeological air-photographs from Britain, that by Mr. Crawford in *Luftbild und Vorgeschichte*, is not generally available.

The conditions already described for successful archaeological air-photography in Britain apply equally abroad, subject to changes imposed by climate. It is from the Middle East, where air-photography was first applied to archaeology, that the most valuable results have come. Of outstanding importance are the researches of Father Poidebard in Syria, published in four magnificent volumes, which have been reviewed in *Antiquity*.²⁴ In the arid country of the Syrian desert, earthworks, settlements and Roman roads remain in a state of preservation seldom found in this country.²⁵ Thus it is shadow photographs of features in relief that are most important: few crop markings are illustrated. Much of the survey, therefore, might have been conducted on the ground, but in such country the value of an aircraft is not only in providing a bird's eye view, but for

²² *Antiquity*, IX (1935), p. 472, pls. v-vi (Ditchley), p. 478, pl. ix (Stanton Harcourt); *ibid.*, VII (1933), p. 293, pl. iv (Eynsham).

²³ *Antiquity*, X (1936), pp. 93-4, pl. ii (Stonesfield slate industry); *ibid.*, XI (1937), pp. 213-218, pl. i (Bullington priory, Lincs.); *ibid.*, VII (1933), pp. 347-350, pl. vii (Stow-on-the-Wold).

²⁴ *La trace de Rome dans le désert de Syrie; Le limes de Trajan à la conquête Arabe; Recherches aériennes* (1925-1932), Paris, 1934: see Macdonald, *Antiquity*, VIII (1934), pp. 373-380, pls. i-viii; *Le Limes de Chalcis, organisation de la steppe en haute Syrie romaine*, Paris, 1945: see Crowfoot, *Antiquity*, XX (1946), pp. 218-220.

²⁵ In this connexion see also the air-photographs of Masada published by Hawkes, *Antiquity*, III (1929), pp. 195-213, pls. i-ix.

transport, enabling rapid reconnaissance of an area to be made when no means of surface communication exist. It is interesting to note that a height of 1,000 feet above ground-level was best for reconnaissance, though individual sites were frequently examined from much lower. To survey a route of 150 miles from some 80 feet above ground-level would only be possible with well preserved features in open country. Search amongst the intricate field-pattern of the English countryside for a lost Roman road is best conducted from a considerably greater height. The chapter on technique, at the beginning of Father Poidebard's first volume, which describes the methods developed to suit the climate and terrain in Syria is well worth reading. Concentration on specific objectives, patient observation and scrutiny of the ground surface under a variety of conditions, and a flair for topographic research, are essential for successful work of this kind.

That equally great opportunities for research exist in Iraq has been known ever since the observations of Lieut.-Colonel Beazeley made during the 1914-18 war,²⁶ but few photographs seem to be available. Recently published air-photographs of Persia, which include a number of valuable views of archaeological sites such as Persopolis and the Gurgan frontier, and of ancient and modern cities, give some idea of the great chance for research in that country by anyone who could command the necessary flying facilities and who was able to apply Poidebard's methods.²⁷

The aerial camera can range effectively not only in space but in time. Air-photography can record the life of primitive peoples still existing at the present day; their types of settlement, their fortifications, the nature of the agriculture they practise, their cattle enclosures and burial grounds, all of which are of the greatest value to archaeologists as illustrations to be used in interpreting the past. For example, an air-photograph of the native fort built some fifteen years ago at Wal-Wal, Abyssinia demonstrates the close resemblance to many prehistoric hill-forts in Britain.²⁸ There are surprisingly few

²⁶ Lieut.-Col. G. A. Beazeley, "Air-photography in Archaeology," *Geographical Journal*, LIII (1919), pp. 330-5.

²⁷ E. F. Schmidt, "Flights over Ancient Cities of Iran," *Special Publ. Oriental Inst. Univ. of Chicago* (1940); see *Geogr. Journal*, CV (1945), pp. 136-138.

²⁸ "The Fort at Wal-wal," *Antiquity*, IX (1935), pp. 481-2, pl. xiii facing p. 481.

photographs of this kind; no doubt more may become available with the progress of air surveys of colonial territories.²⁹ Publication of a collection of such photographs of native settlements of all periods is much to be desired.

Since the beginning of the war most, if not all of western Europe must have been photographed, some of it many times. Much of the photography will have been conducted from high altitudes and only occasionally and by chance will the material include photographs of value to archaeologists. Stereoscopic vertical views such as those of the national air-photographic survey of Britain at a scale of 1 to 10,000, which serve many of the needs of town and country planning, are valuable for the study of large earthworks. These photographs may also reveal new discoveries, either on moorland or uncultivated areas which because of their remoteness are archaeologically unexplored,³⁰ or by chance as crop markings. But such photographs are not always of great value to an archaeologist deliberately setting out to reconnoitre "unexplored" country in a search for features hitherto unknown. As has already been mentioned, in highly cultivated lands it is crop markings that are the most important source of new discoveries. These markings can ordinarily be observed only in the late spring and summer as crops grow and ripen, so that, in England, May, June and July are critical months for the work. Reconnaissance of this kind is, in the writer's experience, best conducted from low altitudes such as one or two thousand feet, from a relatively slow flying aircraft with a good field of view.

Flights should be undertaken in accordance with a carefully planned programme determined largely by the type of site in question and the physical features of the area over which it is proposed to operate. Detailed knowledge of the country either from maps or preferably from acquaintance with the ground is a great advantage and saves much time in the air. Thus, field observation can reveal more in detail about the form and contours of the land than can a fleeting glance from an aircraft. The suitability, for defence or for signalling, of a suspected ancient site may be in question and it is only

²⁹ *Antiquity*, XIII (1939), pp. 1-3, pls. i-ii.

³⁰ K. Steer, "Archaeology and the National Air-photograph Survey," *Antiquity*, XXI (1947), pp. 50-53.

the ground worker who can determine the view from a given point. Again, study of a country in the field or from maps is necessary to reveal the nature and variety of its soils, one of the main factors upon which the formation of crop markings depends.

In the process of searching for ancient sites from the air, the closest scrutiny of the ground is required of an observer. Many crop markings indeed are clear enough, as published photographs show, and might be observed by anyone without special knowledge. But there is a far larger number where an unfavourable combination of soil, weather and crops has produced a blurred and hazy outline which is a most imperfect registration of buried features. Much greater skill is necessary in recognizing these indistinct markings and in distinguishing between those that reveal ancient structures and those caused by agriculture or geological features. Again, it may easily happen that a large site extends across several fields, some under crops, others in grass. Such conditions may disclose only fragments of a system and the air-observer has thus to acquire the ability to recognize different types of ancient sites from incomplete outlines. This point serves to emphasise the need for repeated reconnaissance year after year, since the normal rotation of agriculture will bring different crops to each field in turn. Features invisible one year may thus be clearly seen the next. Once a site has been observed from the air, whatever its character, a single circuit will reveal the best angle for photography. It is an advantage for pilot and observer to be sitting side by side, for the closest co-operation between them greatly assists the whole process of search, scrutiny of site, and photography and shortens the flying time. Oblique photographs usually give what is the most familiar angle of view, and for earthworks and architectural features they offer many advantages over vertical pictures (Plate XV, B). Vertical photographs give the best rendering of plan, and when features are visible in relief, are most suitable for detailed interpretation.

There is now ample evidence to show what an immense store of information lies buried in the fields of England. For a short period each year before harvest, arable land appears like a parchment

covered with hieroglyphs. Many of the symbols can be interpreted by archaeologists, thus revealing the nature, purpose and perhaps even the age of buried features. But indistinct markings may in the long run be just as valuable, for they provide a clue to features of which the precise character can be established by digging.

Hitherto there has been no systematic attempt to record this information, so valuable to historians and archaeologists. The official photographic survey, which has already covered much of the country, is designed to meet quite different requirements and crop markings are seldom recorded. The need is for flights in which a trained archaeological observer would take part, organized specially for the purpose of this research. The results to be gained from a carefully planned programme are out of all proportion to the effort involved; for so much of the information cannot be obtained so quickly, or often cannot be obtained at all, by observation on the ground or any other method. The provision of flying facilities of the kind mentioned above during a few weeks each summer could be the means of discovering an immense amount of information of the greatest value for the history and prehistory of Britain.

GLEN URQUHART AND ITS CASTLE

A Study in Environment

BY W. DOUGLAS SIMPSON

IN his brilliant introductory survey to the Dark Age Map of North Britain, Mr. Crawford alludes to :

“ That struggle between west and east which is a recurrent feature of Scottish history, and probably also of Scottish prehistory. It has been perverted by popular romance into a struggle between Highlanders and Lowlanders; but in actual fact the attacks came not from the barren and sparsely inhabited valleys of the central Highlands, but *through* them from the western coast. These valleys could never have raised armies large enough to overrun the relatively populous plains of the east. Essentially the struggle was dictated by the land; the westerners needed something better than the rugged cliffs and wind-swept islands of Argyll to provide food for their increasing population.”¹

In these sentences Mr. Crawford has set forth a historical truth of cardinal importance which has been little understood by Scottish writers. He goes on to deal with the routes by which the westerners penetrated across Drumalban, the mountain backbone of Scotland, into the eastern Lowlands : but, by a remarkable omission, he has nothing to say about one of the most important of all—Glenmorenan-Albin, the Great Glen, that mighty chasm which extends from Oban to Inverness, sundering the Central from the Northern Highlands, (Fig. 64).

Glenmore is a crack of long standing in the tough old hide of Caledonia. It dates back at least as far as Middle Old Red Sandstone times, as we may judge from the way in which the deposits of that period, which occupy the basin formed by the inner end of the Moray Firth, are prolonged down into the cleft of the Great Glen. It is a cleft of great depth : for the deepest sounding in Loch Ness gives a measurement of 129 fathoms, while the fine mountain of Mealfourvie,

¹ *O.S. Map of Britain in the Dark Ages, North Sheet, 21.*

which is wholly composed of Old Red Conglomerate, rises above the loch to a height of 2,284 feet—and who can say how much material has been stripped from its summit by aeons of denudation? The Great Glen is one of the major faults in the geological structure of the British Isles. And though some three hundred millions of years, according to the latest computation, have elapsed since it was first formed, it has not yet reached stability. Frequent earth tremors at Inverness attest continued movement along the line of fracture ;

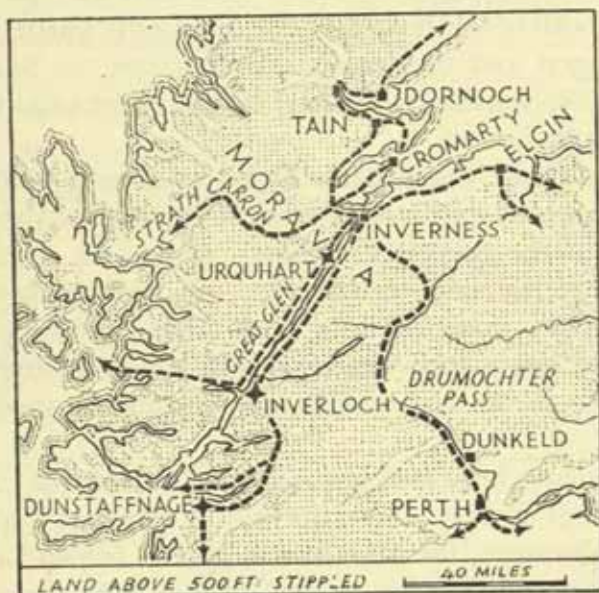


Fig. 64. The strategic position of Castle Urquhart

and in an eloquent description of the "Caledonian Valley," Hugh Miller has recalled how "the profound depths of Loch Ness undulated in strange sympathy with the reeling towers and crashing walls of Lisbon during the great earthquake of 1755" and how "the impulse, true to its ancient direction, sent the waves in huge furrows to the north-east and the south-west."²

From remote prehistoric times onwards, there is ample evidence of the important influence that this great natural avenue has exerted upon Scotland's national development. In Neolithic days it was the

² *The Old Red Sandstone*, chap. VI.

route by which the chambered cairn builders of Argyll reached the north-eastern and northern plains. In the VIth century of our era, it afforded an easy path for the two great saints of the west, Columba from Iona and Moluag from Lismore, to the Pictish capital at Inverness. And in the critical formative period of the XIIth and XIIIth centuries, the Great Glen acquired a special significance because it afforded a convenient lateral means of communication between the two provinces of Ergadia in the south-west and Moravia in the north-east, in both of which irreconcilable Celtic particularism made its last, its longest and its sternest stand against the feudalising and unifying policy so resolutely enforced by the Normanised kings of the Canmore dynasty.

We are to think, then, of the Great Glen as a kind of two-way channel along which cultural currents were washed, now from west to east, now in the reverse direction. If in such a channel there opens an alcove, or side embayment, into this backwater will be borne sedimentary material from both sources of supply, east and west; and the strata thus deposited will show an intermingling of fossils belonging to the respective areas whence the incoming waters were derived.

Such an alcove is formed in the Great Glen by the embayment of Glen Urquhart (Fig. 65). Its fertile soil, its sunward slopes with their good natural drainage, the abundant supply of fish in Loch Ness and game in the surrounding forests, and of fuel from the trees and the vast peat mosses on the bare uplands, all combined to make this an ideal place for the settlement of early man. It is therefore not surprising that in this favoured corner we find not only abundant traces of occupation from prehistoric times, but that these reveal a remarkable intermixture of eastern and western influences—thus forming a striking commentary on the truth of Mr. Crawford's *dictum*.

The westerners seem first to have occupied the field. At Corrimony and Cairn Daley are ring cairns of the Clava type,³ with a circle of orthostats outside the peristalith, which are now recognized to belong to the Central Irish series associated with what has been

³ *Proc. Soc. Ant. Scot.*, Vol. XVI, 314-5; LXXVIII, 38.

termed the Boyne culture. From Ireland also, along the trading route of the Great Glen, came such early bronzes as the flat axe with expanded crescentic blade from Drumnadrochit, now in the Inverness Museum. Western influences may be further recognized in the

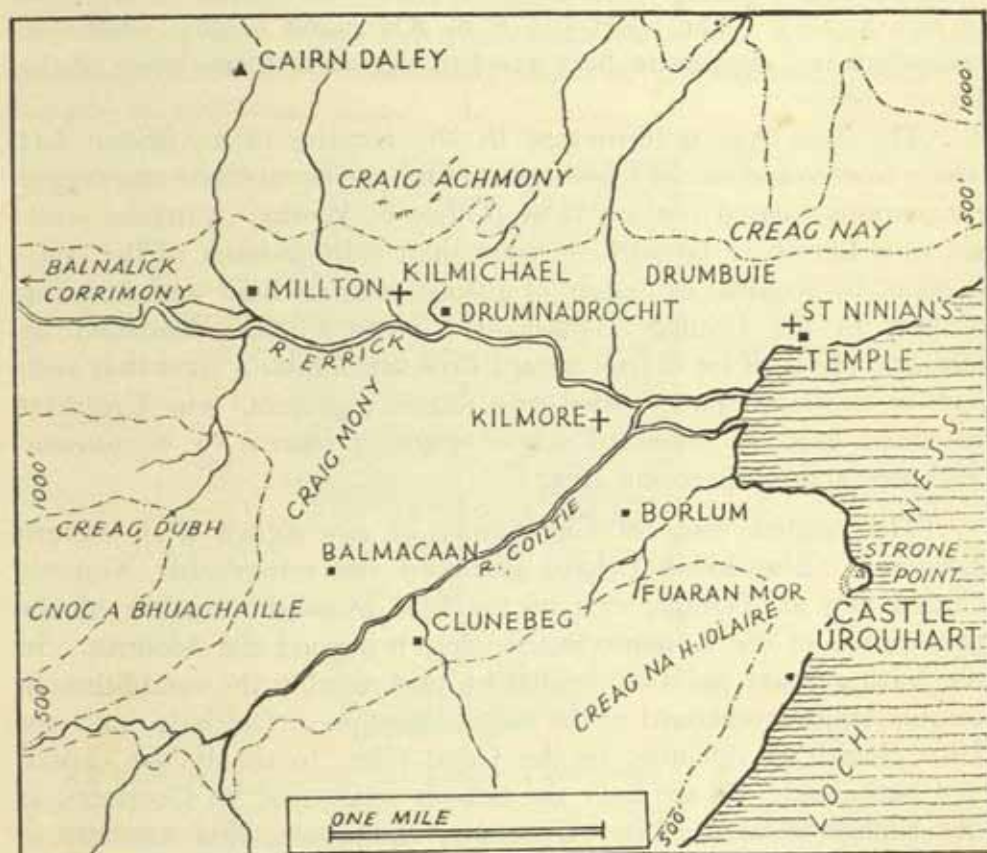


Fig. 65. Map of Lower Glen Urquhart

(Based on the Ordnance Map with the sanction of the Controller of H.M. Stationery Office)

numerous cup-marked stones and rock-surfaces recorded in the Glen;⁴ for the distribution of our Scottish cup-marks suggests that they were introduced from Ireland, and (more remotely) from Spain, where the closest parallels seem to be found.

⁴ *ibid.*, Vol. XVI, 314-5; 351-2; Vol. XXII, 47-51.

The cremation rite of the High Bronze Age is admirably illustrated in the well-known burial from Balnallick,⁵ where the cinerary urn, in which was a bronze blade of the "razor" type, was intruded into a cairn whose primary burial had been in a short cist. Here for the first time we see the intermingling of eastern and western influences in our locality. The short cist is of Rhineland origin, while the cremation rite appears to have reached our area in the wake of the Boyne culture.

The Iron Age is illustrated by the remains of a vitrified fort which were found on the highest part of the medieval castle site during excavations carried out by H.M. Office of Works. Vitrified walls are now known to be nothing more than a by-product of the combustion, by accident or design, of a stone rampart built with bonding timbers in the Gaulish manner—the *muris Gallicis* described by Caesar.⁶ Even if we do not accept Professor Childe's view that such forts in Scotland were erected by Gaulish war-lords,⁷ our Urquhart specimen must be regarded as the result of eastern or continental influence acting upon our area.

The earliest trace of Christianity in our alcove is of eastern *provenance*. Elsewhere⁸ I have discussed the remarkable Ninianic church site at Temple, one of the best attested instances of the penetration of the Romano-British church beyond the Mounth. In the VIth century political conditions, and notably the establishment on the Atlantic seaboard of the Scotie kingdom of Dalriada, gave the Irish church an opening, *via* the Great Glen, to the Pictish capital and homeland. So we have the famous mission of St. Columba, in the course of which Glen Urquhart, *Airchartdan*, first emerges in written history.⁹ The Columban church has left its mark in our glen in St. Adamnan's Croft and his chaplaincy within the church at Temple. The ancient sites which bear the name of this Abbot of Iona, on Loch Lochy, at Abriachan, and in Glen Urquhart, clearly

⁵ *ibid.*, Vol. XXII, 42-7.

⁶ *De Bello Gallico*, bk. VII, chap. xxiii.

⁷ See discussion in my *Province of Mar*, 62-6.

⁸ *St. Ninian and the Origins of the Christian Church in Scotland*, 101-2; see also *Archaeologia Aeliana*, 4th ser., Vol. XXIII, 78-95.

⁹ Adamnan, *Life of St. Columba*, bk. III, chap. xiv.

show how he or his missionaries used the Great Glen in their journeyings to the Picts. Yet the eastern or Pictish Christianity did not altogether yield its ground, for the name of St. Drostan, whose churches are of distinctively eastern location,¹⁰ is associated with the early ecclesiastical annals of Glen Urquhart. And at Drumbuie, west of St. Ninian's, were found two sculptured stones with incised Pictish symbols, of the type so commonly found at early Christian sites on the east side of Drumalban.¹¹

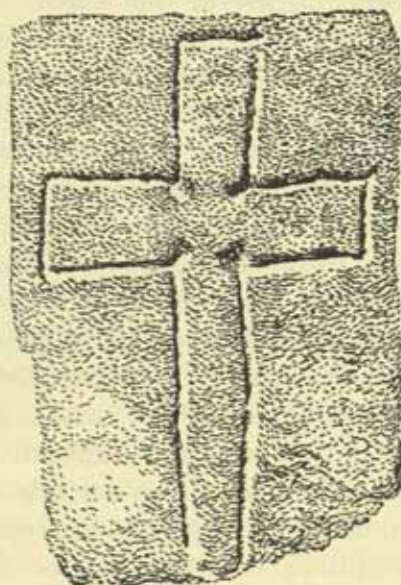


Fig. 66. Celtic Cross from Temple

From our Ninianic church site at Temple a slab carved with an incised cross was recovered (Fig. 66).¹² Although this monument is of small artistic value, for our present study it illustrates the divergent currents of cultural influence that have washed into our sequestered alcove. The cross is of the Latin form, derived from the Christian symbolism of the Roman Empire. But at the intersections it displays "armpits" or semi-circular re-entrants; and this type, so character-

¹⁰ See A. P. Forbes, *Kalendars of Scottish Saints*, 327, and map in my *Historical Saint Columba*, Fig. 34.

¹¹ *Proc. Soc. Ant. Scot.*, Vol. LXIX, 435-6.

¹² W. Mackay, *Urquhart and Glenmoriston*, 385.

istic of early Christian monuments in Wales, Scotland and Ireland, represents the impact of the Celtic spirit, with its delight in sweeping curves, upon the stiff rectangularity of the Latin cross. And lastly, our cross is graven on a slab, which associates it with the eastern or Pictish group of monuments belonging to the early Christian period, rather than with the Dalriadic or western group, in which the cross is typically free-standing.

Our Temple cross slab then is a representative, if a poor one, of the splendid monumental art of that Celtic church which grew up along its own lines in the western lands inhabited by peoples of Celtic stock who were cut off from the Continental church by a great wedge of Teutonic paganism driven in by the Anglo-Saxon settlement. Once the Teutons had been won over to Christianity, it was inevitable that the Roman church should seek to ingather these outlying Celtic Christian communities into the common fold of Catholic Christendom. Hence the mission, in the VIIIth century, of St. Boniface, *alias* Curitan, with which are associated the earliest dedications to St. Peter in Pictland.¹³ St. Curitan was the founder of the ancient church at Corrimony. Where Rome had failed with the sword she returned to conquer by the Cross; and the first attempt of the Rome of the Popes to tame the stubborn Picts, before whom the Rome of the Caesars had failed, invests this ancient church site, far up our remote glen, with an exceptional interest. Yet the unabated vigour of the native church is shown by the fact that Boniface's foundation bears not the name of the Prince of the Apostles, but (in the Celtic fashion) the name of its missionary founder—and moreover his native name, Curitan, not the Roman *Beiname*, Boniface, which he adopted.

On the site of the Iron Age fort that crowns the southern horn of our alcove there arose, in the XIIIth century, a medieval castle of the first magnitude. About the same time, half a league inland, was built the parish church, Kilmore. These two events mark a cardinal stage in the evolution of our locality. The society which had grown up in Glen Urquhart since Neolithic times must be regarded as a

¹³ See my *Celtic Church in Scotland*, 109-13.

society locally centred, connected only intermittently, and by the slenderest links, with the great world beyond. The castle and the parish church were the outward and visible signs of the impact of a new and ecumenical order—Norman feudalism and the Latin church—the effect of which would ultimately be to integrate our remote neuk with the general pattern of the western world. And in the planting of the Norman castle upon the wreck of the Celtic *dun* we see the first imprint, in our area, of the thesis of a Scottish nation. For considerations of national strategy, in the conflict between the Canmore kings and the *mormaers* of Moray, dictated the choice of site. Castle Urquhart is one of a chain of strongholds—in the south-west Dunstaffnage and Inverlochy, Urquhart and Inverness in the north-east—by means of which the avenue of Glenmore was held for the new order (Fig. 64). The first recorded lord of Castle Urquhart was Alan Durward, one of the leaders of the new Anglo-Norman aristocracy by whom the future of Scotland would in large measure be moulded. A friend of kings, mated with a king's daughter, lord of Atholl, as well as of vast domains in Angus, the Mearns and Mar—owning also the stately castle and broad lands of Bolsover in England—Alan Durward was for years the real power behind the throne of his brother-in-law, the young Alexander III. The earliest contemporary document concerning land tenure in our locality is a compact made in 1233 between Alan Durward and the Chancellor of the Diocese of Moray, by which they agreed to partition certain church-lands that the feudal magnate coveted, and for a share of which he made handsome compensation to the parish church.¹⁴ That a piece of ground in this Celtic district thus came to be held by sheepskin right was in itself a change of the first magnitude in the social development of our locality. It marked the source of the new tenure as “that one abounding fountain from which so much has flowed that we value most—the high instincts of the Latin church seeking their expression in the noble forms of Roman law.”¹⁵

The parish church itself first appears on record in the “Great Charter” of Brice, Bishop of Moray, granted between 1208 and 1215,

¹⁴ *Registrum Moraviense*, 96, No. 83.

¹⁵ Duke of Argyll, *Scotland as it was and as it is*, 10.

by which he founded eight canonries in his chapter. To the fifth canon was assigned the church of "Hurchard beyond Invernys."¹⁶ The constitutions of the Cathedral of Moray were based upon those of Lincoln, ascertained by a deputation. So in this transaction we clearly see how the Latin church extended itself, step by step, into the remote western fastnesses. Since the conversion of Wessex the small Roman city of Dorchester-on-Thames had been the seat of an enormous see that latterly included the whole country betwixt Thames and Humber. True to their policy of consolidating dioceses round political centres, the Normans had transferred the bishop's seat from Dorchester to Lincoln. From Lincoln now came the pattern for the see of Moray. Here again we find that the cathedral church was removed from places of little importance, Birnie, Kinnedar and Spynie, and fixed in the royal burgh of Elgin. And into the capitular organisation were firmly drawn the leading local centres of the old Celtic church, such as Glen Urquhart with its memories of St. Ninian, St. Drostan and St. Adamnan.

How insecure were these new arrangements, in face of the determined hostility of the "Men of Moray," we gather from the fact that in 1215 Pope Innocent III issued a bull, taking under his special apostolic protection a number of churches in Morayland, including Glen Urquhart.¹⁷ This papal bull may be held as marking the completed integration of our remote Celtic corner into the medieval world order and the framework of Latin civilization.

At an early manorial centre, the remains of the castle are usually found side by side with the parochial church—the parish being in its origin just the manor ecclesiastically considered, wherein church and castle represented respectively the ecclesiastical and the civil *nuclei* of the early manorial organisation. At Urquhart, though the castle is an early one, this typical juxtaposition is lacking: for the parish church is situated nearly a couple of miles to the west, on the north bank of the river Coiltie. This appears to be a common occurrence in the Highlands,¹⁸ and the inference must be that the

¹⁶ *Reg. Mor.*, 41.

¹⁷ *op. cit.*, 43-4.

¹⁸ See *The Book of Dunvegan* (Third Spalding Club), Vol. I, xix.

parochial system was introduced here later than the earliest castles. Hard by Urquhart Castle is the large farm of Borlum, formerly Bordland, meaning the "board-land," that is, the *terra mensalis*, the demesne land or home farm that supplied the household in the castle, (Fig. 65).

The infiltration of Celtic Scotland by Anglo-Norman civilisation resulted inexorably in the great Plantagenet effort to bring the northern realm under direct Anglo-Norman power. In the two fierce Wars of Independence that ensued, the Men of Moray, continuing their old tradition of resistance to external control, were foremost in taking up arms against Edward I, and in continuing the struggle against his no less pertinacious grandson. Hence the stirring part of Castle Urquhart in the heroic drama. Gallantly held by the English, it was taken by Sir Andrew de Moray, and again reduced, after a grand defence, by Edward I—only to fall once more into Scottish hands, and to form one of the five famous castles—Loch Doon, Dumbarton, Loch Leven, Kildrummy and Urquhart—which alone in all Scotland held out successfully during that *année terrible* 1335, against the armies of Edward III. Many and confused were the issues that clashed in the Scotch Wars of Independence: but no one nowadays will gainsay a large measure of truth in Dr. Evan Barron's contention that those wars were in the last analysis a duel between the Teuton and the Celt. So far as there is virtue in that thesis, the stirring events of which our alcove was then the scene were, in part at least, an illustration of that "struggle between west and east" which Mr. Crawford postulates as a *Leitmotive* of Scottish history.

In terms even sharper and less blurred by cross-currents, that struggle was renewed in the years that followed the Plantagenet failure; and once again our alcove was an arena in which east and west locked in deadly strife. Historians have hardly grasped the full import of the conflict between the Scottish Crown and the Macdonalds of the Isles which bulks so large in Highland history in the XIVth and XVth centuries. In their aggressive policy towards the House of Stewart, the Lords of the Isles drew upon all those proud memories

of the once independent Celto-Norse kingdom of the Isles, the realm of Somerled and his masterful successors, whose dominions had been forcibly incorporated in the kingdom of Scotland by the victory of Largs in 1263. As independent princes, John of the Isles in the reign of Robert II, and his descendants for a century thereafter, comported themselves in their dealings with the Scottish Crown. With no consciousness of treason, but as one sovereign negotiating with another, they bargained with English kings ; and, in the extraordinary Treaty of Ardtornish-Westminster (1461), actually concluded a pact with Edward IV for the dismembering of Scotland. It is idle to explain away such things as just irresponsible sedition. Rather should we understand it in terms of Mr. Crawford's "struggle between west and east"—between the Crown and an insular kingdom not yet organically embodied in the realm of Scotland.

Such great issues, and no mere "Highland reiving," lay behind the cruel Macdonald invasions of Glen Urquhart in the XVth and XVIth centuries. The Lord of the Isles claimed the Earldom of Ross, of which our district at that time formed a part. In the struggle that ensued he won the first round. Glen Urquhart was seized in 1395, and handed over to his brother, Alexander of Keppoch ("Alastair Carrach"), while a Maclean of Lochbuy was installed as keeper of the castle. The victory of Harlaw in 1411 for a time checked the drive of the westerners ; and the Earl of Mar, who had overthrown the Lord of the Isles in that memorable struggle, succeeded him as master of Glen Urquhart. But the murder of James I in 1437 brought about a *bouleversement*, and once again the Lord of the Isles overran our glen, although royal governors continued to cling to the castle. In the crisis of the great Douglas rising of 1452, the Lord of the Isles seized the castle, and the Crown was forced in 1456 formally to confirm him in possession. The Treaty of Ardtornish led to a "show-down" between the insular potentate and the Scottish monarchy. His eastern conquests were stripped from him ; and the Castle and Lordship of Urquhart were handed over in 1476 to the Earl of Huntly, chief of the great family of Gordon who had now risen to a dominant position in north-east Scotland. The struggle between east and west

had ended decisively in favour of the east. But the devastation caused by the long conflict had been grievous. In 1479 Glen Urquhart was reported wholly waste, so that no rents were forthcoming.¹⁹ A strong local representative of the royal power was requisite to restore order and succour the afflicted tenantry. Hence the memorable charter by which, in 1509, King James IV made over the Lordship of Urquhart to John Grant of Freuchie (Castle Grant), on condition that the new owner bound himself

“to repair or build at the castle a tower, with an outwork or rampart of stone and lime, for protecting the lands and the people from the inroads of thieves and malefactors,” and within the castle, so fortified anew, to construct a hall, chamber and offices.²⁰ To the reconstruction thereafter carried out Castle Urquhart, as we see it today, is in large measure due.

The Macdonald *riposte* tarried not. Its opportunity came with the death of James IV at Flodden in 1513. Forthwith a new Lord of the Isles was proclaimed—Sir Donald Macdonald of Lochalsh, who poured his islesmen into Glen Urquhart, harried it from top to bottom, and captured the castle. For three years he remained in possession, during which the wretched tenants were simply stripped of all they owned. An even more appalling visitation followed in 1545, when the Macdonalds, with their allies the Camerons, swept down upon Glen Urquhart, besieged and took the castle again, burnt the humble homesteads up and down the glen, and flayed their miserable inmates of all their livestock, goods and chattels.²¹

Amid such dreadful conditions it might well be thought that the arts and graces of life must perish utterly. Yet it was during those very centuries, in the Western Highlands and Islands, when society judged from historic record seems to have lapsed into sheer stark anarchy, that the exquisite and abundant art of the Hebridean crosses and grave slabs flourished—with a brilliance which contributes an astonishing epilogue to the long and memorable history of Celtic art in Britain. From its cradle in the Isles this wonderful monumental

¹⁹ *Exchequer Rolls*, Vol. VIII, 601.

²⁰ Sir William Fraser, *Chiefs of Grant*, Vol. III, 53.

²¹ See the shocking inventory of plunder in Mackay's *Urquhart and Glenmoriston*, 96-8 and Appendix B.

art of the XVth and XVIth centuries spread eastward through the passes of Drumalban ; and in our Kilmore churchyard it has left us at least two grave slabs of exceptional beauty and interest.²² One of these shows a cross of calvary, Latin of course in conception, but the head forms an equal-armed and floriated cross, separate from the shaft, in the Celtic manner, while in the four re-entrants are circular ornamentations obviously derived from the early Celtic " armpits."

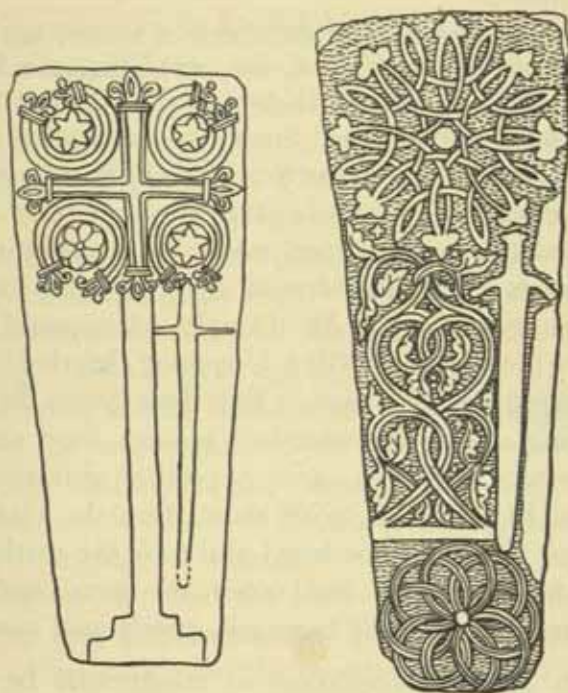


Fig. 67. Medieval grave-slabs from Kilmore

Here they take the form of pennanular rings, terminating in fleurs-de-lys, and enclosing a mullet. The mixture of Latin and Celtic motives in this design is most interesting. The other grave slab shows an equally remarkable blend of eastern and western art. It shows at the head a cross of intersecting work forming sixteen points, every other one of which terminates in a fleur-de-lys ; another intersecting cross below, of simpler design, very beautiful ; and in

²² *Proc. Soc. Ant. Scot.*, Vol. XXXVI, 665-9.

PLATE XVIII



Castle Urquhart : view looking towards Great Tower from the *Motte* (Photo : J. Keiller Greig)

the centre, foliaceous scrolls of the characteristic late Hebridean type, in which the scroll work betrays the old Celtic feeling, while the foliage is derived from a Romanesque ancestry. Both stones are warriors' graves, as shown by the claymores carved on each. They remain as a revelation to us of the artistic standards of the local masons in the darkest period of our district's history (Fig. 67).

Our inquiry has shown that Glen Urquhart is in many ways a singularly complete vignette of Highland archaeology and history. And the noble castle round which so much of this history revolves is itself a wonderful epitome of medieval military architecture (Plate XVIII). In the development of the feudal castle, four main elements may be discerned, each of which, at different times, has dominated the castle scheme. First is the *motte*, the timbered mount of the early Norman castle. Then there is the *aula* or hall, at first of timber and later of stone, which formed the principal structure in the base-court attached to the *motte*. Again there is the great stone donjon or tower-house, usually found in those castles where never was a *motte*. And lastly, there is the gatehouse, which seems to have conducted a kind of rivalry with the tower-house for the mastery of the castle scheme, from early stone castles like Ludlow until it finally ousted the tower-house altogether and became the *Schwerpunkt* of the Edwardian castles. All four elements are finely displayed within the cincture of Castle Urquhart. The *motte* forms the highest part of the castle rock, where once stood the Iron Age fort. In the bailey remains the wreck of a fine XIVth century *aula*, and at its far end proudly rises one of the noblest of Scottish tower-houses. Fronting the mainland is a stately gatehouse which, although it seems to date from the Grant reconstruction, is perhaps as near an approach as native work in Scotland can show to the English "keep-gatehouses" of the XIVth century, in which the defended entry is combined with the castellan's residence.²³

Once more Glen Urquhart was to become the scene of a further clash in the "struggle between west and east." For we may recognize

²³ For Castle Urquhart see *Trans. Inverness Gaelic Soc.*, Vol. XXXV, 51-82; also the *Official Guide* (H.M. Ministry of Works).

this struggle as a thread in the tangled skein of "Montrose's year." The kernel of his forces were Colkitto's "Irishes," hailing from Antrim and the Western Isles; and their intervention in the Covenanters' war may fairly be regarded as an insular reaction against severe pressure which had recently borne upon them from the mainland. In Antrim there had been the Plantations; in the Hebrides the aggressive policy of James VI, the Fife Adventurers, the conquest of Islay, the destruction of Clan Alpin, and the Statutes of Iona with their limitations on the power and freedom of the island chiefs. In all this Clan Donald had suffered sorely. Antrim, North and South Kintyre, Islay successively had been reft from them. Small wonder that the Macdonalds on both sides of the Irish Sea thirsted to hit back. And as the principal agent of the royal pressure upon them had been the hated Campbells, Colkitto and his warriors might be pardoned their vow to "write their revenge in blood."²⁴ So anew the western storm broke over the crest of Drumlban, and some of its billows washed into our alcove of Glen Urquhart. Gallantly held for the Royalists by Lady Grant, the castle was captured and plundered in 1644 by the Covenanters, who reduced it to "allenary bare walls."²⁵ After Philiphaugh, some of Montrose's defeated Highlanders found refuge in the glen. The later fortunes of the castle may be briefly told. At the Revolution of 1689 it opened its gates to a Whig garrison, and was blockaded by the Jacobites. When the redcoats left it, in 1691, they blew up the gatehouse. Since then the castle has remained a ruin. But the long agony of Glen Urquhart's share in the "struggle between west and east" was not yet over. If the key to Highland history be rightly seen in that struggle, its last convulsion was the Forty-five, in which the Celtic way of life, based on a community of interest—political, social, economic, cultural—between the chiefs and their clansmen, went down before the commercialist landlordism of the Lowlands:—

"A wind that awoke on the moorland came sighing,
Like the voice of the heroes who perished in vain:
'Not for Tearlach alone the red claymore was plying,
But to win back the old world that comes not again.'"

²⁴ Patrick Gordon, *Britane's Distemper*, 64.

²⁵ *Chiefs of Grant*, Vol. III, 341.

In the long struggle the east had broken the west, as it was bound to do. The horrors which Glen Urquhart witnessed in the months after Culloden were just eddies on the surface of the foremost wave of a remorseless flood which, from that day to this, has continued to submerge the successive landmarks of an ancient race.

BRITAIN BETWEEN THE INVASIONS (B.C. 54—A.D. 43)

A Study of Ancient Diplomacy

By C. E. STEVENS

ROMAN Britain was among Crawford's earliest loves, and I am happy, therefore, to offer him a study of Roman Britain. It is, in truth, a curtain-raiser to the true Romano-British epoch, a study of relations between Rome and tribes, still free, on the periphery of her empire, the sort of field, in fact, which is interesting Crawford today. I would link for him his youth and his maturity.

That there is room for such a study could be expected, now that Derek Allen¹ has crowned the work of John Evans and Brooke with a new and penetrating study of the British coinage. And this is not all. The literary evidence will repay a further scrutiny. Historians know that the Augustan poets, especially Horace, "committed" Augustus (to speak in propagandists' slang) to the conquest of Britain. They have usually left it at that, Collingwood² alone venturing to take the matter a little further by supposing that Augustus allowed poets in touch with his court to "commit" him to a project which he had no intention of undertaking.

I have never been very happy about Collingwood's explanation since I worked with British propaganda during the war. Never to "commit" one's own side where there was the least doubt about honouring the "commitment" was such a primary rule of propagandists, that I do not easily see such a master in the art as Augustus disregarding it. Moreover the evidence from the literary authorities is a good deal more complicated—and interesting—than is usually realised.

As I have tried to show elsewhere,³ Caesar had achieved a *de facto* conquest of south-eastern Britain by his campaign of 54 B.C. He

¹ *Archaeologia*, XC, 1-46 (cited as "Allen").

² *Cambridge Ancient History* (cited as *C.A.H.*), X, 794; *Roman Britain and the English Settlements*², 72.

³ *Antiquity*, XXI, 8.

had received a formal surrender from its main political unit, the Belgae of Hertfordshire under Cassivellaunus, and decided what tribute they and other British tribes should pay to Rome. Such a conquest needed implementing *de iure* by the appointment of a commission to decide how the surrendered areas should be incorporated into the empire; but by reason of Caesar's pre-occupation with other matters this was never done. Britain "hangs in the air" from the point of view of Roman external relations, a phenomenon seemingly unique in Roman history. Contemporaries realised that Caesar's settlement meant a conquest of Britain, and this is the attitude of Diodorus Siculus,⁴ whose *Universal History* was being composed about the time of Caesar's death.⁵ It only remained to implement his action by "walking in" and taking over. While the young Virgil, writing in 41 B.C.,⁶ in the comparison of Britain with the Sahara, Scythia and Central Asia,⁷ may be implying that Britain was outside the empire (as *de iure* it was), the earliest evidence of Horace from a poem⁸ certainly written before the battle of Actium (31 B.C.) and perhaps as early as 41-40 B.C.,⁹ shows clearly—to a fair-minded reader—that Britain was regarded as conquered.¹⁰

Our next evidence is the first of three famous passages in Dio Cassius.¹¹ In 34 B.C., we are told, Augustus¹² came to Gaul with the idea of mounting an expedition to Britain "in emulation of his father, Julius," but was forced to abandon the project by a revolt in Dalmatia. Dio's phrase seems to imply a full-scale plan of conquest, and historians have been surprised that Augustus should have accepted a new commitment with so many frontier problems unsolved.

⁴ I, 4, 7; III, 38, 3.

⁵ Pauly-Wissowa, *Realenzyklopaedie der Altertumswissenschaft* (cited as P-W) V, col. 663.

⁶ See Conington², I, 23.

⁷ *Eclogue* I, 63-65.

⁸ *Epode* VII, 7-8.

⁹ P-W, VIII, col. 2355.

¹⁰ I find painful the unanimity with which modern editors (Macleane alone excepted) hold that Britain is not regarded as conquered. If so, the parallel with Carthage becomes completely insipid. "Intactus" must mean "ante adventum Iuli Caesaris i."; it cannot mean "adhuc i.", for that would make Horace go out of his way to insult the published narrative of the man who adopted his patron, Augustus.

¹¹ XLIX, 38, 2.

¹² Octavian, of course, did not actually receive the title of Augustus until 27 B.C., but I call him Augustus always for convenience.

But if we disregard Dio's embellishments, it would not be impossible to imagine a project merely to "walk into" south-east Britain in implementation of Caesar's arrangements. Is it possible to paint the British background? It is first necessary to state that in the period subsequent to Caesar's departure another Belgic kingdom, a mingling, as it now seems, of emigrants from the original Belgic areas and of refugees from Gaul, had arisen in Sussex, central Hampshire and Berkshire under Commius.¹³ We shall have plenty to say of it in due course; but it is not easy to see why its establishment at least a decade earlier should have prompted Augustus to take action now. We must also remember that by Roman practice treaties with kings automatically lapsed on their decease,¹⁴ and the re-examination of treaty arrangements which would follow on the death of a British king would make a plausible background for this projected invasion of 34 B.C. But we do not know whether this had occurred, and we can offer—albeit by conjecture—a more dramatic explanation of Augustus' project. In 1849 the largest British gold hoard ever known was discovered "in Whaddon Chase."¹⁵ It was largely dispersed, but John Evans believed that it had contained some 2,000 gold coins of the Britons.¹⁶ How could such a quantity of gold coin have been got together at all in barbaric Britain, and what was it doing in what a distribution map of Belgic Britain shows to have been a really out-of-the-way place? I submit that it is impossible to explain it except on the hypothesis that it was actually the tribute due to Rome, captured by highwaymen, who fell out over the spoil. We cannot date the Whaddon Chase coins very exactly, but they are certainly later than had been supposed¹⁷; and it is at least a pleasing conjecture that Augustus proposed to "walk into" Britain because the Britons had failed to pay the tribute, and that they had failed to pay—because they had lost it.

¹³ The most up-to-date statement of Commius and the "second Belgic invasion" is *Hants. Field Club*, XIII, 160-163.

¹⁴ Mommsen, *Staatsrecht*², III, 594.

¹⁵ *Numismatic Chronicle*¹, XII, 1.

¹⁶ *Ancient British Coins*, 75.

¹⁷ Allen, 12.

Be this as it may, we now reach the period subsequent to the battle of Actium (31 B.C.), and are in the full stream of the "commitment" documents. The earliest is the *Georgics* of Virgil, which were read to Augustus in 29 B.C.¹⁸ Here Augustus is "committed," though in not very explicit language, to a British triumph,¹⁹ which, of course, is not inconsistent with merely "walking in."²⁰ Moreover, another source, the *Panegyricus Messallae*, even seems to give the name of the general whom Augustus had designated for the task, for its hero is quite explicitly "committed" to an invasion of Britain.²¹ Now C. Valerius Messalla Corvinus²² accompanied Augustus after Actium through Syria to Egypt (30 B.C.), after which he went to Gaul, where he subdued the Aquitani and obtained a triumph in 27 B.C. Yet the panegyrist declares that he will not win victories in Gaul—because his future is in Britain.²³ Thus it seems that the *Panegyricus* itself and the abortive plan for an expedition to Britain (abortive because the Aquitani gave trouble and Messalla had to win Gallic victories after all), which is presumably to result in the triumph prognosticated by Virgil, should be dated to 29 or 28 B.C., and a passage in Horace²⁴ seems to make the latter date preferable.

We now reach the second and third of the Dio passages. Under 27 B.C. he states²⁵ that "Augustus set out to make an expedition into Britain, but on coming to the provinces of Gaul lingered there. For the Britons seemed likely to make terms with him²⁶ and the affairs of the Gauls were still unsettled." In the next year we learn²⁷ that "Augustus was planning an expedition into Britain since the people there would not come to terms, but he was detained by the

¹⁸ See Conington³, I, 163.

¹⁹ III, 25.

²⁰ I doubt, moreover, whether Augustus would have closed the Temple of Janus in 29 B.C. (*C.A.H.*, X, 122), if he had been thinking of a serious campaign in Britain.

²¹ *Panegyricus Messallae* (Tibullus, IV, 1), 147-9.

²² *Prosopographia Imp. Rom.*¹, III, 366 and Momigliano, *JRS*, xl (1950), 38-41.

²³ *Panegyricus Messallae*, 137, 138.

²⁴ *Ode* I, 21, 15, is dated by editors to 28 B.C.

²⁵ LIII, 22, 5.

²⁶ In view of the later passage, it seems correct to adopt with the Loeb editor the very slight alteration of Cobet, ἐπικηρύκευσσθαι (future) for the ἐπικηρυεύσασθαι of the MSS.

²⁷ LIII, 25, 2.

revolt of the Salassi and by the hostility of the Cantabri and Astures." It is first necessary to consider the chronology. There is collateral evidence that Augustus actually visited Gaul in 27 B.C.,²⁸ so that the first of the Dio passages can stand. But he celebrated his entry into the consulship on January 1st, 26 B.C. at Tarraco in Spain,²⁹ and must have known that he had a serious Spanish war on hand, which, in fact, occupied all his energies for the next two years.³⁰ He cannot possibly have been thinking of an expedition to Britain (which would have been of necessity envisaged as a fighting campaign, since the Britons "would not come to terms") in either of those years. Moreover, as he shut the temple of Janus in 25 B.C. on the conclusion of the Spanish wars,³¹ he is unlikely to have been thinking of a British campaign after that. The third Dio passage must therefore be brought forward to 27 B.C., and it follows that he must have expanded one British project of Augustus into two. Though it is admittedly somewhat speculative, it looks as though we could build up the whole story somewhat in this manner. At some time not later than 29 B.C., in fact after the settlement of the eastern question and his triple triumph had set his hands free, Augustus decided to annexe Britain, completing the project of Julius, which had been "left in the air." He planned to "walk in," first with a subordinate general in 28 B.C., then personally in the next year. The Britons refused to accept this corollary of Julius' arrangements,³² so that Augustus saw that it would be necessary to mount a full-dress expedition (thus the data of the second and third Dio passages are combined). He was prepared to do this, but was hindered by the more important business of Spain. Thus the *Odes* of Horace, "committing" Augustus to a personal visit to Britain³³

²⁸ Jullian, *Histoire de la Gaule*, IV, 55, n^o.

²⁹ Suetonius, *Augustus*, 26, 3.

³⁰ Syme in *American Journal of Philology*, LV, 293-317.

³¹ *C.A.H.*, X, 135.

³² I think that we may conclude from Propertius, IV, 3, 9, that a Roman was actually in Britain conducting negotiations, though, as we shall see, this is not the only time when he might have been there.

³³ I, 35, 29-30. The Ode actually "commits" to warfare in the east but only a journey to Britain; but it may be rash to press the language.

and to its annexation³⁴ should be dated to 27 B.C.³⁵

It only remains to ask whether the "commitment" to annexe still remained after the expedition had been abandoned. The closing of the Temple of Janus in 25 B.C. rather suggests that it did not. On the other hand Horace's *Odes I-III* with their prognostications of British conquests, were published as a whole in 23 B.C.³⁶ They contain a consistent body of official political doctrine, and it is not easy to believe that this poet, in touch with court circles, would have published poems expressing so clearly a "commitment" which was out of date in official policy.³⁷ Perhaps it was left hanging in the air as a vague possibility. In any event, it seems that Virgil, the sixth book of whose *Aeneid* was read to Augustus in 23 or 22 B.C.,³⁸ writes as though there was no British "commitment" at all. In the famous passage at the end of book VI he offers the prospect of eastern conquests only,³⁹ and in book I the Ocean is to be the boundary of Augustus' rule—which means that Britain does not come under it.⁴⁰

The next event of importance for us comes from the British side. Tasciovanus, who came to the throne of the Hertfordshire Belgae about 20-15 B.C. is found soon after his accession in occupation of Camulodunum, the capital of the Trinovantes.⁴¹ This was an absolute defiance of the Caesarian arrangements,⁴² and it is most tempting to connect Tasciovanus' gesture with the disaster which Roman arms had suffered in 17 B.C. at the hands of German tribes (the *clades Lolliana*)⁴³. But Augustus came himself to Gaul to restore order in the next year,⁴⁴ and perhaps this explains why Tasciovanus' occupation of Camulodunum was, as the coin-evidence teaches us,⁴⁵

³⁴ III, 5, 3-4.

³⁵ Compare also Propertius, II, 27, 5, published according to Butler and Barber in 24 B.C., where there is a "commitment" to naval action.

³⁶ P-W, VIII, col. 2372.

³⁷ It is hard to be sure whether *Ode* III, 4, 33-40 is to be taken as a British "commitment" or not.

³⁸ Crump, *Growth of the Aeneid*, 47.

³⁹ *Aeneid*, VI, 791-800.

⁴⁰ *ib.*, I, 286-8; compare VII, 100-1. On Britain outside Oceanus see passages cited in *Antiquity*, XXI, 50, to which add *Fasti Cuprenses* (*Inscr. It.*, XIII, 244), confirming *ib.*, 8, n. 29.

⁴¹ Allen, 15.

⁴² Caesar, *Bellum Gallicum*, V, 22, 5.

⁴³ *C.A.H.*, X, 360.

⁴⁴ *ib.*, 347.

⁴⁵ Allen, 15.

only of short duration. One thinks of a diplomatic protest.

Nevertheless it is clear that this was not all that Augustus, now able to observe the British situation from close at hand, effected in diplomacy. We can combine the Roman and the British evidence to show a remarkable change in the picture.

From the Roman side there is Horace again. The fourth book of his *Odes* was published in 13 B.C.⁴⁶ and in one of its poems, probably written not earlier than 15 B.C.,⁴⁷ he surveys the warlike majesty of Augustus. Two classes of dependents are recognised, those who "admire" and those who "hear" Augustus.⁴⁸ Horace is not a tautologous writer, and one would expect a difference of status between the classes, which ought in political language to consist in a contrast between treaty relationship and subjection. It is not clear into which category Horace meant to fit the Britons; nevertheless it seems legitimate to assert that in 15 B.C. the court poet could envisage these Britons, who would not "come to terms" in 27 B.C., as now at least in treaty relationship with Rome.⁴⁹

The coin-evidence from Britain tells us what this means. Tin-commius, the son of Commius, of the Sussex-Hampshire-Berkshire Belgae now begins to coin with Roman instead of Celtic types.⁵⁰ We shall have more unequivocal evidence later on, but it looks as though the first step had been taken in a most interesting and psychologically typical piece of Augustan diplomacy. Unable in the midst of his frontier problems to annexe the territory of the Hertfordshire Belgae in implementation of the Caesarian settlement, he creeps in a manner into Britain by the back door in establishing treaty relations with the other Belgic house.⁵¹ To establish such relations with the

⁴⁶ P-W, VIII, col. 2374.

⁴⁷ C.A.H., X, 349.

⁴⁸ *Ode* IV, 14, 41-52.

⁴⁹ Though there are difficulties, I am inclined to think that we should punctuate with the full point at v. 48 instead of v. 44 with the editors. Britain will then be classed—e.g. with the Meroë kingdom and the Parthians—as "admirers" instead of with subjugated Gaul and Spain (which the *-que* suggests that we should take closely together) as "hearers."

⁵⁰ Allen, 7.

⁵¹ I would like to take this opportunity to note that if the Uffington White Horse was the emblem of the House of Commius, looking out across the north border of its domains (compare *Oxoniensis*, V, 166), it should, like the coinage, have had *three* tails originally; and my "eye of faith" seems to see traces of a second in the air-photograph published in *Archaeology of Berkshire*, Fig. 20. Will Mr. St. Joseph confirm?

man whose father had twice been the victim of Roman assassination plots and had vowed never again to look on the face of a Roman was a diplomatic achievement indeed.⁵² It is tempting to see here Augustus' long-term answer to Tasciovanus' designs of aggrandisement. And though Dubnovellaunus, who appears first in eastern Kent about this time, on the flank of Tasciovanus' advance, and who goes on to occupy Camulodunum itself, issued coins of quite native and unromanised character,⁵³ there is evidence to suggest a connexion between him and Tincommius,⁵⁴ so that he too, while not formally in alliance with Rome, was presumably *persona grata* there.

The British scene changes again with the flight of these princes to Augustus. Their names appear on the *Monumentum Ancyranum*,⁵⁵ and their expulsion accordingly should not be later than 7 A.D., the year to which the general opinion of scholars now assigns that recension of Augustus' political testament which forms the substance of the *Monumentum*,⁵⁶ and this is consistent with the British coin-evidence. It would be tempting to see these British aggressions again in the context of a Roman reverse, and we are reminded of 6 A.D., the critical year of the Pannonian revolt, when Augustus, we are told, meditated suicide.⁵⁷ Dubnovellaunus' successors in Kent are obscure; in his Essex realm he was succeeded by the great Cunobeline, son of Tasciovanus of the Hertfordshire Belgae, while Tincommius was replaced by his own brothers, Epillus and Verica.⁵⁸ Augustus' hands were tied, first by the problems of Pannonia and then by the disaster of Varus in Germany (9 A.D.). Nevertheless he saved what he could of his British arrangements with that sober and fundamentally inglorious realism which marks so much of his diplomacy.

⁵² On Commius see *Arch. Journ.*, LXXXVII, 292. In spite of Allen's technical arguments I must believe that the Commius of the coins is identical with such a notable British hero. A President of Magdalen College plies a less dangerous trade than a British king, but three in 137 years shows what can happen!

⁵³ Allen, 31.

⁵⁴ Rice Holmes, *Caesar's Invasions*, 367—his own conjecture, as he claims, from Evans, 161 and pl. I, 12 (Allen, pl. I, 3).

⁵⁵ VI, 2.

⁵⁶ See introduction to Barini's edition, p.XI.

⁵⁷ *C.A.H.*, X, 371.

⁵⁸ Allen, 8, 23, 31; Hawkes and Hull, *Camulodunum*, 45.

Dubnovellaunus was not a Roman ally, and Augustus was even prepared to acquiesce in Cunobeline at Camulodunum, though this involved the final winding-up of the Caesarian arrangements. But Tincommius was ; nevertheless what mattered to Augustus was not the man but the dynasty, and he acted with cool diplomatic logic. So far was he from re-instating Tincommius that he formed yet closer treaty arrangements with his supplanters. For this is what the appearance of REX on the coins of Epillus and Verica must mean.⁵⁹ It is neither due simply to "Romanisation" nor is it at all likely to be a Celtic word.⁶⁰ These kings have become *client* kings of the type of *reges a populo Romano appellati*.⁶¹ It is not surprising that Britain is now, as it were, respectable in Roman public opinion. Ovid, writing about 8 A.D.,⁶² states that for Julius Caesar it was a greater achievement to have adopted Augustus than to have conquered Britain⁶³ ; and Livy, describing Caesar's invasions in a book written about this time,⁶⁴ accepts the notion of a conquest.

Moreover the well-known passages of Strabo must be given consideration.⁶⁵ No tribute, we are told, is exacted, but the cross-channel tolls more than offset it ; furthermore Strabo states that the island would need "at least a legion and some cavalry" as a garrison, which may be a reminiscence of official doctrine of the force needed to "walk in" and implement Caesarian arrangements. But most interesting is the fact that "certain of the British dynasts have obtained the friendship of Caesar Augustus by embassies and courtesies, and set up offerings in the Capitol, making all the island virtually a Roman possession." "All the island" is an exaggeration, and perhaps official propaganda, but the rest is just the evidence from the

⁵⁹ Allen, 7, 9.

⁶⁰ The word never seems to appear uncompounded in Gaulish as we know it, though the Irish 'Ri' proves its independent existence. The oldest attested form seems to be *-peif* (Dottin, *Langue gauloise*, 156). See also, Holder, *Altceltischer Sprachschatz*, II, col. 1197 and Thurneysen, *Handbuch des Altirischen*, I, 107.

⁶¹ See references in Mommsen, *Staatsrecht*, III, 592.

⁶² Rose, *Handbook of Latin Literature*, 324, n¹⁹.

⁶³ *Metamorphoses* XV, 752.

⁶⁴ *Epitome* CV ; Eutropius VI, 17, 3 ; Festus, *Breviarium*, chs. 3 and 6. For date of composition see P-W, XIII, col. 818.

⁶⁵ II, 5, 8 ; IV, 5, 3.

Roman side which clinches the evidence of the "Commian" coinage and places it in perspective.⁶⁶ Collingwood has stated that the "dynasts" are "evidently" Dubnovellaunus and Tincommius,⁶⁷ but this is quite wrong. They are reigning kings, not fugitives; setting up offerings on the Capitol is a ceremony of Public International Law, an act of friendship by the party to a treaty correlative to the granting of the regal title on the side of Rome.⁶⁸

The coin-evidence indicates that Tiberius continued the policy of Augustus—but with a significant difference. The REX title seems to disappear from Verica's coinage, although its Roman character remains.⁶⁹ This again is psychologically understandable. There was something of the bogus about the Augustan settlement of Britain (as indeed there was in the whole system of Augustus). He had crept into Britain instead of conquering it. One can understand Tiberius, hater of shams and the bogus, so far modifying Augustus' arrangements as to deny to British royalties the title of REX. Nevertheless Epillus now appears without the REX title but with the "Roman" coin types in east Kent,⁷⁰ and it is not unlikely that Tiberius approved or even instigated his adventure. Roman "friendlies" now held the two main gates to Britain.

Meanwhile the house of the Hertfordshire Belgae maintained its nationalist outlook (as its coins show)—and its conquering advance. Tasciovanus had countered the REX on the coins of the Commian house with its Celtic equivalent on his own.⁷¹ He died c. 15 A.D., and his son, Cunobeline, added his ancestral domains around Verulamium to his own Essex kingdom. Cunobeline indeed went on

⁶⁶ There is a slight difficulty about the chronology. It was observed by Pais (*Italia antica*, I, 303) that Strabo seems to have left Rome in 7 B.C., after which date he is virtually silent about events concerning Rome with the exception of a few facts introduced at the last moment about 18 A.D. To place the facts about the British kings and the Capitol as early as 7 B.C. raises difficulties from the side of the British evidence as well as raising the question of the silence of the *Monumentum* (compare note⁶⁴). We must, it seems, suppose that this British reference is one of the late additions. That Strabo actually saw Britons in Rome (IV, 5, 2) need not disturb us, as they could have been slaves.

⁶⁷ *Roman Britain and the English Settlements*², 73.

⁶⁸ See especially the treaty between Rome and Astypalaea, *IGRR*, IV, 1028, b, 23-25; Livy, XLIII, 6, 6; XLIV, 14, 3; *ILS*, 31.

⁶⁹ Allen, 9, following a valuable hint from Grueber.

⁷⁰ Allen, 33.

⁷¹ Allen, 17. The by-form RICOMVS is legitimate: compare Morris-Jones, *Welsh Grammar*, 200.

to expel Epillus from Kent about 25 A.D.,⁷² a challenge to Tiberius which the old emperor, who disliked "foreign entanglements,"⁷³ did not take up. Once only did Cunobeline put REX on his coins,⁷⁴ either a move in some diplomatic game of which we are ignorant, or a *ballon d'essai*, resented and not repeated. But though he too now coins in the "Roman" fashion, his nationalist sympathies are revealed in a piquant way by the ear of barley (for that is what it is) on his coins. While Verica of the Commian house flaunts the Roman vine-leaf, Cunobeline declares that "beer is best."⁷⁵

Nevertheless at the height of his greatness, Cunobeline was sensible enough not to disturb the Augustan settlement by challenging Verica directly. But it is instructive to see from Allen's analysis that his brother Epaticcus and his son Caratacus are making inroads into Verica's domains from the north.⁷⁶ Allen thinks that Cunobeline set up puppets because "communications would have been difficult and control impossible." Perhaps—but Dover is as far from Camulodunum, and I would prefer to think that Cunobeline was only challenging the Augustan arrangements with nominees whom he could at need disavow. Such a technique is not unknown in the modern world.

The next significant event in British history is the demonstration of Caligula in 40 A.D. Its motive was politically irrational, for its cause was not the disturbance of the Augustan settlement but a quarrel between Cunobeline and one of his sons.⁷⁷ The incident of the sea-shells has received either smiles or more or less desperate rationalisations.⁷⁸ But if we remember Romano-British relations and try to see into a megalomaniac's mind (and the behaviour of dictators

⁷² Allen, 22.

⁷³ Compare Tacitus, *Agricola*, 13, 3.

⁷⁴ Allen, 21.

⁷⁵ Allen, 10, 25. But that it is Barley/Beer *versus* Vine/Wine I owe to a hint in conversation with Mr. Hawkes.

⁷⁶ Allen, 24-27.

⁷⁷ Adminius: Suetonius, *Caligula*, 44, 2. The language of Suetonius might imply that Adminius, by making a formal 'deditio' to Caligula as Cassivellaunus had done to Julius, had made it possible to suppose that Romano-British diplomatic relations were back to what they had been in 54 B.C. On the possible coinage of Adminius see Allen, 35, n¹.

⁷⁸ Baldson, *Emperor Gaius*, 88-95.

has taught us something of that), we may get a sound explanation. In regard to Britain, the island beyond Oceanus,⁷⁹ there were clearly two doctrines, the "Caesarian," that Britain could and should be conquered; the Augustan, expressed incompletely in Strabo, that, granted a "balance of power" inside Britain (a corollary of the doctrine that Strabo missed),⁸⁰ more might be gained by trading and tariffs. Now Caligula had left Rome determined on the "Caesarian" plan,⁸¹ but arrived at the channel—and very possibly finding that his troops were not inclined to be "Caesarians" either⁸²—his madman's mind veered suddenly to the "Augustan." Something grandiose must be done on "Augustan" lines, and—to improve trading facilities—a lighthouse was erected at Boulogne of vast height,⁸³ the work of a megalomaniac, yet with a wild sense, for in fact in this sector of the channel low-lying fogs off the French coast do often make the entry to Boulogne hard to find. The triumph is not "Caesarian" over Britain, but "Augustan" over Oceanus, and the "spoils of Oceanus," as Suetonius puts it, the shells of the sea are gathered up accordingly.

Such behaviour was not impressive to Britons; nor was Caligula's successor from behind a curtain impressive to anyone. The prudent Cunobeline was dead, and someone, presumably his son, Caratacus, expelled the aged Verica, who fled to Claudius, whereupon his arrogant assailants demanded his extradition.⁸⁴ This was a direct attack on the Augustan settlement; and it is fitting that it was Claudius, the conscious heir, as we are told, of Augustus,⁸⁵ who took up the challenge. Again distant Britain has shown itself in its own way the touchstone of a Roman emperor's character and ideals.

⁷⁹ See n. 49.

⁸⁰ Perhaps because the "new policy" had not been completely formulated when Strabo left Rome in 7 B.C. (compare n. 88).

⁸¹ As we see from Suetonius, *Caligula*, 44, 2; compare the assumed title of Britannicus: Dio, LIX, 25, 5a.

⁸² As Balsdon (*l.c.*, 91) assumes.

⁸³ Suetonius, *Caligula*, 46. We cannot prove that the 'Tour d'Ordre' at Boulogne was actually Caligula's work, but there is nothing against it (reproduction of an old print of it in *Arch. Journ.*, LXXXVI, 38).

⁸⁴ Dio, LX, 19, 1; Suetonius, *Claudius*, 17, 1. Allen, 9 successfully revives the identification of Verica with Dio's Βέρικος.

⁸⁵ Momigliano, *Emperor Claudius*, 24, 76 and *passim*. I am very glad to give support on Momigliano's own line of thinking to his acceptance of the simple motive for the invasion given by the authorities.

Thus the evidence of British coins interlocks with that of Roman historians and Roman poets, to build up a consistent picture of imperial diplomacy. Caesar's invasions had set his successors a problem. Were his victories to be implemented and his conquests annexed? Augustus, after fumbling with the problem, decided against this solution, to find that an independent Britain presented new problems in chiefs who could feel that "Rome's difficulty was Britain's opportunity." He found his own solution in a "balance of power" policy with Roman support for the weaker of the two chief dynasties, strange application to Britain of a policy attributed in modern times to Britain herself in her dealings with Europe. The solution did not work perfectly, but it worked after a fashion; and it was, in truth, not really a long-term solution, for the maintenance of the balance depended on the statesmanship of barbarian kings. But it lasted half a century; and systems of "balance of power" in the modern world have not always lasted so long.

ROMAN CONTACT WITH INDIA, PAKISTAN AND AFGHANISTAN

BY R. E. M. WHEELER

THIS contribution to the *Festschrift* is, however inadequately, a double tribute to Crawford. It is a tribute of friendship and admiration from one who has known and worked with him for more than a quarter of a century ; but it is also a tribute to an international leader from an Archaeological Survey which, whilst not attaining his own far-flung horizons, at least concerns itself with a million square miles of Asia.¹ In this dual, official and unofficial, capacity I here bring together a few notes on a subject which, in many contexts, has interested Crawford as archaeologist and cartographer : the diffusion of that phase of civilization of which the Roman was the wholesale merchant. I offer them with the faith of de Quincey that " the least things and the greatest are bound together as elements equally essential of the mysterious universe."

Contact between the Roman Empire and India² is known to us from three sources—the classical records, references in Indian writings and epigraphs, and actual objects of Indian origin found in the Mediterranean area or of Mediterranean origin found in India. Previous writers have, naturally enough, begun from the literary evidence, illustrating it with such slight archaeological evidence as was available. As an experiment, I propose to reverse the process. The archaeological material is still excessively slender, but it is now significantly more ample than it was a few years ago and may have something fresh to tell us.

The problem falls geographically into three main categories : (a) the north-western hills and plains ; (b) the central plateau and

¹ This paper was contributed when the writer was Director General of Archaeology in India.

² Throughout this paper " India " is used in the older sense and includes Pakistan. And, incidentally, the word " Roman " is applied to all trade organised *within* or *from* the Roman Empire, whether actually administered by Italians, Greeks, Levantines or others.

adjacent coastal strips; and (c) the south, roughly from Mysore State to Ceylon. In relation to the last category it will be convenient to include a general note on the coin-evidence from India. In conclusion, I shall consider briefly certain aspects of the literary evidence in the new archaeological context; otherwise I do not propose to re-traverse the ground which has been well and truly covered by Charlesworth, Warmington and others.³

THE NORTH-WESTERN HILLS AND PLAINS

These are approached from the west by three main routes or groups of routes. Today the best known route of the northernmost group is that of the Khyber Pass, but half-a-dozen equally traversable and probably older pathways open from the Kābul-Kandahār hinterland upon the central Indus region and supplied India from the trans-Asiatic silk-routes to the north of the Hindu Kush. The second group opens upon the lower Indus plain through the Baluchistan passes south of Quetta or along the dreary coastal belt of Makrān. The third entry was by sea, *via* the Indus delta and the Kathiawar coast. I need not further particularize the overland routes, since their importance in the present context is altogether secondary.⁴ In the 1st and 2nd centuries A.D. the Parthians and to a less extent Mongol invaders barred them, save possibly in the extreme north,⁵ to systematic land-traffic with the Mediterranean, and the relationship between East and West overland may be supposed to have taken rather the form of the intermittent seepage of ideas and styles through semi-Greek intermediaries than the systematic transshipment of goods.⁵

By sea the case was different. Palmyra *via* the Persian Gulf and Alexandria *via* the Red Sea were alike in contact with India during the first two centuries A.D. The former route may account, for

³ M. P. Charlesworth, *Trade-routes and Commerce of the Roman Empire* (Cambridge, 1926); E. H. Warmington, *The Commerce between the Roman Empire and India* (Cambridge, 1928); H. G. Rawlinson, *Intercourse between India and the Western World* (Cambridge, 1916).

⁴ But the significance of the Black Sea-Caspian-Oxus route as an effective link between the Mediterranean and central Asia cannot be accurately appreciated in the absence of exploration.

⁵ To this seepage may be ascribed the bronze "Heracles" found long ago in the *miri* at Quetta—a barbarized work at second or third hand. See J. F. Garwood in *Journ. of the Asiatic Soc. of Bengal*, LVI (Calcutta, 1887), 163 and pl. x.

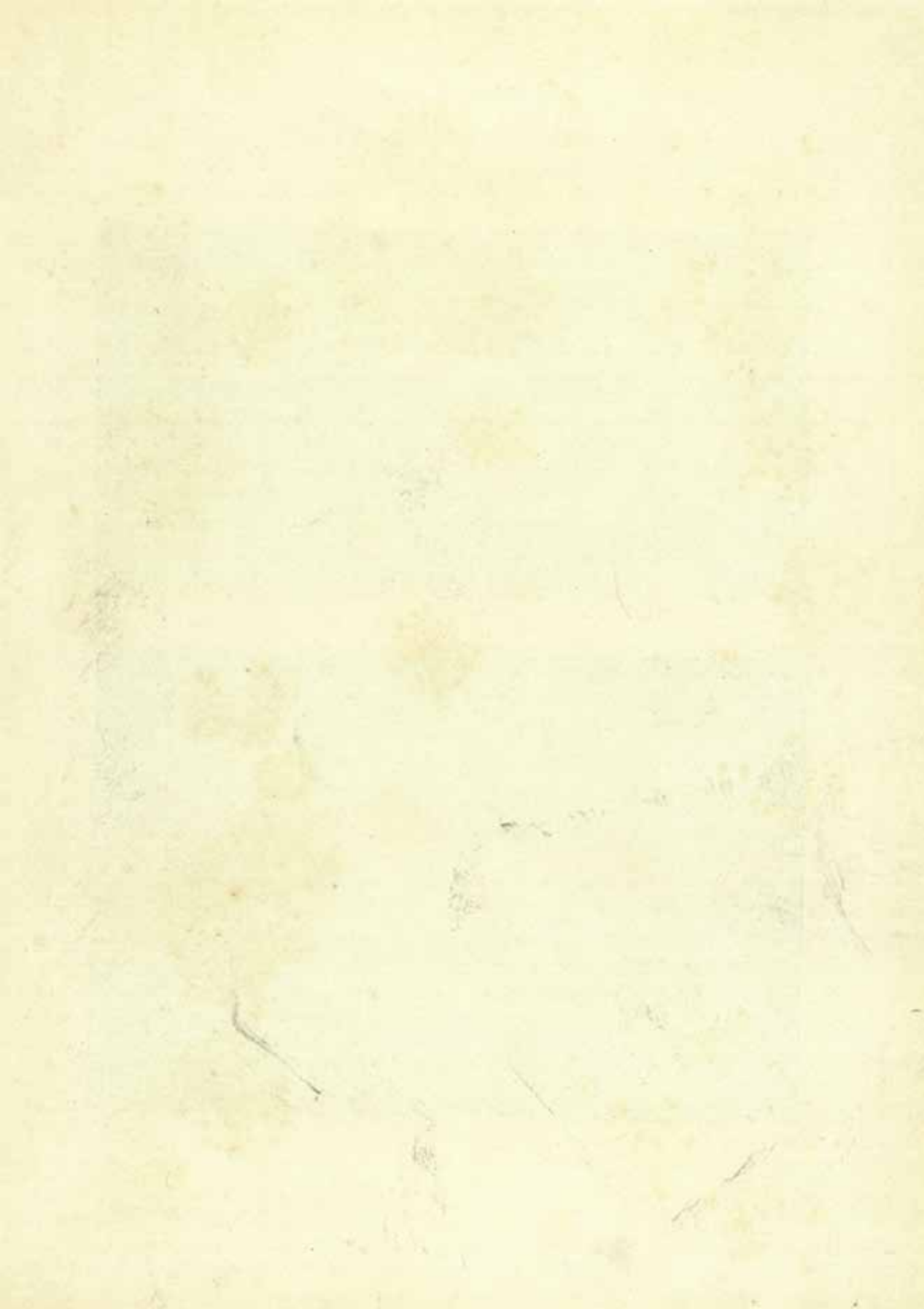
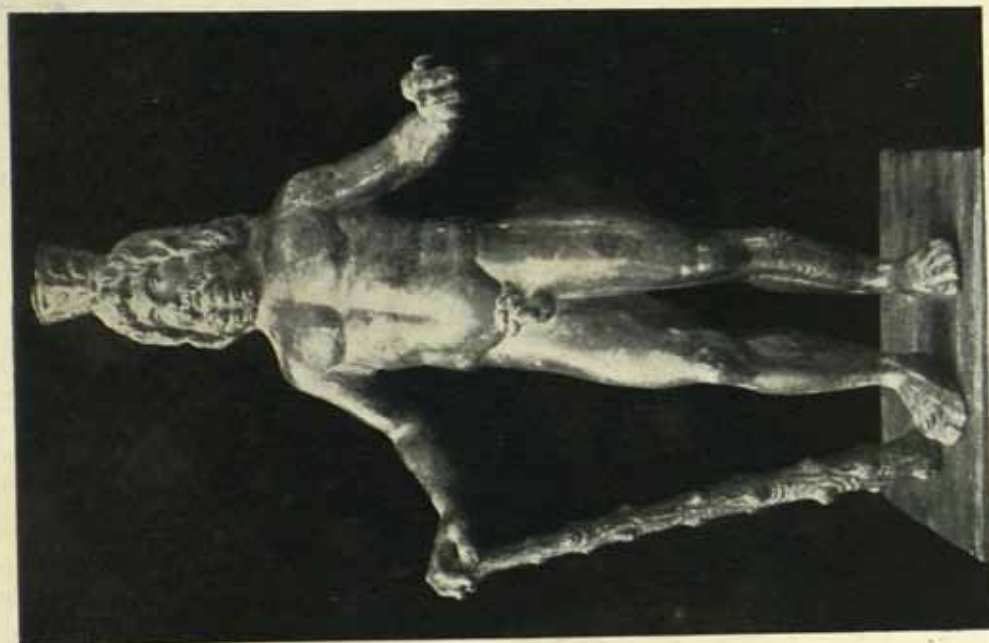


PLATE XIX



A. Bronze statuette of Heracles-Serapis, from the Begram hoard, Afghanistan (*Kabul Museum*) (Height 9 $\frac{1}{4}$ ins.)



B. Bronze statuette of Poseidon, from Kolhapur, W. India (*Kolhapur Museum*) ($\frac{1}{4}$)

example, for a certain community of textile-design noted by Seyrig in Palmyra and India.⁶ To the latter route may be ascribed some part of one of the most remarkable hoards ever recorded from Asia—the great collection of ivories and other objects unearthed in 1937 and 1939 at Bēgrām, 50 miles north of Kābul in Afghanistan, beside an old main route to India and about 200 miles from the modern frontier of Pakistan.⁷ Hackin accepted the old identification of Bēgrām with the Nicaea founded by Alexander the Great hereabouts, but this view has been reasonably questioned by Foucher.⁸

The Bēgrām hoard was found packed systematically into two small rooms, one at least of which had been walled up, in the southern area of the ancient city. Unfortunately the excavators paid no adequate attention to stratification, and, although it is evident that the hoard itself formed an integral unit, its relationship to the underlying and overlying deposits is largely unknown. It must therefore be left, so far as possible, to tell its own story. It comprises four main categories: (a) a large collection of ivory-carvings; (b) a miscellaneous collection of bronze-work; (c) a large number of elaborate glass vessels; and (d) decayed remains of Chinese bronze- and lacquer-work. The ivories are of Indian workmanship, with some stylistic similarity to the products of the Kushāṇa capital at Mathurā (U.P.)

⁶ H. Seyrig, "Ornamenta Palmyrena Antiquiora," *Syria*, XXI (1940), 305 ff. Rostovtzeff has stressed the Palmyrene character of "presque tous les bijoux portés par les nobles et les dieux du Gandhāra"—*Revue des Arts Asiatiques*, VII (Paris 1931-32), 209—and, like Foucher, is inclined to ascribe the classical element in Gandhāra art generally to caravan-traffic in the 1st and 2nd centuries A.D. But stucco was the most widespread medium in the "Romano-Buddhist" sculpture of which "Gandhāra art" is only one phase or school; and *Alexandria was the great centre of stucco-sculpture in the West in Ptolemaic and Imperial times*. On this showing, Buddhist stucco, which extends from the Indus valley far into central Asia, is more likely to reflect the known sea-contacts between Alexandria and the Indus than hypothetical overland traffic through Parthia. The present is not the context, however, in which to re-open this notorious problem. I have discussed it in *Antiquity*, XXIII (1949), 4 ff.

⁷ Partly published by J. Hackin, *Recherches archéologiques à Bēgram*, Mémoires de la Délégation Archéologique Française en Afghanistan, IX (Paris, 1939). See also an important note by R. Ghirshman in *Journal Asiatique*, CCXXXIV (Paris, 1947), 59 ff., and the same author's monograph, *Bēgram: recherches archéologiques et historiques sur les Kouchans* (Cairo, Institut Français d'Archéologie Orientale, 1946). Part of the hoard is in the Musée Guimet at Paris; the bulk of it is in the museum at Kābul, where I have seen it.

⁸ A. Foucher, "La Nicée d'Afghanistan," *Académie des Inscriptions et Belles-Lettres, Comptes rendus*, 1939. Foucher identifies Nicaea with the environs of Mandrawar, 20 miles north-west of Jalālābād, Afghanistan.

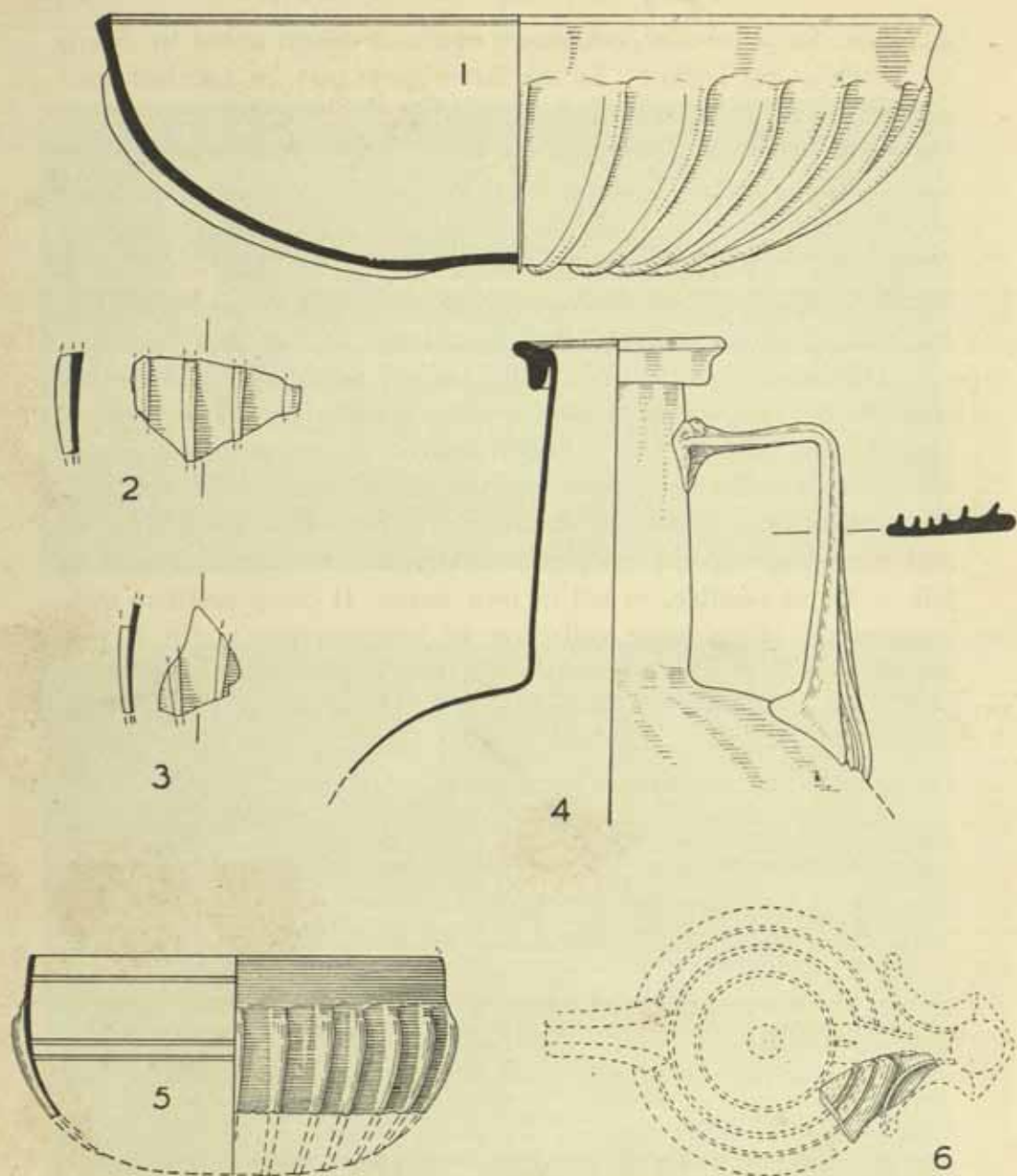


Fig. 68. 1, pillared glass bowl from the Begrām hoard (*Kābul Museum*); 2-4, western glass from Taxila (Sirkap) (*National Museum, New Delhi*); 5, pillared glass bowl from Arikamedu (*Nat. Mus., New Delhi*); 6, pottery lamp from Arikamedu (*Nat. Mus., New Delhi*). ($\frac{1}{2}$).

in and about the IInd century A.D.⁹ The bronzes are mostly of Mediterranean origin and include statuettes of Harpocrates and Heracles wearing the Serapian *calathus* (Plate XIX A), the former similar to a well-known bronze statuette from Taxila, Punjab. The glass vessels are likewise Mediterranean products, of distinctive types ranging from the Ist to the IIIrd centuries A.D. (Fig. 68, 1).

The circumstances in which this hoard was brought together at Begrām, between the Ist and IVth centuries A.D. will never be known. It may, as seems to me most probable, have been a depot for the storage of tribute exacted from the extensive transit-trade that passed this way to and from the Western world, India, and eastern Asia (see below). It may have been the salvage of a Kushāṇa palace or palaces in India (at Peshawar, or Taxila, or Mathurā?) brought together in this Western outpost of the Kushāṇa empire in the IVth century by one of the last retreating Kushāṇa princes caught between the new Gupta régime on the east and the encroaching Sasanian empire on the west. Ghirshman, on the other hand, with greater likelihood ascribes its terminal date to the middle of the IIIrd century, when the Kushāṇa empire was overthrown by Shapur I of Persia.

Within the hoard, the ivories are unquestionably Indian, and it is likelier that the Mediterranean objects came by sea and through India than by any of the more direct but more difficult continental routes. Since the Ist century A.D. the successive Arsacid and Sasanid powers had largely barred free overland intercourse.¹⁰ Moreover there is reason to regard certain of the objects as of Alexandrian origin—the Egyptian Heracles and the Harpocrates, and some at least of the glass—and the normal Eastern route from Alexandria was by the Red Sea and a West-Indian port.¹¹ By the same sea-route it may be supposed that similar imports reached Taxila in the Punjab :

⁹ The finest Indian product yet found in the classical West also has Mathurā analogies : the well-known ivory-carving from the *nuovi scavi* at Pompeii and therefore not later than A.D. 79. See A. Maiuri, "Statuetta eburnea di arte indiana a Pompei," *Le Arti* (Florence), Anno I, Fascicolo II, Dec. 1938 - Jan. 1939, pp. 111-5. Small illustration in the *Ill. London News*, No. 5210, Feb. 25th 1939, p. 300.

¹⁰ Even the Chinese objects in the hoard may well have come *via* India rather than by the now-perilous overland silk-route. In the IInd century A.D. India was active as a market or channel for Chinese trade.

¹¹ I find that I am in accord with Seyrig on this point—*Syria*, XXII (1941), 262. Seyrig identifies a rather non-committal lighthouse on one of the glass vessels with the pharos of Alexandria.

the second Harpocrates already mentioned, a silver relief of Dionysus,¹² an amphora, a glass bottle, and two fragments of "pillared" glass bowls of characteristic early Imperial type,¹³ like two examples in the Bēgrām hoard (Fig. 68, 1). These were all found in the upper strata of the second city of Taxila (Sirkap), which flourished in its later phase from c. 50 B.C. to 150 A.D.¹⁴

The coastal route by Makrān and up the north-eastern coast of the Persian Gulf was probably not used commercially at this period, even by coastwise shipping. As far up the Gulf as Bushire, Sir Aurel Stein found scarcely anything of pre-Islamic date.¹⁵ The obstacle would appear to have been less the hostility of the inhabitants than an already advanced dessication which effectively prevented habitation. It may be suspected that sea-traffic from the mouth of the Tigris usually made straight for Barein and thence on to the Indus. Consistently with this, Indian antiquities are said to have been discovered at Barein during the recent war, but unfortunately their nature and present whereabouts are unknown.

The Roman coins of north-western India do not appreciably extend our knowledge (see below, p. 379). Most of them are derived from mixed votive deposits of the IInd century A.D. in Buddhist stūpas and need not necessarily have been gathered from local sources.

THE CENTRAL PLATEAU AND ADJACENT COASTAL STRIPS

Here again archaeology is singularly silent in the face of the recorded use of western ports, notably Broach and possibly Jaigarh. The most important find, unpublished, is that of a bronze statuette of Poseidon (Pl. XIX, B)¹⁶ and a bronze jug, both of Graeco-Roman origin, from the Brahmapuri mound adjoining the city of Kolhāpur in the State of that name within the southern part of the Bombay

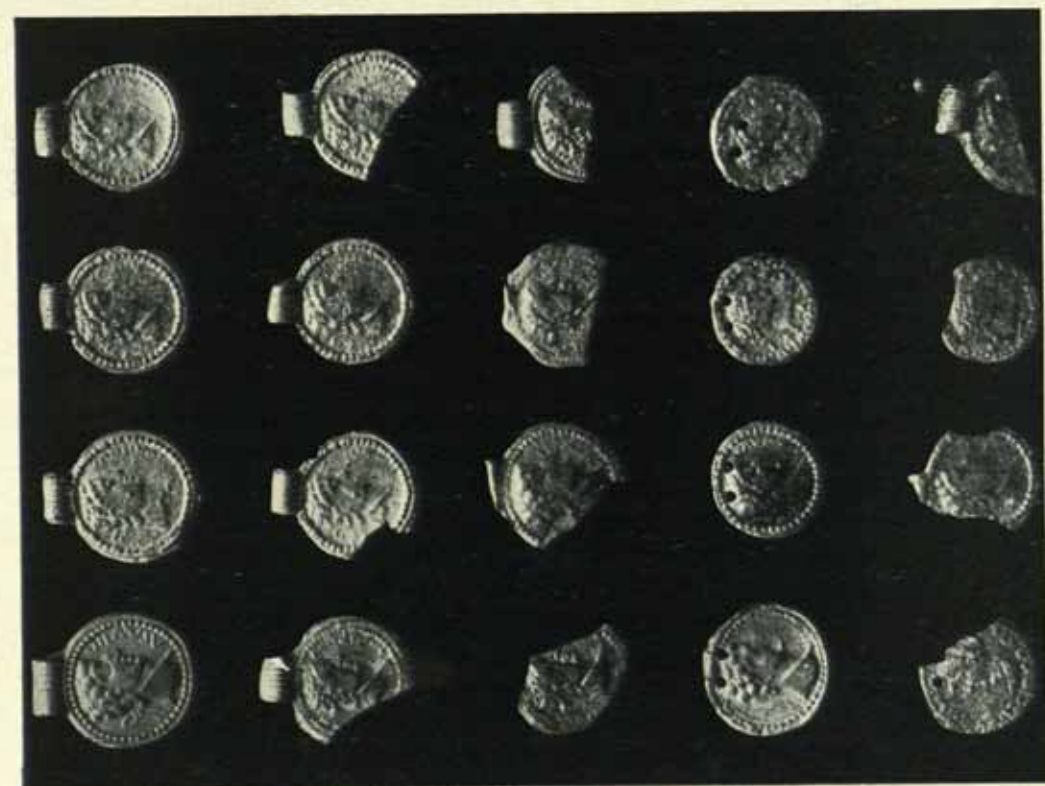
¹² J. Marshall, *Guide to Taxila* (Manager of Publications, Delhi, 3rd ed. 1936); *Arch. Survey of India An. Rep.*, 1912-13, p. 26.

¹³ The only other site in India known to me to have produced "pillared" glass bowls from the West is Arikamedu, near Pondicherry (see below and fig. 68, 5).

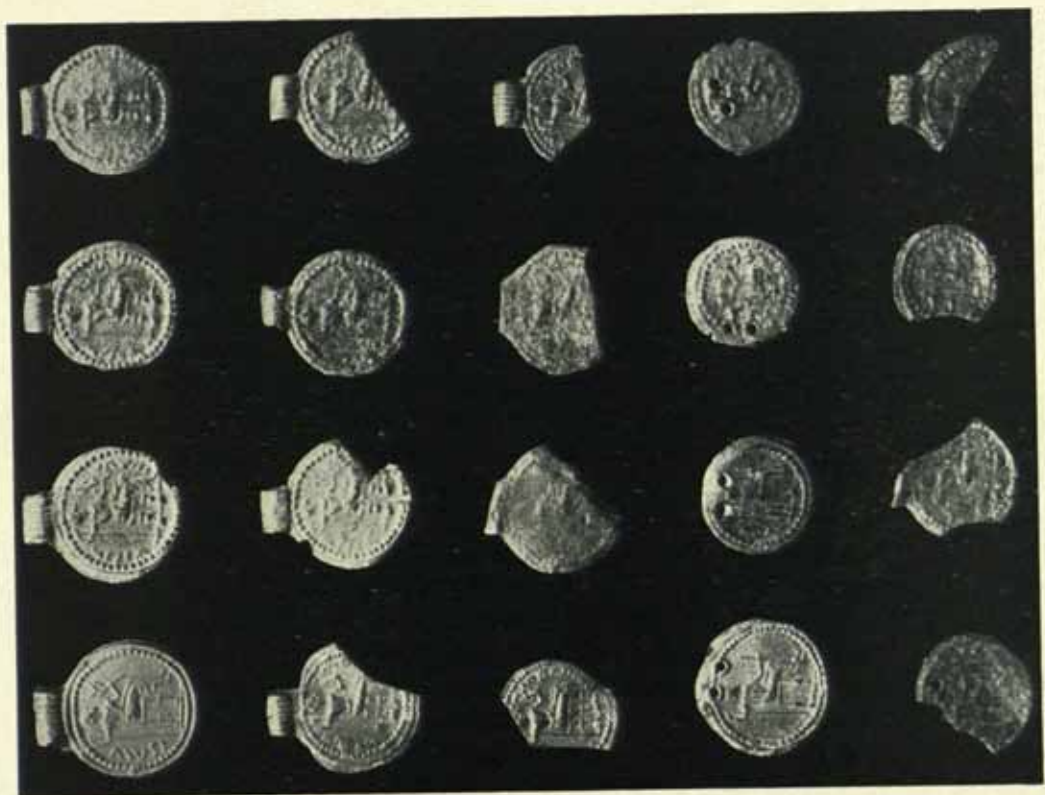
¹⁴ For a revised dating of Sirkap, see *Ancient India*, No. 4 (New Delhi, 1948), pp. 83 f.

¹⁵ Aurel Stein, "The Indo-Iranian Borderlands," Huxley Memorial Lecture, 1934 (*Journ. Roy. Anthropol. Inst.*, LXIV, 1934).

¹⁶ The objects are now (1948) in the Kolhāpur Museum.



Clay "bullae" imitating coins of Tiberius, from Kondāpur, Hyderabad State, Deccan. Obverses left, reverses right (*Hyderabad Museum*) (4)



Presidency. In the Ist and IInd centuries A.D. the greater part of central India was ruled by the powerful Āndhras, of whose cities three—Paithan, Māski and Konḍāpur, all in Hyderabad State—have been partially excavated in recent years. The excavations have been zealous rather than scientific, and no proper report has been issued upon any of them. I have, however, visited Konḍāpur and have seen there and in the Hyderabad Museum many of the objects found at this and the other two sites. With the exception of a coin of Augustus from Konḍāpur,¹⁷ the collection includes no direct importations from the Mediterranean; but the Konḍāpur site produced a number of local clay pendants or *bullae* (presumably gilded originally) based upon *denarii* or *aurei* of Tiberius, with rings or piercings for suspension (Plate XX),¹⁸ and bearing something of the relationship to their prototypes that some of the Anglo-Saxon bracteates bear to late Imperial issues. Two similar clay *bullae*, one of them again imitating a coin of Tiberius (Livia-Pax type, with reverse the wrong way round), were found at Chandravalli, near Chitaldrug, in the north of Mysore State, and are in the possession of the State Archaeological Department at Mysore. Another of clay bearing a Romanized head is recorded from Ujjain,¹⁹ and yet another was dug up in 1946 on the Kolhāpur site mentioned above; whilst a stone mould for casting a metal medallion of this kind was found long ago at Besnagar, near Bhilsā, in Gwalior State.²⁰ Two such gold medallions, of sub-classical type and pierced for suspension, were found at Nāgārjunikonda in the Guntur district with the reliquary of stūpa no. 6, ascribed to the IInd-IIIrd centuries A.D.²¹ Several

¹⁷ "Among the coins one is of gold, representing the Roman Pontiff, Augustus." *Proc. of the Hyderabad Arch. and Hist. Soc., Special Meeting held on the 10th August 1941*, p. 9. I have seen this coin in the Hyderabad Museum. It is of the Livia-Pax type (*B.M. Cat.*, pl. 14, 8-9), but is apparently of base gold with a base-metal core. It is not, however, of Indian workmanship, and has been slashed across the head on the obverse as have a majority of the Roman gold coins from India (see below).

¹⁸ Reverse a female figure seated (Livia as Pax), holding a sceptre in r. hand and a branch in l. hand, and the legend PONTIF MAXIM, beginning on the r. A local copy from India in silver is illustrated by H. Mattingly, *Coins of the Roman Empire in the British Museum* (1923), pl. 23, No. 10. I am greatly indebted to Kwaja Mohammed Ahmed, of the Hyderabad Museum, for the photographs here published.

¹⁹ B. C. Law, *Ujjayini in Ancient India* (Gwalior State publication, 1944), pl. V (a).

²⁰ *Arch. Survey of India Annual Rep.*, 1914-15, pl. LV, 34.

²¹ A. H. Longhurst, *The Buddhist Antiquities of Nagarjunikonda, Madras Presidency* (Memoirs of the Arch. Sur. of India, No. 54, 1938, pp. 21-22, pl. XVI, d).

barbarized clay pendants of the same general class have been found at the ancient site of Śiśupālgarh, near Bhubaneswar in Orissa,²² and another is recorded from Rājghāt, on the outskirts of Benares. A pierced gold imitation of an issue of Antoninus Pius was found in 1942 with a pierced genuine *aureus* of Commodus at Chakerbedha, Bilāspur district, Central Provinces.²³ But in India I have rarely seen these Romanizing medallions from elsewhere than the central region.²⁴ They appear to come from the fringe of Roman influence and to lie within the scope of the powerful Āndhra régime. The seeming exclusiveness of the Āndhras, centred upon the high Deccan plateau, may have been due in part to geographical remoteness, but it may also have been due to a political reluctance to admit the stranger within the gate, save perhaps occasionally at a few treaty-ports such as Calliena (Kalyān) near Bombay.²⁵

The coin-finds confirm this general impression. Near the east coast one or two early Roman coin-hoards carry the southern sphere of Roman influence (see below) northwards, and may indicate contact with the Āndhras in the region of Masalia (Masulipatam), noted in the *Periplus* for its muslins and probably the principal port of the country administered from the Āndhra capital at Amarāvati. It is vaguely asserted that Roman coins have been found at Amarāvati itself,²⁶ which is only some 80 miles up the Kistna river from the coast, and sherds of rouletted ware showing Western influence have undoubtedly been picked up there (see below, p. 360). But evidence of direct Roman contact at any appreciable distance in the interior is at present scanty hereabouts.

THE SOUTH

Most of the Western (Roman) trade with north-western India between the Ist and IIIrd centuries A.D. may be described as *transit-trade*: that is, it was a long-range trade between central or eastern

²² In the Ashutosh Museum, Calcutta University. Others were found in Ist-IIInd century deposits during the excavations of 1948. See *Ancient India*, no. 5 (1949), p. 101.

²³ T. G. Aravamuthan, *Journ. Numismatic Soc. of India*, VII (Bombay, 1945), 6.

²⁴ Although genuine Roman *aurei* in the South were not infrequently pierced for suspension.

²⁵ *The Periplus of the Erythraean Sea*, 52; ed. W. H. Schoff (1912), p. 197.

²⁶ No. 7 in the appended list (p. 375).

Asia and the West, using the ports of the Indus and Gujarat as *entrepôts* between the western sea-routes and the arterial land-routes which fed the China-road north of the Hindu-Kush and so avoided passage through a hostile Parthia. No doubt powerful intermediaries such as the Kushāṇa kings secured a rake-off from this traffic, and a major part of the Bēgrām hoard may, as I have suggested above, be ascribed to this process. But there was, it seems, no extensive local marketing with the Yavanas or Westerners within the Kushāṇa Empire; apart from a few gem-stones such as the carnelian of Rajpipla and the *lapis lazuli* of north-eastern Afghanistan, the Kushāṇa kingdom produced little that the luxury-markets of the West desired.

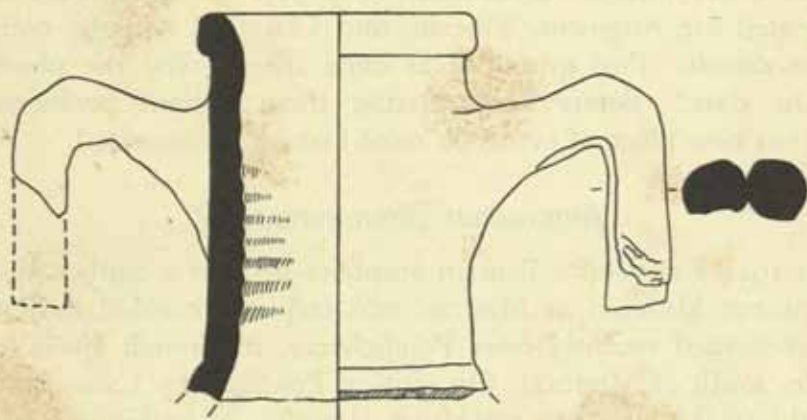


Fig. 69. Mediterranean amphora-neck from Taxila (Sirkap) (*Nat. Mus., Karachi*) ($\frac{1}{2}$)

The unquestionable closeness of the commercial contact between the Kushāṇs and the West is therefore out of all proportion to the actual body of the local trade. The Kushāṇs were essentially middlemen.

As a concrete demonstration of this, twenty years of intensive excavation at Taxila (in spite of its Westernizing traits) produced only *one* Mediterranean amphora (Fig. 69), whilst three months' digging on a South Indian site, to which we shall come in a moment, yielded over a hundred (e.g. Plate XXII B). The difference is significant. The South Indian site was no mere port of passage; it was primarily a goal of localized trade. Here in the south lay the Indian commodities which Western taste demanded in exchange for Western wine and table-ware

and bullion : the pearls, the abundant gemstones, the fine muslin cloth, above all the pepper for which civilized and barbarian Westerners alike learned to crave. It is thus to the south of the Hyderabad plateau of the Deccan that we at last come upon extensive and significant traces of the Yavanas of Indian literature and epigraphy. True, until recently the archaeological evidence was restricted to Roman coins and is still of very limited extent, but its implications are far-reaching.

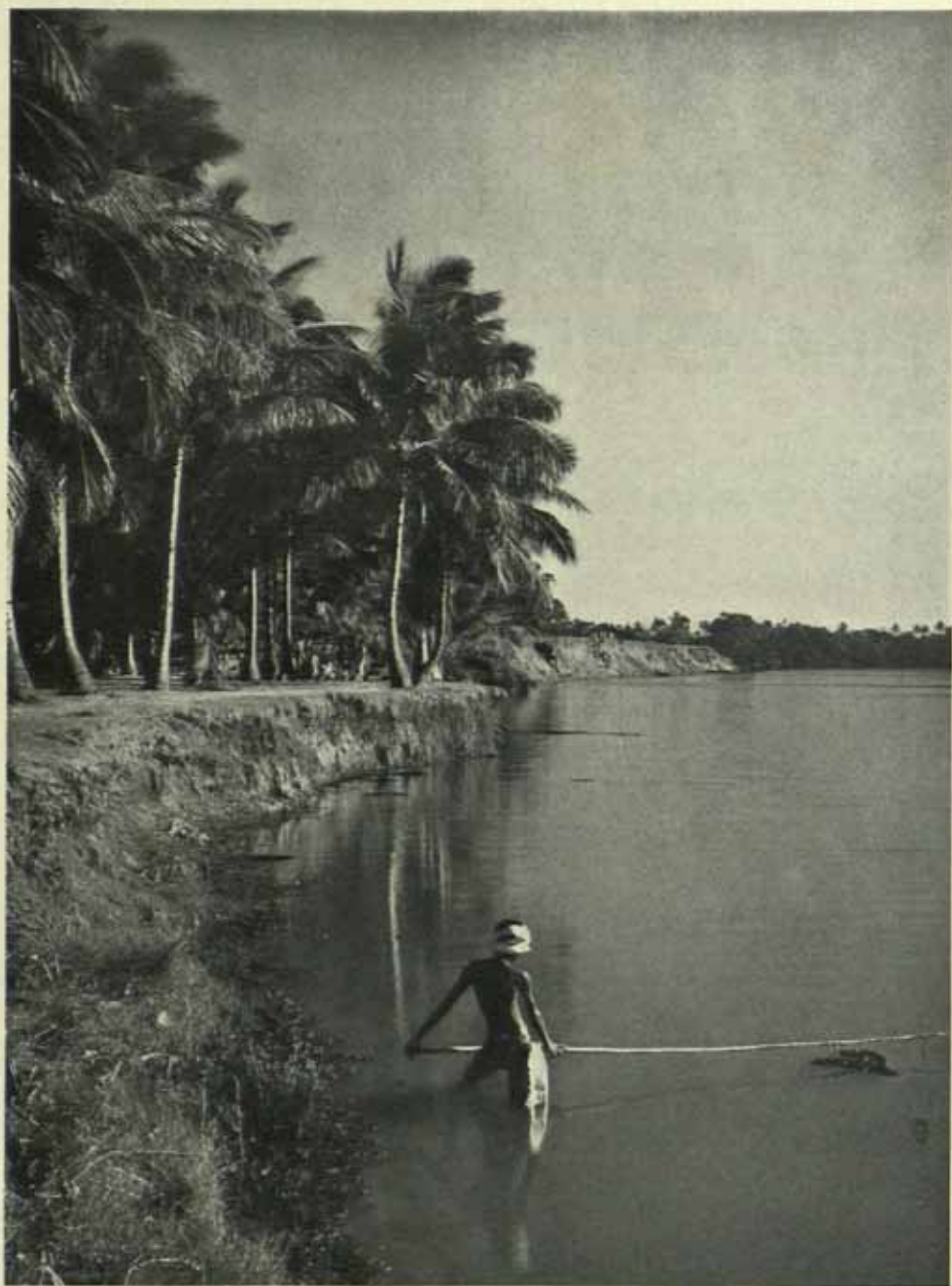
The Roman coin-pattern of South India is a remarkable one. Into a single district, Coimbatore, some 250 miles south-west of Madras, are concentrated the majority of the find-spots of early Imperial coins recorded from India (Fig. 72). The emperors mainly represented are Augustus, Tiberius and Claudius, and the coins are *aurei* or *denarii*. Two questions at once arise : why the place and why the date? Before reconsidering these ancient problems, an important new piece of evidence must first be summarized.

ARIKAMEDU (PONDICHERRY)²⁷

In 1944 I noticed a Roman amphora-neck in a cupboard of the Government Museum at Madras, and enquiry revealed that it had been unearthed recently near Pondicherry, in French India, about 85 miles south of Madras. On visiting Pondicherry I was shown in the Public Library three exhibition-cases full of antiquities recently excavated on a coastal site two miles further south, beside a lagoon which represents a former outlet of the Gingee river. The work had been instigated, though not executed, by the late G. Jouveau-Dubreuil, who had acquired from local children a gem-carved (it is said) with a head of Augustus and had recognized the potential interest of the site as a link with the West.²⁸ The excavations, carried out intermittently by local antiquaries in a well-intentioned but haphazard manner, had produced mass-evidence of a value not fully appreciated by the finders ; for together with many more fragments of amphora

²⁷ The recent excavations go far to confirm the identification of Pondicherry with the Podoukê of the *Periplus* and Ptolemy. The old name probably survives in that of Pondicherry, Tamil *Puduchcheri* ("Newtown").

²⁸ *Bulletin de l'École Française d'Extrême-Orient*, XL (Hanoi, 1941), 448 ff.



Arikamedu, site of a trading-station near Pondicherry, S. India.

from the Mediterranean were several sherds of red-glazed ware of familiar Italian types and fabric, which at once gave a new precision to the discovery. Scraps of Mediterranean glass of the 1st century A.D. and an untrimmed quartz gem bearing a cupid and eagle in intaglio fitted into the picture. Here at last was evidence of a more solid kind than the place-names (often doubtfully identified) and coin-finds (mostly ill-recorded) which had previously eked out our knowledge of "Roman" India. At Arikamedu, the local name of the Pondicherry site, Western traders had clearly established themselves on something like a permanent footing.

The investigation subsequently carried out (in 1945) by the Archaeological Survey of India with the permission of the French authorities has been fully recorded elsewhere.²⁹ For Indian archaeology the primary importance of the site is that it gives us for the first time a dated milieu for a pre-medieval South Indian culture. In the present context its interest is that of the first depot for Roman goods actually located by excavation in India. The situation of the place, away on the eastern coast and remote therefore from immediate contact with the West, adds to its significance. Its main features are as follows.

The ancient town, now covered by coconut palms, fir-plantations, sand-dunes (Plate XXI), and the villages of Kākkāyantopu and Virampatnam, lay in the south-eastern angle between the present lagoon (former river-mouth) and the Bay of Bengal. Half-a-mile from the latter, beside the lagoon, two sites had been partially uncovered by local excavators in 1941-3, and in 1945 both were re-examined and extended laterally and vertically by the Archaeological Survey. The more northerly site lay relatively low beside the water and was that of a large and featureless brick building, now curtailed by erosion but still 150 feet long. From its character and position it was named "the warehouse," a sufficiently probable identification. The more southerly site lay upwards of 10 feet above water-level; its principal buildings consisted of two courtyards with adjacent tanks, and it is suggested that these structures were used in the preparation of the

²⁹ *Ancient India*, no. 2 (Delhi, 1946), pp. 18 ff.

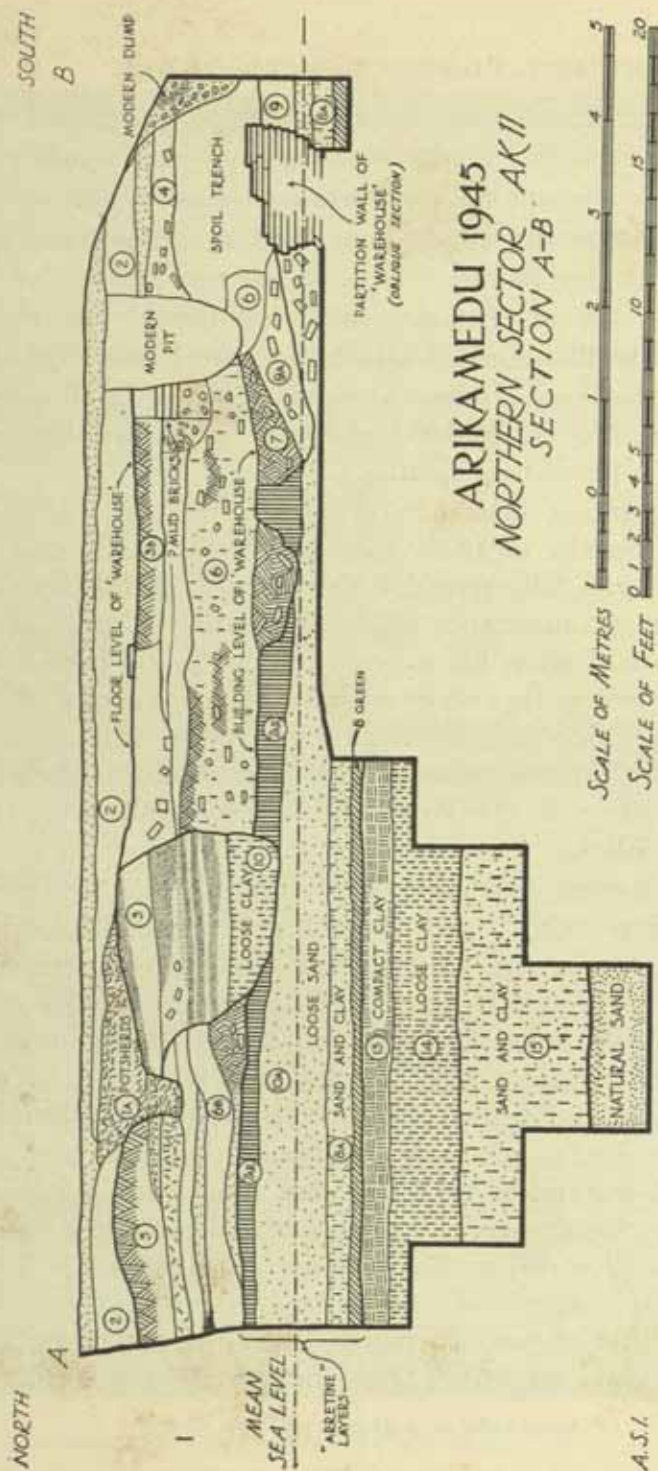


Fig. 70.

(From *Ancient India*, no. 2, July, 1946).

muslin cloth which was an ancient export from this part of India.³⁰

More suggestive than the plan of these two sites was their stratification. The "warehouse" was built on and into four successive strata, with a total depth of four feet, all containing sherds of Mediterranean amphora and of the red-glazed Arretine fabric referred to above (Plate XXII), with an occasional fragment of Western glass and part of a Roman lamp (Fig. 68, 5-6). Below these layers were three feet of sand and débris (now well below mean sea-level) containing fragments of timbering, with amphorae but no Arretine. Between the bottom of this deposit and the clean sand of the estuary lay a further layer, some five feet in thickness, containing only a few sherds in which both amphorae and Arretine were absent but a type of dish ornamented with rouletted pattern of Mediterranean—definitely not Indian—origin was present. The last type was also present in all the subsequent layers of the site.

This section, here reproduced (Fig. 70), is important, and all other sections were consistent with it. Certain further points may be noted. The occupation was evidently continuous from the pre-Arretine phase into and beyond the Arretine phase; there was no hint of interruption. The continuation of Mediterranean amphorae until the end of the occupation proves continuity of Western contact. It is a fair inference therefore that the discontinuance of Arretine imports should be ascribed to the cessation of their production; and the character of the Arretine sherds themselves—the presence of Ritterling's type 5 without rouletting, and the extreme scarcity of decorated sherds (only one has been found)—although due in part perhaps to the restriction of this distant trade to the cheaper products, is consistent with a late date in the history of the fabric. If we apply the evidence of western Europe, the terminal date of the Arretine potteries was soon after A.D. 45,³¹ and the period A.D. 25-45 may reasonably therefore be held to cover the importation of Arretine ware in the few strata at Arikamedu.

On this basis we may assume a period prior to A.D. 25 for the

³⁰ Warmington, *op. cit.*, p. 211.

³¹ For the most recent discussion of this, see C. F. C. Hawkes and M. R. Hull, *Camulodunum* (Soc. Ant. Lond., 1947), p. 190, etc.

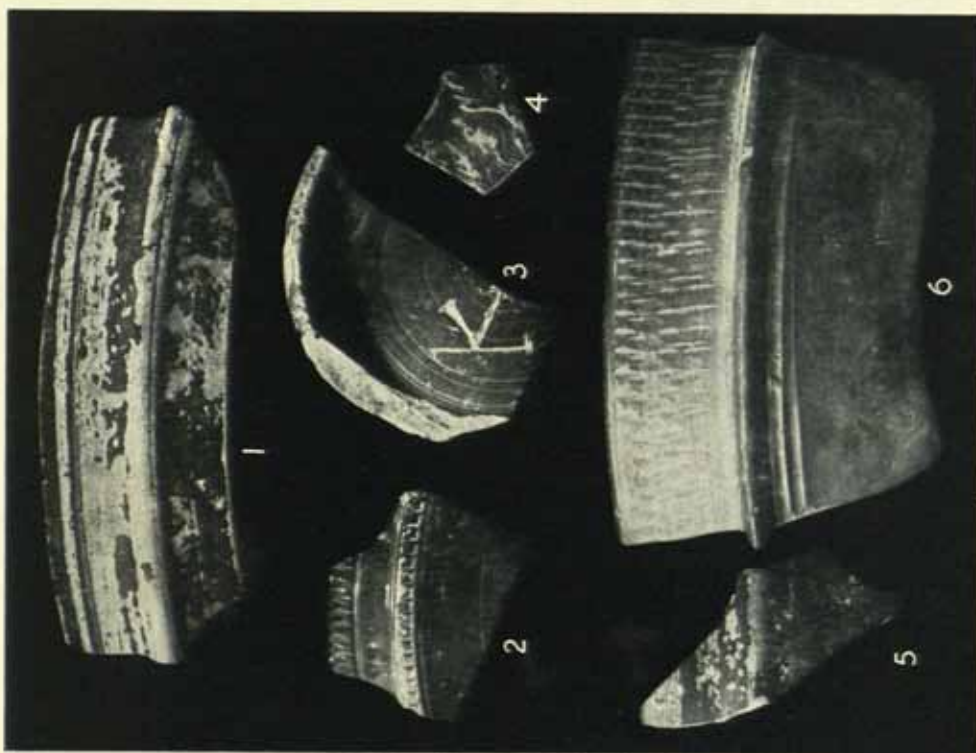
accumulation of the underlying eight feet of material, the upper part of which included Mediterranean amphorae, and all of which contained sherds bearing a characteristic Mediterranean decoration (rouletting). In computing the length of time involved in this accumulation, I would emphasize that it consists largely of layers of estuarine mud, and its accumulation doubtless did not occupy a time normally commensurate with its depth. At a guess, however, it is not easy to allot less than 15 or 20 years to the process, taking back the beginning of the occupation and the arrival of Western or Westernizing pottery to c. A.D. 10 or earlier. I find it difficult, in other words, to ascribe the earliest Roman contacts at Arikamedu to a date later than the latter part of the principate of Augustus, with an expansion in the reigns of Tiberius and Claudius.

For the later history of Arikamedu the archaeological evidence available is less precise. Three main structural phases, all on the same basic plan, carry the occupation certainly into the IInd century but not necessarily, I think, beyond the end of that century. The matter is discussed in the report.

On objective archaeological evidence, therefore, it is to be inferred that merchants in contact with the Roman world had established a regular trading-station on the south-eastern coast of India before or about the death of Augustus. From this certain further inferences follow.

First, a fixed station on the east coast of India implies regular trade and a knowledge, therefore, of the periodicity of the south-west monsoon. Without this knowledge, regular voyages from the Red Sea to South India are unthinkable. The immense distance of the coastal voyage, with the constant and notorious risk of coastal piracy, rules the alternative possibility out of court. Only a more or less direct ocean-voyage under predictable conditions can supply the answer; in other words, on this new computation the south-west monsoon, which according to Pliny could reduce the ocean-voyage to forty days,³² must have been familiar to Western sailors during the

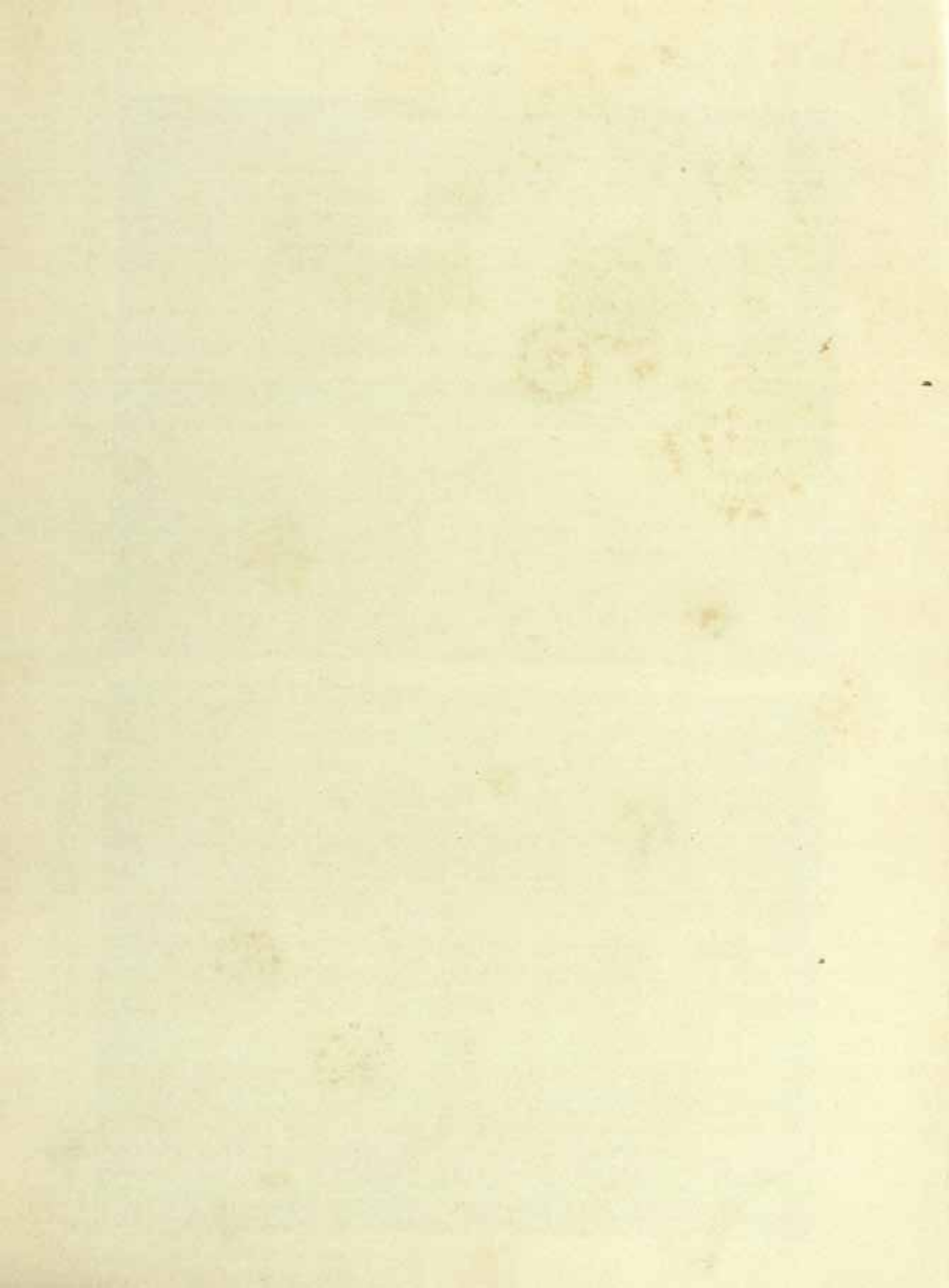
³² *Nat. Hist.*, VI, 104.



A. Roman pottery from Arikamedu, S. India. 1-5, Arretine ware ;
6, imitation Arretine ware. (*Slightly reduced*)



B. Mediterranean amphorae from Arikamedu. (*National Museum of India,
New Delhi*)



lifetime of Augustus. To this important inference I shall return.

Secondly, what was the commercial function of the east-coast trading-stations in and after the time of Augustus? It is evident that large quantities of semi-precious stones, some of them probably from Ceylon, passed through the workshops of Arikamedu. It has been conjectured above that the famous muslin cloth may have been an exportable manufacture here. It is, however, natural to conjure up more distant horizons also; the coastal route up to the Ganges valley, where the *Periplus* locates a trade in herbs, muslin and gold; or further afield, to Malaya and the dim beyond, to the silk-producing land called *This*, hard of access. To this evidence may be added that of the didactic historical romance known as *The Questions of Milinda* which appears to have been written in northern India (though preserved in a Pali rendering from Ceylon) at or a little after the beginning of the Christian era, and refers to maritime trade with "Vanga (Bengal), or Takkola, or China, or Sovira, or Surat, or Alexandria, or the Coromandel Coast, or Further India."³³ There is at present no archaeological evidence for such trade with Further India and China in the 1st century A.D. In the 2nd century, coins of the Antonines reached the peninsula of Cochin China where at Oc-Eo, 15 miles from the shore of the Gulf of Siam and not very far from Long Shuyen, two were dug up in 1944 by Mr. L. Mallaret, then conservator of the Musée Blanchard de la Brosse at Saïgon.³⁴ This discovery might be thought to add point to the statement of the Chinese annals that direct intercourse between China and the Roman world was established in A.D. 166 by an embassy sent by "An-Tun" (Marcus Aurelius Antoninus) to the Chinese Emperor Huan-ti by sea, probably *via* Annam.³⁵ Further excavation in Cochin China may be expected to yield relevant and interesting information.

³³ T. W. Rhys Davids, *The Questions of Milinda* (Sacred Books of the East series, Oxford, 1890), II, 269. Tarn postulates a Greek prototype (*The Greeks in Bactria and India*, pp. 414 ff).

³⁴ *L'École Française d'Extrême-Orient de 1940 à 1945* (Saïgon, 1946), p. 12. "A gold medal bears the head of one of the Antonines and a much-mutilated legend, in which however AVREL . . . can be read. Another is clearly designated Antoninus Pius, with a date corresponding to A.D. 152."

³⁵ F. Hirth, *China and the Roman Orient* (Leipsic and Shanghai, 1885), pp. 173 ff; Warmington, *op. cit.*, p. 130.

CHITALDRUG AND AMARĀVATI

Three other sites in southern India have yielded slight evidence of Roman contact, and would doubtless yield considerably more on examination. The important Āndhra city of Amarāvati, readily approachable from the east coast, has been mentioned above as having produced sherds with the Italic roulette-pattern, and possibly Roman coins. Far inland, in the district of Chitaldrug in the northern part of Mysore State, formerly on the southern edge of the Āndhra kingdom, two sites—Chandravalli and Brahmagiri—have produced similar pottery, now in the Mysore Museum, and Chandravalli has yielded *denarii* of Augustus and Tiberius and a fragment of a Graeco-Roman amphora.³⁶ The sites clearly came within the sphere of influence of the coastal markets.

We find then, on objective evidence, that early in the 1st century A.D. Roman commerce with South India was established on an organized footing, with permanent trading-stations or "factories" in certain of the Indian ports on the east coast and with contacts in the interior, at least into the fringe of the Āndhra country. The south-west monsoon was harnessed to this trade, and already there was some sort of commercial relationship, however tentative and indirect, with Ceylon and possibly Indonesia. It is now time to turn to the evidence of the coin-finds.

ROMAN COINS IN INDIA

No Roman coins have yet come to light at Arikamedu, but their occurrence in India generally has been noted from time to time since 1775 and they still turn up at fairly frequent intervals. They occur in hoards, in votive deposits and sometimes singly. The vast majority of them (perhaps some 3,000-4,000 gold and silver) are derived from finds of the first category, about 26 all told, mostly from South India. The second category comprises two stūpa-deposits in the Jalālābād district of Afghanistan, near the Pakistan frontier, others from Buddhist stūpas at Manikyālā and Taxila near Rawalpindi in the Punjab, and others again, vaguely recorded, from the Kābul valley. The

³⁶ *Ancient India*, No. 4 (1948), pp. 270 ff.

third category includes upwards of twenty-six sites or areas which have produced individual coins, generally either *aurei* and *denarii* of the Ist and IInd centuries or small brass of the IVth century and later, these in the south. Most of the records of isolated finds are so nebulous that their significance is hard to determine, and in some cases they may represent hoards.

I append to this paper a revised list of these finds, together with a summary map (Fig. 72) to indicate the general picture. But a fresh analysis of the whole material, such as I have not found time to attempt, is now overdue. I content myself here with a few notes designed to indicate the scope of the evidence.

First and foremost, prior to the IVth and subsequent centuries when the Roman or romanized "chicken-feed" copper mentioned above presumably enjoyed some sort of a token-currency in South India and Ceylon,³⁷ it is evident that the imported coinage, consisting exclusively of gold and silver,³⁸ was employed normally not as currency but as bullion. In the IInd century A.D., Pausanias (III, 12, 24) noted that the Indians exchanged their wares with those of the Greeks without understanding the use of money. As bullion, imported coins would be weighed out in exchange for goods, and their normal

³⁷ These late copper coins are a remarkable phenomenon, at present inadequately explained. They occur freely in the South, generally but not exclusively along the Coromandel coast, together with "Chinese and Arabian pieces. . . . The Roman specimens are chiefly *oboli*, much effaced, but among them I have found the epigraphs of Valentinian, Theodosius, and Eudisia. These are found after every high wind, not in one or two places, but at frequent intervals, indicating an extensive commerce between China and the Red Sea, of which the Coromandel coast seems to have been the emporium." W. Elliot in *Notes and Queries*, 19th April 1873, and the *Indian Antiquary*, II (1873), 242. "Along the Coromandel coast, from Nellore as far south as Cuddalore and Pondicherry, a class of thin copper die-struck coins . . . are found in considerable numbers in or near dunes and sand-knolls in the vicinity of the kupams or fishing hamlets that stud the shore, together with the Roman *oboli*, perforated Chinese coins, bits of lead and other metal, beads, fragments of charcoal, etc. . . . The Roman coins are of the smallest value, and are generally worn smooth, but on two or three the names of Valentinian and Eudisia have been read." W. Elliot in *Numismat. Orient.*, 1885, p. 35; E. Thurston, *Madras Gov. Museum Cat. of Coins*, no. 2 (1894), p. 28. Inland also: "Mr. Scott, Pleader in the District court of Madura is in possession of . . . a large number of Roman copper coins (among which I noticed coins of Honorius and Arcadius), found in the bed of the river Vigai, as well as a Chinese coin from the same place." R. Sewell, *List of the Antiquarian Remains in the Presidency of Madras* (1882), I, 285, 291.

³⁸ The *θηράσιον χρυσῶν καὶ ἀργυρῶν* noted by the *Periplus* amongst Roman imports. I know of no authenticated discovery of a Roman "brass" coin of the Ist or IInd century in India. A copper coin of Domitian, with 11 other copper coins down to Theodosius, is vaguely said to have been "found buried in Upper India" in 1833 (*Journ. As. Soc. Bengal*, II (1833), 368), but no value attaches to this record. In any case the hoard, if it existed, cannot have been deposited before the end of the IVth century. Other collections of Roman brass said or thought to have been derived from India must equally be discounted as serious evidence.

occurrence in "hoards" is a natural corollary. Indeed, the term "hoard" is in this context largely a misnomer; the so-called hoard being doubtless in most cases a unit (sometimes perhaps more than one unit) of stamped silver or gold to a total weight agreed for some specific wholesale purchase. The fact that the precious metal was already coined into known and stamped sub-units (coins) would considerably facilitate the Roman trader's accounting and would at the same time carry prestige with his customer.³⁹ So far as I can ascertain, the quality of the Roman silver in the hoards is almost uniformly good, as was essential for the well-being of this barter-trade. It has indeed been widely stated that certain *denarii* of Augustus (Lucius-Gaius type) found in India "are nearly always plated,"⁴⁰ but Mr. T. G. Aravamuthan, who has examined at Madras a number of specimens of this type, many of them badly corroded or broken and therefore visible in section, assures me that "none of these pieces has been subjected to this process," and the previous statements to the contrary would appear at least to have been exaggerated.

To what I have just said as to the use of Roman silver in India as bullion rather than as currency, I know of only one likely exception. In the early centuries A.D. the Āndhra kingdom of the Deccan was using an extensive local potin currency and was familiar with the monetary principle. The excavations mentioned above on the site of the Āndhra town of Chandravalli, 1½ miles south-west of Chitaldrug in the northernmost district of Mysore State and on the fringe of the Āndhra country, have produced six *denarii*—one (or two) of Augustus, four of Tiberius and one unidentified—lying individually in the occupation-strata of the site in the vicinity of local issues.⁴¹ Here it would appear that Roman coins, possibly derived from a broken hoard or hoards, were actually in circulation as a high-value currency. The evidence is admittedly incomplete but should be borne in mind in future work.

One other much-discussed minor problem of the Roman coinage from India may be recalled in passing. A large number of the gold

³⁹ It certainly impressed the king of Ceylon—see below, p. 370.

⁴⁰ Warmington, p. 39.

⁴¹ See appended list, p. 380, nos. 60-5.

coins (hoards from Madurā, Karukkakuricchi, Tonḍamanathan, Karivalamvandanallur, Nandyal, and Gumada) have been defaced by an incision across the imperial head. Since only one of the numerous Roman silver coins from India is known to have been so treated,⁴² it is evident that defacement was reserved for the gold issues. Further, since the imperial head and no other feature of the design, even when representation of the human figure is involved, has been singled out for treatment, the purpose of the defacement was definitely not iconoclasm but the cancellation of the authority of the piece as a coin-issue. The defaced coins cover a wide range of time, including *aurei* of Claudius, Nero, Vespasian, Hadrian and, apparently in one case, Constantine I.

For this mutilation I have no better explanation than that long ago put forward by the late Sir George Hill, who concluded that "the incisions were made in India, in order to put the coins out of circulation."⁴³ But an interesting fact may be added. Except in one stūpa-deposit, none of these Roman gold coins, whether mutilated or otherwise, is found within the probable boundaries of the IInd century Kushāṇa Empire, which included the whole of north-western India and the important west-coast trading-ports of the Indus delta, Gujarat and Bombay. Within that Empire was at this time struck the only native gold coinage of India, and it was struck to the Roman standard. It was long ago suggested that these Kushāṇa gold pieces, or at any rate some of them, were in fact Roman *aurei* melted down and restruck.⁴⁴ The suggestion is a convincing one. All Roman gold which could be recovered and absorbed by the Kushāṇa Empire⁴⁵ was thus regulated and reminted; and the all-powerful Kushāṇs saw to it that such Roman gold as was admitted to their border-states was removed by mutilation from possible rivalry as currency, and relegated to use as bullion or ornament. The fact that some of the peripheral

⁴² In the Government Museum, Madras. Information from Mr. T. G. Aravamuthan.

⁴³ *Num. Chron.*, 3rd Ser., XVIII (1898), 320; modified, *ib.*, XIX (1899), 82.

⁴⁴ A Cunningham, *Num. Chron.* (1899) p. 277; R. Ghirshman, *Begram: recherches archéologiques et historiques sur les Kouchans* (Cairo, Institut Français d'Archéologie Orientale, 1946), p. 172.

⁴⁵ Most of this Roman gold is of 1st century date, whereas the Kushāṇa Empire reached its prime in the IInd century. But there is reason to suppose (see p. 372) that the export of bullion from the Roman Empire was restricted from the latter part of the 1st century, and little more than gold surviving in trade from the previous period is therefore now in question.

gold coins were not defaced need reflect nothing more than a measure of administrative laxity or reluctance that requires no explanation in the East. In regard to imported silver the question did not arise. No silver coinage comparable with the imported *denarii* existed in India in the 1st or 2nd century A.D. ; even the Kushāns issued none, with a unique exception of Kadphises II.⁴⁶ There was therefore little risk of its intrusion as currency, since the country was economically unprepared for it. With the partial reservation in respect of the Kushāna Empire, I would again emphasise that the Roman gold and silver coinage, particularly of the early period, was received as bullion, not as currency, into regions where the writ and economy of Rome did not run.

Harping still on the "bullion" aspect of the hoards, I would urge caution in the use of the term "circulation" in computing the antiquity of the component coins in hoards from Indian soil. Certain hoards include worn coins of relatively early date, and there is a natural tendency to assume that they originally entered India shortly after minting and subsequently circulated there prior to collection and deposition. There is little likelihood that such was the case. For example, Republican silver has been found in two deposits in India. In the Manikyālā stūpa near Rawalpindi seven badly worn Republican coins of c. 90-41 B.C. were found with copper issues of Kanishka, of about the middle of the 2nd century A.D.⁴⁷ At Kallakinar in the Coimbatore District, in South India, two worn Republican *denarii* of c. 58 and 39 B.C. were found, it is said, with "other silver and gold coins and jewels, in an earthenware pot,"⁴⁸ but the associated coins were not recovered. To both cases the same remark applies. There is no reason to suppose that we are here confronted with the last vestige of Roman currency circulating in India in pre-Augustan times. The continued circulation of certain Republican issues in Europe until the end of the 1st century A.D. is a familiar fact ; and in any event the occurrence in India of early pure-metal *denarii* certainly or probably long subsequent to their issue need merely reflect the commercial

⁴⁶ *Brit. Mus. Cat. Indian Coins : Greek and Scythic Kings* (1886), p. 126.

⁴⁷ *Journ. Asiatic Soc. of Bengal*, III (1834), 558-9.

⁴⁸ *Madras Government Museum Ann. Rep.*, 1909-10, p. 2.

exportation of worn-out or displaced currency from the West for use as bullion in the Eastern trade. In general it were better to avoid in the present context the term and concept of "circulation," with its implication that the coins travelled individually and constantly from pocket to pocket in India as small change.⁴⁹ Individual coins of the first three centuries A.D. are rarely found. Not a single Roman coin was recovered amongst the considerable litter of Roman pottery at Arikamedu, and it is against all analogy to suppose that, had Roman coinage in fact been in circulation, not a *denarius* would have reached the soil in the appreciable area under investigation. It is safer to assume that the imported currency did not normally circulate at all, save in bulk.⁵⁰

From these general factors I turn to the geographical and historical indications of the coin-evidence.

Attention has already been redirected above to the well-known fact that a large proportion of the Roman coins from India has been found in the peninsula, to the south of the Deccan plateau, and that, within this vast area, the district of Coimbatore and its borders, some 250 miles south-west of Madras, have produced more than the whole of the rest of India.⁵¹ As in all such cases, the first step is to refer to the map (Fig. 71).

The district of Coimbatore is approached up two major river-valleys, that of the Cauvery from the east coast and that of the Ponnani from the west. It lies at the point where the Eastern Ghats, swinging westwards, merge into the Western Ghats and conspire with them to leave a transverse gap, about 20 miles wide, between east and west. Through this, the Ponnani or Pālghāt or Coimbatore gap, the railway from Madras and the Carnatic plain now penetrates to Calicut and Cochin. The medieval tradition which landed St. Thomas on the

⁴⁹ Consistent with the non-use of Roman gold and silver as currency in India, though not in itself of positive significance, was the not infrequent use of actual coins or imitations as ornaments. For instance, several *aurei* pierced for suspension were included in the Nellore, Dharphul and Vinukonda hoards, and ornamental copies of *aurei* or *denarii* in metal or even clay have been referred to above (p. 351).

⁵⁰ Here I differ from Warmington, p. 292. But see above, p. 362.

⁵¹ At least thirteen hoards of Roman coins of the 1st century A.D. have been found in the Coimbatore-Trichinopoly districts or on their borders. They are nos. 9, 11, 12, 13, 15, 16, 17, 19, 36, 37, 42, 43 and 44 in the appended list (pp. 376 ff.).

Malābār coast and brought him across-country to the Coromandel coast was doubtless familiar with the route. Along it, we cannot doubt, the ancient traffic from Muziris (Cranganore) and Nelkunda on the Malābār coast, evading the troublesome coastwise voyage round Cape Comorin, travelled overland to *Pōdoukē emporion* and *Khabēris emporion*,

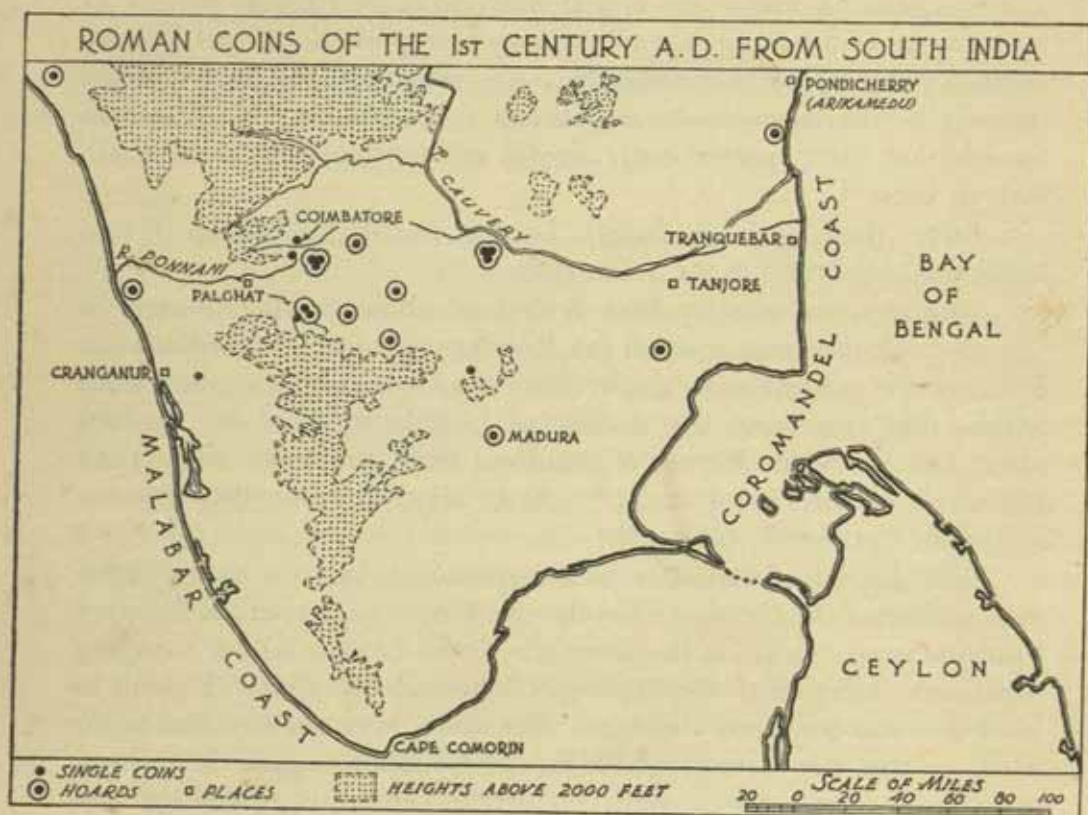


Fig. 71.

Arikamedu and Tranquebar. There are clear geographical reasons for the transit of wealth and traffic through Coimbatore.

But why should so large a proportion of this wealth have come to rest there? Some of the hoards of bullion may have been buried and lost by harassed travellers amidst the perils of the Nilgiri foot-hills

and of the Choṭa-Chera-Pāṇḍya borderland.⁵² Others may have passed to local prospectors and miners concerned with the famous beryl mines of the district, or to the owners of the pepper-estates which doubtless spread along and below the 3,000-foot contour on the fringes of the district and contributed to the "pepper-barns" of Rome. These are guesses, but all of them sufficiently likely. The fact remains that in this region, accessible and traversable, one of the principal imports of early Roman trade with India found on several occasions, by accident or design, its final harbour. I have no doubt that further search will discover extensive traces of settlement and industry here at present unrecorded⁵³ and may more fully reveal the cause. The literary evidence, too, may have some bearing on the matter.

THE LITERARY EVIDENCE

In conclusion, two aspects of the literary evidence for Roman-Indian trade may usefully be reviewed in the light of the archaeological evidence which I have cited. The first relates to the discovery of the periodicity of the south-west monsoon. Two writers have something to say on this vital matter, though both are, perhaps significantly, vague. Pliny, writing the sixth book of his *Natural History* between A.D. 51 and 77, observes that, subsequently to the time of Alexander the Great (when sea-traffic was still coastal) :

"It was thought that the safest line is to start from Ras Fartak in Arabia with a west wind, the local name for which is the Hippalus, and make for Patale (at the mouth of the Indus), the distance being reckoned as 1,332 miles. The following period considered it a shorter and safer route to start from the same cape and steer for the Indian harbour of Sigerus (south of Bombay?), and for a long time this was the course followed, until a merchant discovered a shorter route, and the desire for gain brought India nearer." (VI, 100-1.)

⁵² According to Tamil tradition the three kingdoms met in the Coimbatore district, but this is not confirmed.

⁵³ During a hurried journey through the district in 1944, I was conducted by a peasant to a remote and unrecorded town-site known as Nāthameḍu, near Bogampatti in Palladam Taluk. The site was a large one (about 800 yards in diameter), and was littered with iron-slag and with potsherds of which some were ascribable to the 1st century A.D.

This fourth or last phase (counting the coastal route as the first phase), as he explains in VI, 104, was that which opened up the Malābār coast to regular traffic, and is that with which we are particularly concerned. From Cella at the mouth of the Red Sea, he says, "it is forty days' voyage, if the Hippalus is blowing, to the first trading-station in India, Muziris," which has reasonably been identified with Cranganore in Cochin State. Pliny gives no dates for these three successive developments and it would be unwise to read too much into his further statement that "it will not be amiss to set out the whole of the voyage from Egypt, now that reliable knowledge is for the first time accessible" (VI, 101). All that he claims is to be the first to collect the details of the itinerary and to set them forth systematically for the Roman reader.

The other authority, the anonymous writer of the *Periplus of the Erythrean Sea*, compiled his handbook on the commerce between the Red Sea, the coast of Africa, and India at an undetermined date probably soon after the middle of the 1st century A.D. but possibly as late as 110 A.D.⁵⁴ Immediately after describing the ports of Malābār, he states that :

"They used to make (the voyage from the Red Sea) in small vessels, sailing close around the shores of the gulfs ; and Hippalus was the pilot who, by observing the location of the ports and the conditions of the sea, first discovered how to lay his course straight across the ocean. For at the same time when with us the Etesian winds are blowing, on the shores of India the wind sets in from the ocean, and this south-west wind is called Hippalus, from the name of him who first discovered the passage across. From that time to the present day ships start, some direct from Cana and some from the Cape of Spices ; and those bound for Damirica throw the ship's head considerably off the wind ; while those bound for Barygaza and Scythia (i.e. the Indus) keep alongshore not more than three days and for the rest of the time hold the same course straight out to sea from that region, with a favourable wind, quite away from the land, and so sail outside past the aforesaid gulfs." (*Periplus*, §57.)

⁵⁴ For the later date see J. A. B. Palmer in the *Classical Quarterly*, XLI (1947), 137.

In the *Periplus*, as in the *Natural History*, no date is indicated for Hippalus, but it is clear from both that he was a historical, not a contemporary, figure. Pliny credits him only with the first phase of the discovery, namely, the use of the monsoon for evading the environs of the Persian Gulf. The *Periplus* more vaguely associates him with the monsoon in general, and it is natural enough that the name, once associated with the south-west wind, should adhere to it in its developed usage. The only safe inferences from the literary evidence are : (a) that at least the partial use of the monsoon was discovered some considerable time before the middle of the 1st century A.D. ; and (b) that the adaptation of the wind to voyages to central and southern India was an established fact by the same date. Beyond these simple deductions the two authorities do not take us, and ingenious time-scales such as that of Warmington and others (who would bring the discovery of the Malābār land-fall down to the impossibly late date of A.D. 47 or 50, although a date as early as A.D. 60, or even earlier, is likely for the *Periplus*)⁵⁵ do not clarify the issue. The Arikamedu evidence, not of course available when Warmington wrote, is decisive against this. And there is certainly nothing in the *Periplus* or the *Natural History* that conflicts with the inference from the archaeological evidence that both Arikamedu and the Coimbatore "corridor" were used by monsoon-borne Roman trade before the death of Augustus.⁵⁶

⁵⁵ S. W. W. Tarn, *The Greeks in Bactria and India* (Cambridge, 1938), p. 148, footnote⁴ ; but see above, p. 368, footnote.

⁵⁶ Tarn, *op. cit.*, pp. 368 ff. following W. Otto in Pauly-Wissowa, s.v. *Hippalos*, dates the second of Pliny's four stages in the development of sea-traffic with India—the short direct voyage from the Arabian coast to the mouth of the Indus, constituting the first use of the south-west monsoon—to c. 100–80 B.C. ; and the third stage—the direct voyage from the Arabian to the Bombay coast—to c. 50 B.C., on the assumption that the *secuta aetas* of Pliny (VI, 101) implies the lapse of a generation between the two stages. But so early a dating for methodical monsoon-trade is at present devoid of numismatic or other archaeological support, and, even if correct, need imply nothing more than that the Arab middlemen of pre-Augustan trade had then as is likely enough—and indeed much earlier—some acquaintance with the seasonal winds. The Yavanas or Westerners whose inscriptions are found on the Buddhist chaityas of Nāsik and Kārli in the Bombay Presidency lived more probably in the 1st century A.D. or later, than in the 1st century B.C. to which Tarn ascribes them, and cannot therefore be cited in confirmation. I can discern no satisfactory indication of *organized* (as distinct from possible occasional and intermediary) monsoon-borne commerce with the Bombay coast or South India before the principate of Augustus. Nevertheless, this hypothetical middleman use of the monsoon may well date from any time after the opening-up of the East by Alexander the Great. Asoka speaks significantly of the kings of Egypt, Syria, Cyrene, Macedonia and perhaps Epirus as his "neighbours" in the middle of the IIIrd century B.C., and some of the Indian megalith-builders may have come this way. That, however, is another and much more problematical matter.

I now turn to a more positive witness from the literary record. The new archaeological evidence has shown that, within the first two decades of the 1st century A.D., Roman "factories" were already being established in certain major east-coast ports for the dual purpose of exploiting local traffic with Ceylon and of prospecting up the east coast towards the Ganges and Indonesia. But at present the rich island of Ceylon lay beyond the reach of direct contact. Strabo (XV, 686) remarks that only stray individuals had in his day sailed round India towards the Ganges, and that no useful information was forthcoming from them. It is probably thus no accident that the author of the *Periplus* breaks his voyage southwards at Nelkunda on the Malābār coast.⁵⁷ Pliny's difficulties are more explicit. Writing between A.D. 51 and 77, he collected meagre scraps of information about the island from early writers but "obtained more accurate information during the principate of Claudius, when an embassy actually came to Rome from that island" (VI, 84). The king of Ceylon, attracted by the fact that the *denarii* brought there by a Roman castaway "were all equal in weight, although the various figures showed that they had been coined by various emperors," and doubtless already aware of the Roman commercial activity on the mainland, sent four envoys from whom Pliny learnt most of his facts, such as they are. Some part of the information was confirmed by the reports of Roman prospectors, who had evidently not yet visited the island (otherwise the Roman castaway would not have been such a novelty to the local king) but must have received some account of it through trade-channels.

Down to the third quarter of the 1st century A.D., therefore, there was no regular direct communication between Rome and Ceylon. It follows that Roman vessels were not at that time in the habit of rounding Cape Comorin; and this inference confirms and explains the importance of the overland route from west to east through the Coimbatore gap during the period of the Coimbatore hoards, i.e. from Augustus to Nero. Consistently with this, no Roman coin

⁵⁷ As McCrindle remarks, "Nelkunda appears to have been the limit of our author's voyage along the coast of India, for in the sequel of his narrative he defines but vaguely the situation of the places which he notices, while his details are scanty and sometimes poorly inaccurate." *The Commerce and Navigation of the Erythraean Sea* (1879), p. 135.

of the first half of the 1st century A.D. is known to have been found in Ceylon.

But in the generation following the embassy from the king of Ceylon to Claudius, the position changed completely. By the earlier half of the 2nd century, Ptolemy was able to give a comprehensive and, it would appear, essentially accurate account of the island. Further, he evidently took a special pleasure in doing so, and I follow Warmington in his inference that Ptolemy was making a display of information which was largely new to his reader. It may be that the Sinhalese embassy had marked the turning-point; certainly we may suppose that by the end of the 1st century Roman traders were in direct contact with the island, since in his catalogue of towns there Ptolemy is able to include two *emporía* or "factories." And, incidentally, Roman coins had by then ceased to litter the Coimbatore corridor. The circum-peninsular sea-route was in full swing, and occasional Roman coins now begin to appear in Ceylon.⁵⁸

SUMMARY

I do not want to prove too much, but the whole combined picture is remarkably consistent. In summary it is as follows. During the principate of Augustus the organized use of the monsoon brought Roman trade into direct and regular contact with the Indian peninsula where, remote from the political and other obstacles of the laborious overland or coastal routes of the North, the minor kingdoms of the South were found amenable to negotiation. The Malābār landfall was immediately accessible to the richest spice-producing region of India; and gem-stones, pearls and cotton-cloth were likewise readily available, in exchange for bullion and other commodities. At first, the sea-bases on the Malābār coast were supplied and extended by an overland route through Coimbatore; and at the eastern termini of this route they were supplemented by Roman "factories" established in certain of the Indian ports upon which local coastwise trade from Ceylon and the North-east converged. At this time occasional

⁵⁸ The earliest would appear to be of Nero and Vespasian, found in the Kurunegala district. For Roman coins in Ceylon, see H. W. Codrington, *Ceylon Coins and Currency* (Colombo Museum, 1924), and J. Still in the *Journ. of the Roy. As. Soc. (Ceylon Branch)*, XIX (1907).

voyages may have been undertaken round Cape Comorin by Roman vessels, but a complete ignorance of the geography of Ceylon, together with the evident novelty of Ptolemy's information in the following century, is sufficient proof that the main southern limit of Roman commerce still lay further north. In the latter part of the Ist century the position changed. The upgrowth of Roman trading-stations along the shores of the mainland and in Ceylon itself implies a development of the circum-peninsular sea-route, perhaps at the expense of the land-routes, where Roman coins were now less frequently lost. A word of warning may, however, be interposed. In appraising the coin-evidence it is desirable to bear in mind the probability of some readjustment of the economic basis of trade on the Roman side at this time. The continuous export of bullion from Rome was not a sound or popular economic principle, and the tendency for the Roman coin-hoards in India to diminish in number after the middle of the Ist century may well imply, not a dwindling trade, but an increasing substitution of more consumable imports for bullion.⁵⁹

Indeed, the new Arikamedu evidence, so far as it goes, indicates anything but a diminution of trade there after the middle of the Ist century. The middle and second half of the century were in fact a period of enhanced building-activity, wine-jars were being imported in large quantities, gem-stones were being worked and muslin-cloth perhaps manufactured. I have suggested the end of the IIrd century as, archaeologically, a likely date for the termination of this activity in the small area excavated. That result is provisional, but it was reached independently of evidence or inference from other sources. In the light of collateral evidence it acquires additional probability. The disturbed IIIrd century was a period of commercial decline in the Roman world. In 1904, Sewell, on the basis of the coin-finds then available, traced indeed the decline of Romano-Indian commerce from the period following Nero⁶⁰; but that supposition is consistent neither with the literary evidence nor with the archaeological evidence

⁵⁹ The rescript of Tiberius to the Roman senate lamenting the extravagant exportation of money "to foreign nations and even to the enemies of Rome" in exchange for gew-gaws (Tacitus, *Ann.* II, 53) is significant in relation to Pliny's statement (VI, 101) that "in no year does India drain the Empire of less than fifty million sesterces." He notes this fact as *digna res*.

⁶⁰ "Roman coins found in India," *Journ. of the Roy. As. Soc.*, 1904, pp. 591 ff.

now available. Between the time of Augustus and that of the Antonines the Eastern trade of the Empire experienced vicissitudes but it was, on the whole, lively, and its most extensive and organized phase followed rather than preceded the time of Nero. It was dimmed, though not immediately extinguished, in the chaos of the IIIrd century, but there is nothing to add to Sewell's further verdict that by the end of the century Western trade with India had almost entirely ceased.⁶¹ In the IVth century there was seemingly a partial revival, particularly in South India and Ceylon, manifest for example in the copper coinage to which I have referred. This later revival presents individual features which require further investigation—as, indeed, does every aspect of the archaeology of the Indian peninsula. The notes which I have collected above are indeed merely such as the Sinhalese envoys might have offered to Pliny. It is to be hoped that, a century from now, a reincarnation of Ptolemy may be able to make a better showing.

⁶¹ For example, R. Pfister, "Matériaux pour servir au classement des textiles égyptiens" in *Revue des Arts Asiatiques*, X, No. 1 (Paris, 1936), p. 8, remarks "nous n'avons jamais pu trouver dans les tissus d'Égypte de la fin du III^e siècle, du IV^e, V^e et VI^e siècle la moindre trace de produits de l'Inde; il n'y existe ni coton ni soie, mentionnés dans le Périple. . . ."

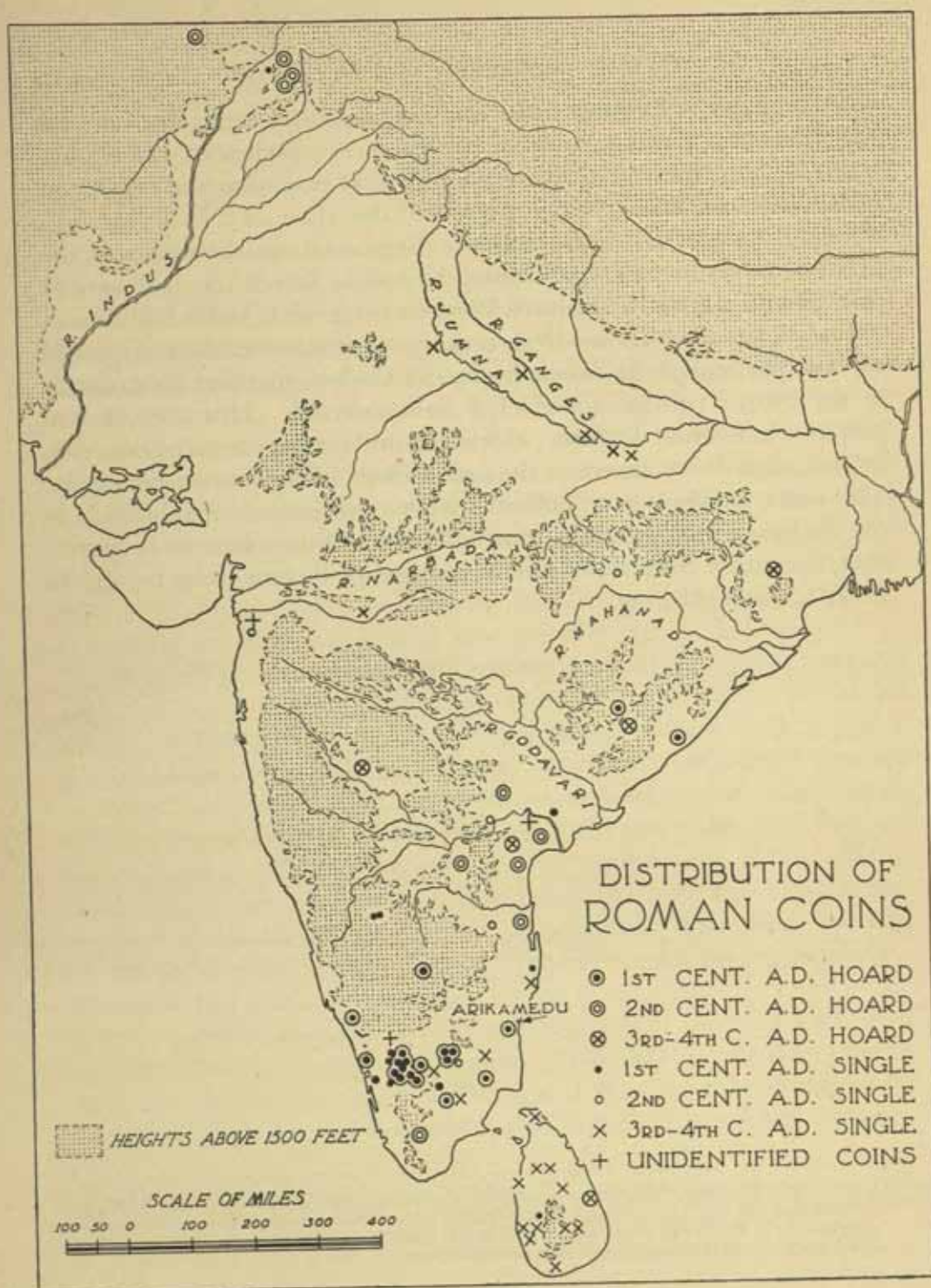


Fig. 72.

APPENDIX

ROMAN COINS, 1ST CENTURY B.C. TO IVTH CENTURY A.D., FOUND IN INDIA AND CEYLON⁴²

(Map, fig. 72)

BIHAR

- ✓ 1. Bāmanghāṭī, Singbhum Dist. (between Chaibāsa and Balasore, on main road running west from the port of Tamluk on the Hughli). Hoard of gold coins, including Gordian (d. A.D. 244). A Cunningham, *Arch. Survey Rep.*, XIII (1882), 72.

BOMBAY PRESIDENCY

2. Dharphul, Sholāpur Dist. ✓ 18 aurei Commodus—Severus (d. A.D. 211), found in a pot in 1840. *Num. Chron.*, 1st S., V (1843), 202; *Bombay Gazette*, Jan. 31st, 1842; W. Elliot in *Madras Journ. of Lit. & Sc.*, XIII (1844), 215; E. Thurston, *Madras Gov. Mus. Cat. Coins*, no. 2 (1894), p. 9.

3. Nagdhara, Jalālpur Tk., Surat Dist. ✓ Aureus of Lucius Verus (A.D. 166-7). O. Codrington in *Journ. Bombay Branch of the Roy. Asiatic Soc.*, XVIII (1890-4), 30-8.

4. Surat. "Ancient Grecian and Roman copper coins are likewise sometimes met with here." J. S. Stavorinus, *Voyages to the East Indies* (trans. from the Dutch by S. H. Willcocke, London, 1798), III, 11.

5. Waghoda, Raver Tk., East Khandesh Dist. Aureus of the Severi (A.D. 202-10). O. Codrington in *R.A.S.*, XVIII (1890-4), 38.

CENTRAL PROVINCES

6. Chakerbedha, Bilaspur Dist. An aureus of Commodus (d. A.D. 192), together with an imitation aureus of Pius. Both pierced for suspension. T. G. Aravamuthan in *Journ. Numismatic Soc. of India*, VII (1945), 6-10.

MADRAS PRESIDENCY

7. Amarāvati. ✓ "Roman coins dug up . . . at Dipaldinna and Amarāvati." H. H. Wilson in *Asiatic Researches*, XVII (Calcutta, 1832), 561.

8. Athirala, Pullampet Tk., Cuddapah Dist. Aureus of Trajan (d. A.D. 117). W. Elliot in *Madras Journ. of Lit. & Sc.*, 1884, pp. 214-5; and in *Ind. Ant.*, II (1873), 241-2; E. Thurston, *Madras Gov. Mus. Cat. Coins*, no. 2 (1894), p. 9.

⁴² Vague or unreliable records are omitted. This revised list and map supersede those in *Ancient India*, no. 2 (1946).

9. Budinatham village, Udamalpet Tk., Coimbatore Dist. Hoard of 1390 *denarii*, Augustus—Tiberius (d. A.D. 37), found on north-east side of the village school, 1946. Information from Dr. A. Aiyappan, Superintendent of the Madras Museum, where the hoard now is.

10. Coimbatore Dist. 2 *denarii* of Tiberius (d. A.D. 37), found in 1912. *Madras Mus. An. Rep.*, 1912, pp. 4, 9.

11. Gumada, Jeypore Tk., Vizagapatam Dist. 23 Roman gold coins, ending with Constantine the Great (d. A.D. 337). *Madras Mus. An. Rep.*, 1928, p. 4.

12. Kaliyamputtur, Madurā Dist. (near boundary of Madurā and Coimbatore Dist.). 63 gold coins, Augustus—Nerva (d. A.D. 98), found in a pot in 1856. *Madras Journ. of Lit. & Sc.*, XVII (1856-7), 114, and XIX (1857-8), 157-8; E. Thurston, *Madras Gov. Mus. Cat. Coins*, no. 2 (1894), p. 20.

13. Kallakinar, Coimbatore Dist. 2 worn Republican *denarii* found "with other silver and gold coins and jewels, in an earthenware pot." *Madras Gov. Mus. An. Rep.*, 1909-10, p. 2.

14. Karivalamvandanallur, Sankaran Koyil Tk., Tinnevely Dist. Six *aurei*, latest of Hadrian of A.D. 118, found in 1931. *Madras Mus. An. Rep.*, 1933, p. 5.

15. Karur, Coimbatore Dist. About 500 coins, Augustus—Tiberius (d. A.D. 37), found in a pot in 1878. H. Little in *Madras Christian College Mag.*, I (1883), 219-26; *Madras Mus. An. Rep.*, 1893, pp. 6-7; E. Thurston, *Madras Gov. Mus. Cat. Coins*, no. 2 (1894), p. 21.

16. Karur, Coimbatore Dist. Five *aurei*, Augustus—Claudius (d. A.D. 54), found in 1806. W. Elliot in *Madras Journ. of Lit. & Sc.*, XIII (1824), 214; E. Thurston, *Madras Govt. Mus. Cat. Coins*, no. 2 (1894), p. 8. 1844

17. Karur, Coimbatore Dist. "Some hundreds, if not thousands, of *denarii*" found in a large pot about 1856. "My informant believes that most of them were like an Augustus I showed him." H. Little in *Madras Christian College Magazine*, Dec. 1883, p. 338.

18. Karur, Coimbatore Dist. *Aureus* of Marcus Aurelius (d. A.D. 180). R. Sewell in *J.R.A.S.*, 1904, p. 617.

19. Kattanganni, Dharapuram Tk., Coimbatore Dist. 233 *denarii*, Augustus—Tiberius (d. A.D. 37), found in 1913. *Madras Mus. An. Rep.*, 1913, pp. 4, 8.

20. Kotpad, Jeypore Tk., Vizagapatam Dist. Four Roman *denarii*, Augustus—Tiberius (d. A.D. 37), found in 1915. *Madras Mus. An. Rep.*, 1915, pp. 5, 6.

21. Kottayam, 10 miles east of Cannanore, Malābār Dist. Very large hoard of *aurei*, Augustus—Nero (d. A.D. 68), found in 1850. *J.A.S.B.*, XX (1852), 371-87; R. Caldwell, *A Description of Roman Imperial Aurei found near Calicut* (Trivandrum), 1851; *Madras Mus. An. Rep.*, 1882, p. 5.
22. Kulattuppalaiyam, Dharapuram Tk., Coimbatore Dist. *Aureus* of Theodosius (d. A.D. 395). *Madras Mus. An. Rep.* 1934.
23. Madurā town. 11 Roman gold coins ending with Nero, dated A.D. 61-2, found on the site of the Madurā Mills in 1917. *Madras Mus. An. Rep.*, 1917, pp. 4, 5, 8.
24. Madurā town. Stray finds of copper coins, including Honorius and Arcadius (c. A.D. 400). R. Sewell, *Lists of the Antiquarian Remains in the Presidency of Madras*, I (1882), 291.
25. Madurā Dist. *Aureus* of Domitian (d. A.D. 96). *Madras Gov. Mus. Cat. Coins*, no. 2 (1894), p. 29.
26. Mahābalipuram, Chingleput Dist. Coin of Theodosius (d. A.D. 395). J. Prinsep in *J.A.S.B.*, I (1832), 406.
27. Mahābalipuram, Chingleput Dist. Coin possibly of Theodosius. *Arch. Sur. India, Southern Circle An. Rep.*, 1888, pp. 2-4, 5.
28. Mallayapalam, Guntur Dist. Four Roman *aurei*, ending with Antoninus Pius (d. A.D. 161). *Madras Mus. An. Rep.*, 1915, pp. 4, 5, 6.
29. Mambalam, Madras City. Coin of Augustus (d. A.D. 14). *Madras Mus. An. Rep.*, 1930, p. 6 and 1931, p. 2.
30. Nāgārjunikonda, Palnad Tk., Kistna Dist. Gold coin of Hadrian (d. A.D. 138). *Arch. Sur. India An. Rep.*, 1936-7, p. 61.
31. Nandyal, Kurnool Dist. Upwards of 52 gold coins, ending with Antoninus Pius (d. A.D. 161), in a pot. *Madras Mus. An. Rep.*, 1935, p. 5.
32. Nellore. Hoard of Roman gold coins in a pot, latest recorded a coin of Antoninus Pius (d. A.D. 161). A. Davidson in *Asiatic Researches*, II (1790), 331-2; E. Thurston, *Madras Gov. Mus. Cat. Coins*, no. 2 (1894), p. 7.
33. Ongole Tk., Guntur Dist. Hoard of coins of which two gold *solidi* of Nero and Hadrian (d. A.D. 138) are recorded. *Madras Mus. An. Rep.*, 1905, pp. 5 and 8.
34. Ootacamund. "Gold Roman coin" discovered about 1827 during the digging of the foundations of a house on the hill south of the lake: E. Thurston, *Madras Gov. Mus. Cat. Coins*, no. 2 (1894), p. 9, from Sewell.
35. Pennar, Coimbatore Dist. *Denarius* of Augustus. W. Elliot in *Madras Journ. of Lit. and Science*, XIX (1888), 228.

36. Pollāchi, Coimbatore Dist. Hoard of *denarii* found in 1880 in a pot, Augustus—Tiberius (d. A.D. 37). *Indian Antiquary*, IV (1875), 302 ; F. Buchanan, *A Journey from Madras*, II (1807), 318-19 ; R. Thurston, *Madras Gov. Mus. Cat. Coins*, no. 2 (1894), p. 7.
37. Pollāchi, Coimbatore Dist. Hoard of coins found in 1810 in a pot, Augustus—Tiberius. E. Thurston, *Madras Gov. Mus. Cat. Coins*, no. 2 (1894), p. 8.
38. Pollāchi, Coimbatore Dist. A *denarius* of Augustus was found in 1817 "in one of the old tombs called *Pandu Culis*." According to one account, a number of punch-marked coins were found with it, but other accounts state that the punch-marked coins came from another tomb. W. Elliot, *Madras Journ. Lit. & Sc.*, XIII (1844), 214 ; *Ind. Antiquary*, II (1873), 241 ; *Num. Chron.*, I, IV (1843-4), 162 ; J. Bird in *Journ. Bombay Branch Roy. As. Soc.*, I (1843), 293.
39. Salihundam, Chicacole Tk., Vizagapatam Dist. 11 *denarii* of Tiberius (d. A.D. 37). *Madras Mus. An. Rep.*, 1899, pp. 5, 9.
40. Tanjore. Silver-washed coin of Diocletian (d. A.D. 305). *Madras Mus. An. Rep.*, 1937, p. 7.
41. Tondamanāthan, Cuddalore Tk., South Arcot Dist. Six Roman gold coins, Tiberius—Nero (d. A.D. 68), found with 27 silver *puranas* in 1918. *Madras Mus. An. Rep.*, 1918, pp. 3, 7.
42. Vellalur, Coimbatore Dist. Hoard of *denarii*, Augustus—Nero (d. A.D. 68), found in 1891. *Madras Mus. An. Rep.*, 1891, p. 8 ; E. Thurston in *Num. Chron.*, 1891, pp. 199-202 and *Madras Gov. Mus. Cat. Coins*, no. 2 (1894), p. 24.
43. Vellalur, Coimbatore Dist. 121 *denarii* of Augustus (d. A.D. 14), found with 23 "unstruck pieces" in 1932. *Madras Mus. An. Rep.*, 1932, pp. 8, 9.
44. Vellalur, Coimbatore Dist. 522 *denarii*, Augustus—Claudius (d. A.D. 54), found in 1842 in a pot. W. Elliot in *Madras Journ. of Lit. & Sc.*, XIII (1844), 212-14 ; J. Bird in *Journ. Bombay Branch of R.A.S.*, II (1843), 294.
45. Vidiyadurrapuram, Bezwada Tk., Kistna Dist. *Denarius* of Tiberius (d. A.D. 37). *Arch. Sur. of India, Southern Circle, An. Rep.*, 1888, pp. 2-4, 5.
46. Vinukonda, Guntur Dist. 15 Roman gold coins, Tiberius—Caracalla (d. A.D. 217), found in 1889. *Num. Chron.*, 3rd S., IX (1889), 325-8 ; E. Thurston, *Madras Gov. Mus. Cat. Coins*, no. 2 (1894), p. 22.

PUNJAB, NORTH-WEST FRONTIER PROVINCE AND AFGHANISTAN

47. Jalālābād, Afghanistan. In the Ahin Posh stūpa, with Kushān coins, were three Roman *aurei*, the latest of Antoninus Pius (d. A.D. 161). Waterhouse in *Pr. of the As. Soc. of Bengal* (1879), pp. 77-9; A. F. R. Hoernle, *ib.*, pp. 122, 134-5.

48. Manikyālā, Rawalpindi Dist., Punjab. Five *aurei*, latest of A.D. 158-9. *Pr. A.S.B.*, LIII (1886), 86-9.

49. Manikyālā, Rawalpindi Dist., Punjab. Seven worn Republican *denarii* of the 1st century B.C., with Kushān coins of 1st-IInd century A.D. A. Court in *Journ. As. Soc. Bengal*, III (1834), 558-9; J. Prinsep, *ib.*, 564-5; A. Cunningham, *ib.*, 635-7.

50. Pakli, Hazara Dist., North-west Frontier. Hoard of *denarii*, the latest known being one of Hadrian (d. A.D. 138). *Num. Chron.*, 3rd S., XIX (1889), 263.

51. Taxila, Rawalpindi Dist., Punjab. *Denarius* of Tiberius (d. A.D. 37). *Arch. Sur. India An. Rep.*, 1935, pp. 29-30, 83.

UNITED PROVINCES

52. Allahabad. Coins of Diocletian (A.D. 283-293). J. Prinsep in *J.A.S.B.*, I (1832), 476.

53. Chunār, Mirzāpur Dist. Copper coin of Numerianus (A.D. 283). J. Prinsep in *J.A.S.B.*, I (1832), 392-408, 476.

54. Kanauj, Kanauj Tk., Farrukhabād Dist. Copper coin of Diocletian (A.D. 283-293). H. H. Wilson in *Asiatic Researches*, XVII, 561; J. Prinsep in *J.A.S.B.*, I (1832), 476.

55. Mathurā (Muttra). Gold coin of Caracalla (d. A.D. 217). Information from Curator of Curzon Museum, Mathurā.

56. Mirzāpur. Coin of Carinus, minted A.D. 283-4. *J.A.S.B.*, I (1832), 392-408, 476.

COCHIN STATE

57. Eyyal, 22 miles North-west of Trichur. Found east of the village in an earthenware pot in 1945. 12 gold coins: of Trajan (Cos. II), 1; Nero 2; Claudius 1; Tiberius 8; also a number of *denarii*, those seen being 21 of Augustus, 2 of Nero Drusus, and 2 of Nero, dated A.D. 64-8; and at least 30 Indian silver punch-marked coins, mostly square. Date of latest coin, A.D. 99. The Roman silver and the punch-marked coins are much worn, whereas the *aurei* are fresh. Information from the State Archaeologist, Cochin State, and a few specimens seen in original or photograph by R.E.M.W.

HYDERABAD STATE

58. Gaiparti, Suryapet Tk., Nelgonda Dist., Hyderabad State. Three Roman gold coins, latest of Antoninus Pius and dated A.D. 140-4. *A.S.N.*, 1933, pp. 7, 39.

59. Kondāpur. "Among the coins one is of gold, representing the Roman Pontiff, Augustus." *Proc. of the Hyderabad Arch. and Hist. Soc., Special Meeting held on the 10th August 1941*, p. 9. Probably an ancient forgery (see above, p. 351, footnote 17).

MYSORE STATE

60-5. Chandravalli, Chitaldrug Tk. *Denarius* of "Augustus" (d. A.D. 23). *Arch. Sur. Mysore An. Rep.*, 1909, p. 30. This coin I have not seen, but there is at Mysore a *denarius* of Tiberius (*B.M. Cat.*, pl. 22, 20-26, and pl. 23, 1-10) from Chandravalli, exact site unrecorded, which is probably the same coin. Another *denarius* of Augustus (*B.M. Cat.*, pl. 13, 7 et seq.) was found here in "Excavation 15, level 7" in 1929, and in the same year a *denarius* of Tiberius (*B.M. Cat.*, pl. 23, 8) was recorded in "Excavation 12." A fragmentary *denarius* of Tiberius was also unearthed in "Excavation 37, level 15." Another *denarius* was likewise found, but it has not been cleaned and identified. They have not been published, but there are vague references to some of them in *Excavation at Chandravalli, Supplement to the Annual Report of the Mysore Archaeological Department, 1929* (Pub. 1931), pp. 16, 17 and 25. A third *denarius* of Tiberius (*B.M. Cat.*, pl. 23, 4-9) was discovered in an occupation-layer in 1947 (*Ancient India*, no. 4 (1948), p. 287). All the coins are in the possession of the Mysore State Archaeological Department at Mysore.

66. Yeswantpur, Bangalore Dist. ($3\frac{1}{2}$ miles north-west of Bangalore). 163 *denarii*, Augustus—Claudius (latest dated A.D. 46), found in a pot in 1891. L. Rice, *Find of Roman Coins near Bangalore* (1891); and E. Thurston, *Madras Gov. Mus. Cat. Coins*, no. 2 (1894), pp. 26-8.

PUDUKKOTTAI STATE

67. Karukkakkuricchi, Alangudi Tk. Hoard of *aurei*, ending with Vespasian (d. A.D. 79), found in 1898. G. F. Hill in *Num. Chron.*, III, XVIII (1898), 304-20; G. G. Rodgers, *ib.*, III, XIX (1899), 263-5.

TRAVANCORE STATE

68. Poonjar, about 150 miles north of Trivandrum. Gold coin of Augustus, found in 1945. Information from the Director of Archaeology, Travancore State.

CEYLON

69. Ampitiya. Coin of Arcadius (d. A.D. 408).
Anurādhapura. Coins of Theodosius, Arcadius and Indo-Roman coins in various places.
Attikuli, Mannar Dist. Constantius, Theodosius and Arcadius.
Badulla. Coins of Aurelian and Arcadius.
Balapitiya. Hoard of IVth century coins down to Arcadius.
Batticaloa. Five coins of Arcadius and Honorius (d. A.D. 423).
Boragoda. 40 coins, Constantius II—Honorius.
Colombo. Many coins, Constantine II—Honorius.
Gintota. Six coins of Constantine II, Arcadius and Honorius.
Hikkaduwa. 17 coins, Constantius II—Arcadius.
Kalmunai, Eastern Provinces. Coins of Arcadius or Honorius.
Kalpitiya. Coins of Honorius.
Kantarodni in Jaffna Peninsula. 140 IVth century bronze down to Honorius.
Kitalagama. Coins of Theodosius and Arcadius.
Kolugala in Tumpana. 220 coins, Constantine I—Honorius.
Kurunegala Dist. Coins of Nero and Vespasian.
Mantota. Antonine coins.
Matara. Coin of Maximian II.
Pandirippu, Eastern Province. One IVth century coin.
Pidarikulam, Giant's Tank. Coins of Gratian and Valentinian II or Theodosius I.
Sigiriya. 1,675 IVth century coins down to Honorius.
Udappu. Coins of Theodosius and Arcadius or Honorius.

BIBLIOGRAPHY OF THE PUBLISHED WORK OF O. G. S. CRAWFORD*

1911

- * 'Relations Commerciales entre l'Angleterre et la France.' *L'Homme préhistorique*, 9, 289-304. [This is a translation of the article in *L'Anthropologie* for 1913. It includes the schedule of finds which was omitted by the editor of *L'Anthropologie*.]

1912

- * 'The Distribution of Early Bronze Age Settlements in Britain.' *Geog. Journ.*, XL, 184-197 (August), 304-317 (September).
* 'Gold Torcs and Double-looped Palstaves.' *Proc. Soc. Ant. Lond.*, 2 S., XXIV, 39-49.

1913

- * 'Prehistoric Trade between England and France.' *L'Anthropologie*, XXIV, 641-649. [See also under 1911.]
* 'Note on the Discovery of two Bronze Age Urns at Stony Cross in the Parish of Minstead, New Forest, December 28th, 1912.' *Proc. Hants. F.C.*, VI (Supplement), 33-36.
* 'Prehistoric, Roman and Saxon Nursling.' *Proc. Hants. F.C.*, VI (Supplement), 36-38.
* 'Note on the Anglo-Saxon Bounds of Nursling, A.D. 877.' *Proc. Hants. F.C.*, VI (Supplement), 39-41.
* 'Description of Vase found on Nunwell Down, Isle of Wight.' *Man*, 1913, no. 12, 19-23. (With report on human remains by (Sir) Arthur Keith.)
* 'A cist-burial at Sheepwash, Isle of Wight.' *Proc. Soc. Ant. Lond.*, 2 S., XXV, 189-193.

1914

- * 'Notes on Roman Roads in the South of Hampshire.' *Proc. Hants. F.C.*, VII, 34-44. (Communicated by J. P. Williams-Freeman.)
A note : 'Bronze Mace-heads.' *The Antiquary*, L, 348.

1915

- * 'The Kingsclere Skeleton.' *Proc. Hants. F.C.*, VII, 61-63.
* 'Anglo-Saxon Bounds of Land near Silchester.' *The Antiquary*, LI, 250-256.

1917

- * 'Archaeological Surveys in Wales : some suggested subjects.' *Arch. Camb.*, LXXII, 274-287.

1920

- * 'Roman roads of Wiltshire : report of an address to a joint meeting of the Royal Archaeological Institute and the Wiltshire Archaeological Society at Devizes.' *Wiltshire Gazette*, 19th August.
* 'Account of Excavations at Hengwm, Merionethshire, August and September, 1919.' *Arch. Camb.*, LXXV, 99-133.
* 'Bronze Age and other Antiquities.' *Proc. Soc. Ant. Lond.*, 2 S., XXXII, 85-96.
* 'Prehistoric Instincts.' *Cornhill Magazine*, New Series, XLIX, 720-733.

* The following abbreviations are used where necessary :—

<i>Geog. Journ.</i> :	<i>Geographical Journal</i>
<i>Proc. Soc. Ant. Lond.</i> :	<i>Proceedings of the Society of Antiquaries of London</i>
<i>Proc. Hants. F.C.</i> :	<i>Proceedings of the Hampshire Field Club</i>
<i>W.A.M.</i> :	<i>Wiltshire Archaeological Magazine</i>
<i>A.J.</i> :	<i>Antiquaries Journal</i>
<i>Arch. Journ.</i> :	<i>Archaeological Journal</i>
<i>Arch. Camb.</i> :	<i>Archæologia Cambrensis</i>

1921

Man and his Past. Humphrey Milford; Oxford University Press. xiv, 227 pages. Illustrations and maps.

'The Ancient Settlements at Harlyn Bay.' *A.J.*, I, 283-299.

'The Llynfawr and other Hoards of the Bronze Age.' *Archaeologia*, LXXI, 133-140. (In collaboration with R. E. M. Wheeler.)

'Place-names.' *Arch. Journ.*, LXXVIII, 31-46.

'The Anglo-Saxon Bounds of Bedwyn and Burbage.' *W.A.M.*, XLI, 281-301.

Note: 'Roman(?) brick and tile kiln at Oaksey Common [Minety]'. *W.A.M.*, XLI, 424-425. (Also *A.J.*, I, 238.)

'The Evolution of Damn!' *London Mercury*, V, no. 25, 25-28.

'Sandy Lane.' *Wiltshire Gazette*, 8th September.

1922

Notes on Archaeology for guidance in the field. Ordnance Survey Office, Southampton. [The first edition, printed on a sheet of foolscap size, was subsequently much enlarged and reprinted several times as a handbook.]

The Long Barrows and Stone Circles in the Area covered by Sheet 8 of the 1/4 inch Map (The Cotswolds and the Welsh Marches). 11 pages with two plates and map. Ordnance Survey Office, Southampton.

The Andover District: an account of Sheet 283 of the One-inch Ordnance Map (small sheet series). 99 pages, maps, illustrations. Oxford University Press (Oxford Geographical Studies). [Submitted as a thesis for the Diploma in Geography in 1910 and set in type and corrected in proof before World War I; publication was delayed by the war.]

'A Prehistoric Invasion of England.' *A.J.*, II, 27-35.

'A Roman Site at Ham, Berkshire.' *A.J.*, II, 218-219.

'The Antiquity of Man in Hampshire. I. The New Forest.' *Proc. Hants. F.C.*, IX(2), 173-178.

'Excavations at Roundwood during 1920.' *Proc. Hants. F.C.*, IX, 189-209.

'Excavations at Rancombe, near Shorwell, Isle of Wight, August, 1920.' *Proc. Hants. F.C.*, IX, 210-213.

'Hampshire Perambulations. I.' *Proc. Hants. F.C.*, IX, 262-278. (With H. Chitty.)

'Notes on field-work around Avebury, December, 1921.' *W.A.M.*, XLII, 52-63.

'A Flint Factory at Thatcham, Berkshire.' *Proc. Prehist. Soc. East Anglia*, III, iv, 499-514. (With H. J. E. Peake.)

'Prehistoric Geography.' *The Geographical Review* (American Geographical Society, New York), 12, no. 3, 257-263.

'Hangman's Stones.' *Notes and Queries*, 12th Series, XI (15th July), 50-52.

'Note on the Construction of Hill-top Camps.' *A.J.*, II, 54.

1923

'Air Survey and Archaeology.' Read at a meeting of the Royal Geographical Society, 12th March, and printed in the *Geographical Journal* LXI (May), 342-360. [Reprinted as an Ordnance Survey Professional Paper; see under 1924.]

'Mediaeval Forests.' *Cornhill Magazine*, New Series, LIV, 469-476.

'Agriculture in Ancient Wiltshire; lynchets, Celtic and Saxon.' *Wiltshire Gazette*, 29th March.

'Celtic Britain from the Air.' *The Observer*, 8th July.

1924

Air Survey and Archaeology. Ordnance Survey Professional Paper, New Series, no. 7. 39 pages, 2 maps, 18 plates and 3 text-figures. H.M. Stationery Office.

The Long Barrows and Megaliths in the Area covered by Sheet 12 of the 1/4 inch Map (Kent, Surrey and Sussex). Ordnance Survey Professional Papers, New Series, no. 8. 7 pages, frontispiece, 2 plates and 2 maps. H.M. Stationery Office.

Map of Roman Britain. 1st Edition. Ordnance Survey, Southampton. [2nd Edition, 1928].

'Place-names and Archaeology.' Chapter VIII in *Introduction to the Survey of English Place-Names*, 143-164. (English Place-Name Society. Vol. I, Part 1). Cambridge University Press.

- 'The Birchington Hoard.' *A.J.*, IV, 220-224. (With P. H. G. Powell-Cotton.)
 'The Peutinger Table.' *Illustrated London News*, 29th November.
 Note: 'The Stonehenge Avenue.' *A.J.*, IV, 57-59.
 'The Origins of Civilisation.' (Reviewing W. J. Perry, *The Problem of Megalithic Monuments and their Distribution in England and Wales*; Donald A. Mackenzie, *Ancient Man in Britain*; G. Elliot Smith, *The Ancient Egyptians*.) *Edinburgh Review*, No. 239, 101-116.
 'Giant's Hedges.' *Wiltshire Gazette*, 13th November.
 'Archaeology from the Air.' *The Observer*, 24th August.

1925

- The Long Barrows of the Cotswolds*. xvi, 246 pages, with map in folder. Bellows, Gloucester.
 Note: 'Air-photograph of Gainstrop, Lincolnshire.' *A.J.*, V, 432-433.
 Poem: 'The Salt Beaches.' *Chambers's Journal*, 7th Series, XV, 128.
 'Neolithic Camps in Wessex.' *The Observer*, 4th October.

1926

- 'Archaeology and the Ordnance Survey' in *The Work of the Ordnance Survey*, 9-11. (Professional Papers, New Series, no. 10.) H.M. Stationery Office.
 'Britain during the Last Forest-Phase.' *Man*, 1926, no. 73, 114-117.
 'The Birthplace of Civilization.' *The Geographical Review* (American Geographical Society, New York), XVI, no. 1, 73-81.
 'The Glozel Discoveries.' *The Observer*, 31st October.

1927

In this year *Antiquity* was founded. Many of Crawford's contributions to *Antiquity* in the form of notes, reviews and the like are unsigned and though they are often important are not listed. Only signed articles are included here.

- 'Lyonnesse.' *Antiquity*, I, 5-14.
 'L'affaire Glozel.' *Antiquity*, I, 181-188.
 'Barrows.' *Antiquity*, I, 419-434.
 'A Sceptic on Glozel.' *The Times*, 23rd November.

1928

- Wessex from the Air* (with A. Keiller). xii, 264 pages, 50 plates, 61 sketch-maps and figures. Oxford University Press.
 'Our Debt to Rome?' *Antiquity*, II, 173-188.
 'Stone Cists.' *Antiquity*, II, 418-422.
 'Prehistoric Geography of Wessex.' *Wessex* (the journal of University College, Southampton), no. 1, 47-51.
 Note: 'Socketed Celt and Roman Brooch from Chipping Sodbury.' *A.J.*, VIII, 519-520.
 Letter: 'The Boats on the Victoria Nyanza.' *Man*, 1928, no. 67, 92.

1929

- 'Durrington Walls.' *Antiquity*, III, 49-59.
 'The Giant of Cerne and other Hill-Figures.' *Antiquity*, III, 277-282.
 'Woodbury.' *Antiquity*, III, 452-455.
 'Air Photographs of the Middle East.' *Geog. Journ.* LXXIII (June), 497-509.
 Letter: 'Archaeological Books published on the Continent.' *Man*, 1929, no. 33, 44.

1930

- 'Grim's Ditch in Wychwood, Oxon.' *Antiquity*, IV, 303-315.

1931

- 'Historical Cycles.' *Antiquity*, V, 5-20.
 'The Chiltern Grim's Ditches.' *Antiquity*, V, 161-171.
 'Cerdic and the Cloven Way.' *Antiquity*, V, 441-458.

1932

- Map of Neolithic Wessex.* 35 pages, map. Ordnance Survey, Southampton.
 'Museums Old and New: some personal impressions.' *Antiquity*, VI, 60-70.
 'The Dialectical Process in the History of Science.' *Sociological Review*, XXIV, 165-173.

1933

- 'Some Recent Air Discoveries.' *Antiquity*, VII, 290-296.
 'Iona.' *Antiquity*, VII, 453-467.

1934

- Celtic Earthworks of Salisbury Plain: Old Sarum Sheet.* Ordnance Survey, Southampton.
 'Sidonius and His Times.' *Antiquity*, VIII, 81-84.
 'The Magic of Columba.' *Antiquity*, VIII, 168-175.
 'Field-notes in the Canterbury District.' *Archaeologia Cantiana*, XLVI, 57-62.
 'The Wiltshire Hundreds.' *W.A.M.*, XLVI, 525-526.

1935

- Map of Britain in the Dark Ages (South Sheet).* 39 pages and map. Ordnance Survey, Southampton.
 'Superimposed Cultivation-systems.' *Antiquity*, IX, 89-90.
 'Arthur and his Battles.' *Antiquity*, IX, 277-291.
 'The Writing of Njoya.' *Antiquity*, IX, 435-442.
 'Rectangular Enclosures.' A note on Mr. Leeds' paper in *A.J.*, XIV, 414-416. *A.J.*, XV, 77-78.

1936

- 'Western Seaways.' Chapter XIII in *Custom is King: Essays presented to R. R. Marett on his Seventieth Birthday*, June 13, 1936.
 'The Work of Giants.' *Antiquity*, X, 162-174.
 'Human Progress: a Review.' *Antiquity*, X, 391-404.
 'The Field Archaeology of the Royston District.' *Proc. Prehistoric Society*, N.S., II, 97-105.

1937

- The Strip-Map of Litlington.* Ordnance Survey Professional Papers, New Series, no. 17. 4 pages, 4 plates, 2 maps. H.M. Stationery Office.
 'A Minor Earthwork near Warsash.' *Proc. Hants. F.C.*, XIII, 262.

1938

- Map of Britain in the Dark Ages (North Sheet).* 43 pages and map. Ordnance Survey, Southampton.
 'Air Photography Past and Future.' Presidential Address for 1938. *Proc. Prehistoric Society*, N.S., IV, 233-238.
 'Hertfordshire Place-names.' *Antiquity*, XII, 432-436.

1939

- 'Air Reconnaissance in Roman Scotland.' *Antiquity*, XIII, 280-292.

1940

- 'The Sutton Hoo Ship Burial: the coins—a summary.' *Antiquity*, XIV, 64-68.

1942

- 'Southampton.' *Antiquity*, XVI, 36-50.

1943

- 'A Camp near Nursling.' *Proc. Hants. F.C.*, XV, 305.
 Notes: *Proc. Hants. F.C.*, XV, 304.

1944

- 'Dr. J. P. Williams-Freeman: his Work for Archaeology.' *Proc. Hants. F.C.*, XVI, 103-106.

1945

'Bitterne after the Romans.' *Proc. Hants. F.C.*, XVI, 148-155.

Note: 'The old Farm House at Northam.' *Proc. Hants. F.C.*, XVI(ii), 187-188.

A review: 'Corpus Inscriptionum Celticarum.' *Antiquity*, XIX, 207-209.

1947

'The Roman Road from Winchester to Bitterne.' *Proc. Hants. F.C.*, XVI, 247-252.

1948

The Topography of Roman Scotland north of the Antonine Wall. xii, 162 pages. (Rhind Lectures for 1943).
Cambridge University Press.

A Short History of Nursling. 48 pages, map. Warren and Sons, Winchester. [Privately printed.]

Central Archaeological Library,
NEW DELHI.

Call No **R** 082/Cra/Gri - 12722

Author—Crawford, O.G.S.

Aspects of archaeology in
Title—Britain and beyond; essays
presented to O.G.S. Crawford.

"A book that is shut is but a block"

CENTRAL ARCHAEOLOGICAL LIBRARY
GOVT. OF INDIA
Department of Archaeology
NEW DELHI.

Please help us to keep the book
clean and moving.

S. B., 14B, N. DELHI.