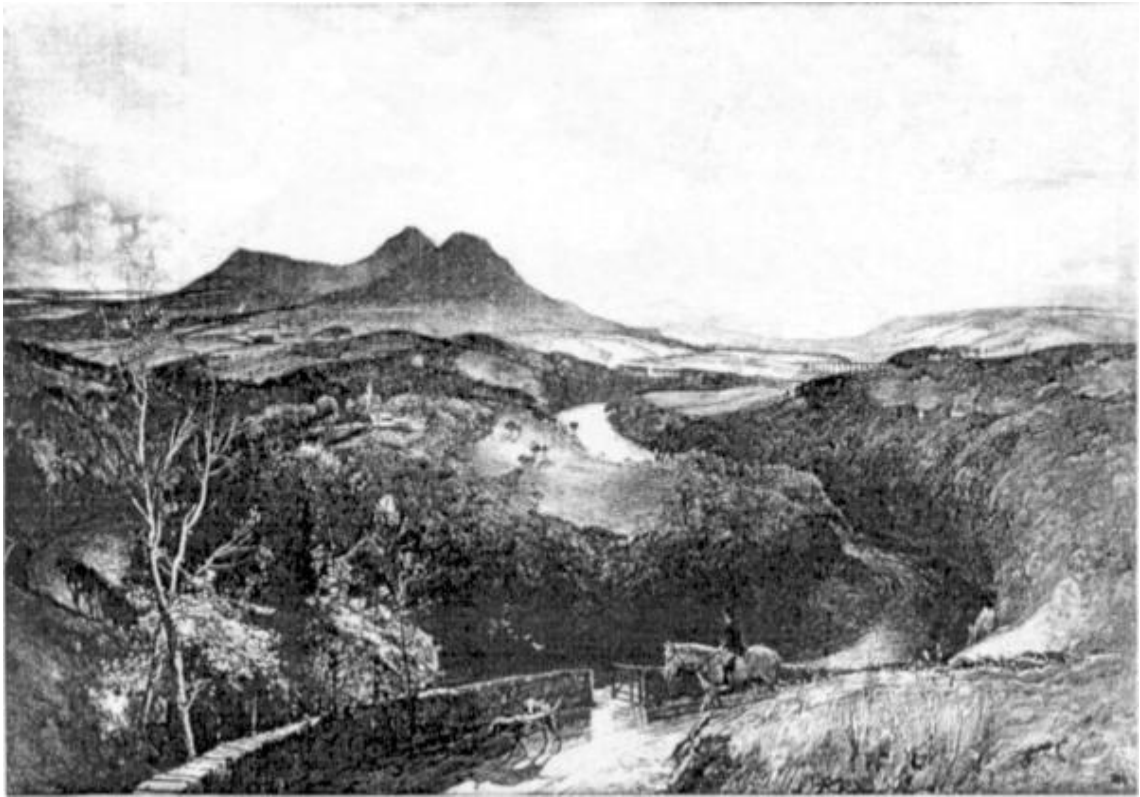


PLATE I. THE VALLEY OF THE TWEED LOOKING WESTWARD
FROM BEMERSYDE HILL FROM A WATER-COLOUR DRAWING
BY TOM SCOTT, R.S.A.

The view is taken from the height above the precipitous rocky face known as the Gate Heugh, on the north bank of the Tweed. In the foreground lies the promontory of Old Melrose, the site of the early monastery of Saint Cuthbert. Behind it rise the three peaks of the Eildon Hills. The site of the Roman fort of Newstead lying in the middle distance on the south bank is indicated by the Railway Viaduct crossing the river in its immediate vicinity.



A ROMAN FRONTIER POST AND ITS PEOPLE

THE FORT OF NEWSTEAD IN THE
PARISH OF MELROSE

BY

JAMES CURLE, F.S.A. SCOT., F.S.A.

GLASGOW
MDCCCCXI

Originally published by
JAMES MACLEHOSE AND SONS
for the *Society of Antiquaries of Scotland*

This edition prepared for *The Trimontium Trust* with funding from *The Heritage Lottery Fund*, *Tweed Forum*, and others who have contributed to Phase II of the *Tweed Rivers Interpretation Project*

This edition published 2004 for The Trimontium Trust by The Armatura Press
www.armatura.co.uk

© 1911 James Curle

Layout and typesetting by M.C. Bishop at The Armatura Press
Set in 14pt Caslon Old Face

www.curlesnewstead.org.uk

ON behalf of the Society of Antiquaries of Scotland, I desire to express cordial recognition of the liberality with which the appeal of the Council for pecuniary assistance in the undertaking has been met from time to time by many persons, both Fellows of the Society and those not directly connected therewith. Without such assistance it would not have been possible to carry the excavation to completion, so greatly has its scope and the labour involved exceeded anticipation. It is satisfactory to know that the results attained are in even greater excess of our most sanguine expectation.

Further, neither the will nor the means to make a thorough exploration of the site would have availed anything without the generous assent and co-operation of the owners thereof, Mr. Thomas J. S. Roberts of Drygrange, proprietor of the main part of the land included in the fortification, and Mr. William Younger, proprietor of part of that included in the Southern Annexe. Besides giving material assistance in the work, these gentlemen have handed over to the National Museum of Antiquities the very large collection of weapons, armour, implements and other objects discovered. The land dealt with being under tillage, no progress could have been made unless the tenants thereof had given facilities. This they did most freely, and the thanks of the Society are due to Messrs. J. A. Porteous, Robert Bathgate, James Ford, G. Douglas Paton, David S. Hutcheson, and William Mallen, all of whom allowed excavations to be undertaken upon their farms.

The labours of Mr. James Curle speak for themselves in this volume, but Fellows of the Society should never forget that the exploration could not have been carried to a successful conclusion without his unremitting attention and ungrudging expenditure both of time and money. Nor could that time and money have been applied to full advantage without

the scholarly erudition which Mr. Curle has brought to the task. His thorough grasp of archaeological method, and his exceptional acquaintance with Roman remains, both in Great Britain and on the Continent, have enabled him to treat the subject in that comparative spirit which is the special characteristic of modern science in all its branches.

The extent of the operations and the quantity and importance of the results attained far exceed what could be adequately dealt with in a volume of the Transactions of our Society: hence the necessity for recording them in a separate publication.

HERBERT MAXWELL,
Pres. Soc. Ant. Scot.

November, 1910.

PREFACE

WHEN, in the Spring of 1905, I undertook at the request of the Hon. John Abercromby, then one of the Secretaries of the Society of Antiquaries of Scotland, to superintend on behalf of the Society the excavations about to be undertaken at Newstead, and to embody the results obtained in a report, I little dreamt how large an undertaking lay before me, and into how many byways of archaeology it was to lead. The work, for which I expected a few months to suffice, has occupied a period of five years.

The excavations were begun on 13th February, 1905, and continued without interruption until 19th May, 1909. After an interval of some months, work was resumed on the 22nd December of that year, and finally brought to a close in the middle of September, 1910. During these periods of work my residence within a mile of the site enabled me to make frequent, and often daily, visits to follow the progress of the digging, and to carry home the smaller objects found, thus giving opportunities for study that would not have been possible had they been at once despatched to the National Museum. Throughout the whole period of our working, Mr. Alexander Mackie acted as Clerk of Works. Mr. Mackie had gained experience under the Society in their excavations at Birrenswark, Inchtuthil and Lyne, and also at one or two of the forts on the Antonine Vallum, and was thus able to render valuable service in working out the problems of the site. He stuck to his post undeterred by weather, and by his shrewd observation contributed in no small measure to the success of the undertaking. The photographs of the foundations were all taken by Mr. Mackie.

In the preparation of the plans, Mr. Thomas Ross, LL.D., gave us

with ungrudging liberality the benefit of his experience, making many journeys to the Fort, and spending much time on the necessary survey.

In the autumn of 1907 the Council of the Society requested me to give the results of the excavations in the Rhind Lectures for that year. In dealing with the subject in the form of lectures delivered to a general audience, it seemed desirable to treat it on broad lines, and to bring to its illustration the results of similar investigations, both at home and abroad, which have been published during recent years. The form and treatment thus adopted have been adhered to, but in preparing the lectures for publication, the insertion of many details has expanded the volume beyond the limits usually adopted for such reports, until it has become in some measure a comparative study of a Roman fort and its people.

The results of observations made, both at home and on the Continent, in the many Museums and private collections which I have visited since the beginning of the excavations, are embodied in this volume, and I have to acknowledge the uniform kindness I have met with at the hands of curators and collectors. In approaching the end of a long task, I must acknowledge how much it has been lightened by the helpful suggestions I have received on these visits. Among the many friends and correspondents to whom I am indebted, I must mention my brother, Mr. Alexander O. Curle, Secretary to the Royal Commission on the Ancient Monuments of Scotland; Mr. Joseph Anderson, LL.D., Keeper of the National Museum of Antiquities, Edinburgh; Mr. George Neilson, LL.D., Glasgow, who has kindly revised my extracts from charters containing allusions to Dere Street; Captain H. G. Lyons, F.R.S.; Mr. Reginald Smith of the British and Mediaeval Department of the British Museum~; Mr. Arthur G. Wright of the Municipal Museum, Colchester; Herr Heinrich Jacobi of the Saalburg Museum, Homburg vor der Höhe; Dr. Emil Krüger of the Provincial Museum of Trier; and Professor Schumacher of Mainz, who was good enough to revise the lists of helmets and visor-masks appended to Chapter IX.

Among those who have helped me, I must especially mention Professor Haverfield of Oxford and Mr. George Macdonald, LL.D., of Edinburgh. Professor Haverfield and Mr. Macdonald have both read the proofs of this

volume, and to their sympathy and encouragement throughout the whole undertaking, no less than to their scholarship, I cannot too fully express my indebtedness.

To those who have contributed the Appendices to this volume, Mr. Harry F. Tagg, Professor Ewart, Mr. Linton, Professor Bryce and Mr. George Macdonald, and who have done so much to invest with interest the remains submitted to them, I would tender my grateful thanks.

In conclusion, I would especially thank Mr. James MacLehose for having undertaken on behalf of the Society of Antiquaries to publish this volume, and for all the labour he has bestowed to make it a worthy record of the unique collection with which it deals.

PRIORWOOD,
MELROSE, *November*, 1910.

THIS PAGE INTENTIONALLY BLANK

CONTENTS

	PAGE	
I	INTRODUCTORY. THE GREAT CAMP	1
II	THE FORT AND ITS DEFENCES	22
III	INTERIOR BUILDINGS OF THE FORT: THE PRINCIPIA	39
IV	INTERIOR BUILDINGS: STOREHOUSES, DWELLINGS	58
V	TRACES OF SUCCESSIVE OCCUPATIONS	77
VI	THE ANNEXES OF THE FORT AND THEIR BUILDINGS	86
VII	PITS AND WELLS, AND THEIR CONTENTS	104
VIII	OBJECTS OF STONE, INCLUDING INSCRIPTIONS	140
IX	DRESS AND ARMOUR	147
X	WEAPONS	181
XI	POTTERY: TERRA SIGILLATA OR SAMIAN WARE	190
XII	POTTERY: UNGLAZED WARE	243
XIII	TOOLS AND IMPLEMENTS	277
XIV	TRANSPORT AND HARNESS	292
XV	MISCELLANEOUS FINDS	306
XVI	ORNAMENTS	317
XVII	CONCLUSIONS	340

APPENDICES

	PAGE
VEGETABLE REMAINS. BY HARRY F. TAGO, F.L.S.	353
ANIMAL REMAINS. BY PROFESSOR J. C. EWART, M.D., F.R.S.	
EQUIDAE	362
BOVIDAE	371
THE SKULLS OF THE CANIDAE. BY R. G. LINTON, M.R.C.V.S.	378
HUMAN BONES. BY PROFESSOR T. H. BRYCE, M.D.	380
COINS. BY GEORGE MACDONALD, LL.D.	385
INDEX	416

FULL PAGE PLATES

	PAGE
I THE VALLEY OF THE TWEED LOOKING WESTWARD FROM BEMERSYDE HILL. FROM A WATER-COLOUR DRAWING BY TOM SCOTT, R.S.A.	<i>Frontispiece</i>
II THE TWEED BELOW THE GREAT CAMP AT LEADERFOOT	8
III THE POSITION OF THE GREAT CAMP FROM THE SOUTH	16
IV THE BURIALS IN THE DITCH OF THE GREAT CAMP	20
V THE SITE OF THE FORT FROM THE NORTH-WEST	24
VI THE WALL OF THE FORT	32
VII THE REDUCING WALL	34
VIII THE EASTERN EILDON HILL FROM THE SITE OF THE PRINCIPIA	40
IX THE PRINCIPIA	44
X THE PRINCIPIA	48
XI REMAINS OF BUILDINGS	58
XII THE MELROSE VALLEY FROM NEAR THE BATHS	86
XIII THE BATHS	96
XIV THE LATRINE	100
XV UNFINISHED BASKET OF HAIR MOSS	108
XVI ALTAR FOUND IN PRINCIPIA	142
XVII ALTARS AND QUERNS	144
XVIII ALTAR; INSCRIBED AND SCULPTURED FRAGMENTS	146
XIX LEATHER WORK	150
XX SHOES	152
XXI ORNAMENTED LEATHER WORK	154

FULL PAGE PLATES

	PAGE
XXII REMAINS OF IRON BREASTPLATE WITH BRASS MOUNTING	156
XXIII SCALE ARMOUR	158
XXIV SCALE ARMOUR OF BRASS	160
XXV MOUNTINGS AND STUDS OF A LEATHER BELT	162
XXVI HELMETS	164
XXVII BRASS HELMET	166
XXVIII BRASS HELMET	168
XXIX IRON HELMET WITH VISOR-MASK	170
XXX BRASS VISOR-MASK	172
XXXI INSCRIBED BRONZE PHALERAE	174
XXXII BRONZE OBJECTS OF UNKNOWN USE	176
XXXIII BRONZE DISC	178
XXXIV SWORDS AND SHIELD MOUNTINGS	180
XXXV SHEATH AND HELMET MOUNTINGS	182
XXXVI SPEARS	184
XXXVII SPEARS AND ARROW HEADS	186
XXXVIII CHAIN MAIL, ARROW HEADS	188
XXXIX TYPES OF VESSELS, TERRA SIGILLATA	196
XL TYPES OF VESSELS, TERRA SIGILLATA	198
XLI VESSELS OF TERRA SIGILLATA	200
XLII BOWL OF TERRA SIGILLATA	204
XLIII BOWLS OF TERRA SIGILLATA	208
XLIV BOWL OF TERRA SIGILLATA BY CINNAMUS	224
XLV BOWL OF TERRA SIGILLATA, PIT XL: TYPES OF MORTARIA	242
XLVI TYPES OF VESSELS, UNGLAZED WARE	244
XLVII TYPES OF VESSELS, UNGLAZED WARE	246
XLVIII TYPES OF VESSEL; UNGLAZED WARE	252
XLIX VESSELS OF UNGLAZED WARE	254

FULL PAGE PLATES

	PAGE
L VESSELS OF UNGLAZED WARE	256
LI EXAMPLES OF UNGLAZED POTTERY	260
LII AMPHORAE, AND MAKERS' STAMPS	268
LIII CAMP KETTLES AND PATELLA	270
LIV BRONZE DISC FROM PIT XXII AND MISCELLANEOUS OBJECTS	272
LV BRONZE OENOCHOE	274
LVI BRONZE EWER	276
LVII THE AXES OF THE PIONEERS	278
LVIII PICKS AND SCRAP-IRON	278
LIX THE CARPENTER'S TOOLS	280
LX KNIVES	282
LXI IMPLEMENTS OF HUSBANDRY	284
LXII SCYTHE; ANVIL, AND WHETSTONE	284
LXIII THE SMITH'S TOOLS	286
LXIV FROM THE SMITH'S STOCK	286
LXV HEAVY IRON MOUNTINGS AND INGOT	288
LXVI MISCELLANEOUS IRON OBJECTS	288
LXVII HOLDFASTS AND NAILS	290
LXVIII EVIDENCES OF WEAVING AND SPINNING	290
LXIX WHEEL FROM PIT XXIII AND WOODEN OBJECTS	292
LXX WHEEL MOUNTINGS AND HARNESS	294
LXXI BRIDLE BITS	296
LXXII HARNESS MOUNTINGS	298
LXXIII HARNESS MOUNTINGS; TERRA COTTA HORSE	300
LXXIV HARNESS MOUNTINGS	302
LXXV HARNESS MOUNTING; LATE CELTIC TYPES	302
LXXVI TERMINALS FOR STRAPS, AND BUCKLES	304
LXXVII PHALERAB AND MISCELLANEOUS BRONZE OBJECTS	304
LXXVIII LOCKS AND KEYS	306

FULL PAGE PLATES

	PAGE
LXXIX LAMPS	306
LXXX STYLI AND TABLET	308
LXXXI HANGING ORNAMENTS; SEAL BOXES	310
LXXXII HANDLES OF CASKETS; WEIGHTS	312
LXXXIII TENT PEG; OBJECTS OF WOOD AND DEER HORN	314
LXXXIV MISCELLANEOUS OBJECTS OF BRASS AND HORN	316
LXXXV FIBULAE	318
LXXXVI FIBULAE	320
LXXXVII FIBULAE, SILVER NECKLACE AND INTAGLIOS	324
LXXXVIII PENANNULAR BROOCHES	326
LXXXIX ENAMELS	330
XC BRASS TORC	334
XCI BEADS	336
XCII BRONZE PINS	338
XCIII ARTICLES OF TOILET; PIECES FOR A GAME	340
XCIV EQUIDAE	362
XCV SKULLS OF EQUIDAE	364
XCVI SKULLS OF EQUIDAE	368
XCVII BOVIDAE	372
TERRA SIGILLATA OF THE FLAVIAN PERIOD	205-217
TERRA SIGILLATA OF THE ANTONINE PERIOD	217-227
LIST OF POTTERS' MARKS ON TERRA SIGILLATA	231-242

PLANS

	PAGE
I THE APPROACHES TO NEWSTEAD	14
II THE ROMAN FORT OF NEWSTEAD AND ITS ANNEXES SHOWING THE GREAT CAMP	14
III SECTIONS THROUGH THE DEFENCES OF THE FORT	30
IV THE FORT WITH ITS BUILDINGS	38

FIGURES IN THE TEXT

FIG.		PAGE
1	Plan of Early Fort	23
2	Plan of the Principia	43
3	Plan of the Later Fort in its First Period	80
4	Plan of the Reduced Fort	82
5	Plan of the Bath Building in Lipari	90
6	Plan of Bath at Inchtuthil	91
7	Plan of Bath and adjoining Buildings at Newstead	93
8	Plan of Bath at Newstead	95
9	Water Pipe	102
10	Basketwork	108
11	Remains of Armour	157
12	Armour Scales, showing Method of Lacing	158
13	Belt Clasps. The Back of the Plates	162
14	Base from the Praetorium, Mainz	165
15	Punctured Inscription on the Brass Helmet	167
16	Tombstone of Gnaeus Musius	175
17	Names inscribed upon the Bronze Objects from Pit XXII	177
18	Reverse of Bronze Disc from Pit XCII	181
19	Late Celtic Sword Guards	186
20	Punctured Inscription on a Spear from Pit XVI	188
21	Lip of Bowl	198
22	Owners' Names Scratched on Dishes	230
23	Fragment of Urn	245
24	Urn of the Early Period	245
25	Sections of Rims of Cooking-Pots and Beakers	246
26	Sections of Rims of Bowls	250
27	Sections of Plates	251

FIGURES IN THE TEXT

FIG.		PAGE
23	Sections of Rims of Cooking-Pots	254
29	Design from Beaker of Castor Ware	254
30	Beakers with Barbotine Decoration from Trier	255
31	Beaker with Handle	256
32	Sections of Rims of Bowls	259
33	Necks of Jugs	262
34	Sections of Rims of Mortaria	264
35	Maker' Stamps on Mortaria	266
36	Glass Bottle from Pit XV	272
37	Marks of Possession on Bronze Vessels	274
38	Details from Bronze Ewer	276
39	Sheaths for Dolabrae from Vindonissa	279
40	Knives from Vindonissa	232
41	Punctured Inscription on Axe from Pit XVI	283
42	Figures from the Monument of T. Flavius Bassus at Cologne	296
43	Phalera from Pit LV. Back View	299
44	Phalera from Xanten	299
45	Wooden Objects from Pit LIV	311
46	Brooches from Lamberton Moor	320
47	Fibulae from uchester and Hod Hill	324
48	Belt Mounting from South Shields	329
49	Figure from a Clay Mould, Corbridge	335
50	'Draught Board' from Corbridge	339
51	Stone Age Horse: Steppe Type	363
52	Outline of the Steppe Type	363
53	Stone Age Pony: Plateau Type	364
54	Stone Age Horse: Forest Type	364
55	Stone Age Horse: Siwalik Type (?)	364
56	Cannon Bone: Plateau Type	365
57	Cannon Bone: Forest Type	365
58	Molars. Iceland Pony: Forest Type	367
59	Molars. Newstead Horse: Plateau Type	367
60	Molars of Siwalik Horse	367
61	Molar Tooth of Steno's Horse	369

THIS PAGE INTENTIONALLY BLANK

CHAPTER I

Introductory. The Great Camp

THE Tweed at Melrose, coming from the hills, flows eastwards through a wider valley. At Newstead the valley contracts, and the river, cutting its way through a comparatively narrow gorge, runs in a deeper channel beneath the bridges at Leaderfoot. The current slackens somewhat and the banks open out a little, above the point where the Leader coming from the north joins with the main stream; and then swinging to the south as they meet the great cliff of the Gate Heugh the united waters encircle Old Melrose, the 'bare promontory' on which St. Cuthbert planted his monastery.

The ground lying within the angle thus formed might be roughly described as a table land tilted over towards the south-east. It is highest where the valley narrows, and there the crest of the ridge on the south bank rises abruptly a hundred feet above the stream, presenting a marked contrast to the easy declivity by which the fords which gave entrance to the Leader Valley were approached. From the summit of the ridge, whence the eye travels across undulating fields that gradually ascend to the hills of the Borders, the ground slopes gently downward on the south like a long glacia, into a little hollow where the main line of the North British Railway runs, and then rises again to meet the slope of the Eildon Hills which overshadow it on the south-west. It would not have been easy for the Romans to find a position more admirably adapted by nature for their purpose. The channel of the Tweed, deeper perhaps in early times, furnished a strong defence on the north and east. On the west, at the foot of the slope down which the village of Newstead straggles, the river unconfined by barriers must have wandered at will through marshy channels. It was only to the south and south-east, in the rear of the invaders, that the ground lay open.

It is precisely on such a site, commanding a valley and with a river at its feet, that we might have expected to light upon a Roman entrenchment. Vindonissa overlooking the Aar and the Reuss, Birdoswald high above the Irthing, Inveresk with the stream winding round the hill on which it stands, are all obvious parallels. As a matter of fact, we shall find that Newstead commended itself to more than one generation of Roman military engineers, for we shall have to deal with at least two quite distinct military works—a camp sufficient for an army, occupied probably for no long period, and a fort, much smaller in size, showing unmistakable signs of what may fairly be called permanent inhabitation. In what follows, these two will be distinguished as the 'camp' and the 'fort' respectively.

The History of the Site

In each of the Roman forts hitherto excavated in Scotland, some trace of the entrenchments had survived above the surface, and, with the solitary exception of Cappuck, plans or descriptions more or less imperfect were to be found in the pages of Roy, Gordon, Horsley, or other writers. At Newstead, not only had every surface trace disappeared, but the entire obliteration of the Roman works had probably taken place long before the first awakening of an intelligent interest in the military antiquities of our country. The earliest reference to the site will be found in a short history of Melrose written in the year 1743 by the Rev. Adam Milne, minister of the parish. Mr. Milne carefully noted all traces of camps and other antiquities in his parish, but of the exact nature of the remains at Newstead he clearly had no inkling. After describing the monastery of Old Melrose, he goes on to say:

'About a mile to the west on the Tweed stands Newstead, a place noted for an ancient lodge of masons, but more remarkable for another abbacy on the east side of it, called Red Abbey-steed. Whether it got this name from the colour of the stones wherewith it was built, or because it was an house belonging to the Templars, they wearing a red cross for their distinguishing badge, I cannot determine; but it is certain, when the ground here is plowed or ditched, the foundations of several houses are discovered, a great deal of lead got, and some curious seals. At this place likewise there has been a famous bridge over Tweed; the entrance to it on the south side is very evident, and a great deal of fine stones are dug out of the arches of the bridge when the water is low.'¹

¹ *A Description of the Parish of Melrose in Answer to Mr. Maitland's Queries*, 1769, p. 6.

In 1761 General Roy, searching for the Trimontium of Ptolemy, which, following the forged itinerary ascribed to Richard of Cirencester, he expected to find somewhere on the line of road between Carlisle and the Antonine Wall, was struck by the configuration of the Eildon Hills and the track of 'the Watling Street' advancing directly towards them, and was thus led to conjecture that hereabouts Trimontium was situated. He had an examination made of the ground in the neighbourhood of the hills, 'and in consequence of this search some imperfect traces of an entrenchment were perceived at the village of Eildon situated near the eastern skirt of the hill. These vestiges, which are to be seen near the south-west angle of the village on the east of the Roman way, were further observed in 1771; but, it must be owned, were found by much too slight to decide absolutely the point in question. Nevertheless, from all the circumstances taken together, the aspect of the hills, corresponding exactly with the name, two Roman ways leading towards them, and particularly from the traces of that which hath gone from Carlisle, whether it was ever finished or not, yet along which the ninth iter of Richard seems to have proceeded, there is surely good reason to believe that this ancient Trimontium of the Romans was situated somewhere near these remarkable hills, at the village of Eildon, Old Melrose, or perhaps about Newstead, where the Watling Street hath passed the Tweed.¹¹ It is evident from this passage that before the end of the eighteenth century the fort which Milne had failed to distinguish must have been too completely effaced for even Roy's practised eye to detect.

The Disappearance of the Ruins

The demolition has indeed been complete, and although the work of destruction has been continued within the last fifty years as opportunity occurred, it is beyond doubt that the great bulk of the material must have been removed at a comparatively remote date. We have no records of any portion of the buildings being visible above ground, except in the name Red Abbeystead. This, though cited by Milne as indicating an Abbey, is merely the name of one of the fields in which the Roman remains now lie buried. There is no reason to believe that any Abbey ever stood here, and the appellation dates probably from days when some fragments of red sandstone ruins were still visible here, and were thought by the country folk to be ruins of an Abbey. Probably long before Milne wrote his history, or Roy embarked upon his survey,

¹ Roy, *The Military Antiquities of the Romans in North Britain* (London, 1793), p. 116.

every surface trace of the structures had been obliterated. The great wall which surrounded the fort, as well as the ruins it enclosed, would provide a convenient quarry, and it seems not improbable that when King David built his great Abbey at Melrose he found some of his material at Newstead. The stone used by the Romans was for the most part the red sandstone of which the Abbey is built. It is said to have come from the quarry at Dryburgh, some three miles further down the Tweed.

We know that the spoil of ancient buildings was too often employed in the manner suggested. The Roman stones of St. Wilfrid's crypt at Hexham and the altar of the Rhaetian Spearman in the tower stair at Jedburgh are well-known examples. Further, although no stone showing any trace of an inscription, or of a characteristically Roman dressing, appears to have been found at Melrose, there is one ancient tradition which may be held to strengthen the theory. The village of Newstead, which lies close to the fort on the west, has always been celebrated for its masons. The old thatched houses, many of which have been swept away in the last twenty years, were rich in sundials and small ornamented details of stone work. Here, according to the local tradition, lived the workmen who built the Abbey, and here certainly there was long ago established a Lodge of Freemasons which, though its early muniments have been lost, claims to have been founded at a distant period. The mason tradition has not attached itself to any of the other little communities that grew up around the Abbey, and there is thus good ground for believing that the connection of the craft with the village owed its origin to the proximity of the ruined fort.

Earlier Discoveries

The first notable find of which we have any definite account was made in 1783, when an altar was discovered in the field immediately to the east of the Red Abbeystead. It bears a dedication to the Campestres of an Ala of Vocontian Cavalry, and is preserved in the National Museum of Antiquities. A second altar, which is now in the possession of Sir Alexander Leith-Buchanan, Bart., a descendant of a former proprietor of the ground, at Ross Priory, Dumbartonshire, came to light in 1830 in a field to the south-east of the Red Abbeystead. It is a dedication to the god Silvanus by a centurion of the Twentieth Legion. In 1846 the formation of the main line of the North British Railway on the south led to the opening up of a number of Roman rubbish pits containing pottery and other relics.

This last discovery attracted the attention of Dr. John Alexander Smith, then Secretary of the Society of Antiquaries of Scotland, to the site. Four years later he contributed to the *Archaeologia Scotica*, a paper entitled *Notices of Various Discoveries of Roman Remains at the Red Abbeystead near the Village of Newstead, Roxburghshire*.¹ From this paper we learn that, in the course of draining operations, foundations of ancient buildings had been dug into in the Red Abbeystead and in the fields adjoining it on the west. No detailed description of these foundations could, however, be given owing to the accidental and irregular manner in which they had from time to time been laid bare. 'The stones used in these buildings were principally of red sandstone, and have been removed in considerable quantity for economical purposes for many years past.' Some thirty years before the date of Dr. Smith's paper, the tenant of the field adjoining the Red Abbeystead on the west, besides digging into such foundations, had come upon a portion of a regularly paved roadway about twenty feet broad running nearly north and south across the field. He had it entirely removed, and in the course of clearing it away there was found a sculptured stone bearing the figure of a wild boar-symbol, perhaps, of the Twentieth Legion-carved in high relief.²

The operations connected with the cutting of the railway in the winter of 1846 are thus described, the depth below the surface at which Roman remains began to appear being about three feet. 'First a cluster of well-like holes were opened up in a space about thirty yards square. Five or six of these were large-sized pits; two being regularly built round the sides with stones which, with the exception of some pieces of the red sandstone, were waterworn stones apparently from the river's bed. They were about twenty feet in depth and two to three feet in diameter. The other pits were simply dug out of the ground. Of these, one was about eighteen feet deep, two about fifteen feet, and four to five feet in diameter; another, a little apart, was ten or twelve feet in depth and three to four feet in diameter. Among these large pits were fifteen or sixteen small pits, each about three feet deep and three feet in diameter, which were plastered over the sides and bottoms with a lining of whitish clay some five or six inches thick.' The skeleton of a man, which is said to have been erect or nearly so, was discovered a little to the

1 *Archaeologia Scotica*, vol. iv. p. 422.

2 This stone is now in the possession of Mr. A. T. Simson, Eildon Grove, Melrose.

south-east of these larger pits, in a pit ten or twelve feet deep and three or four feet in diameter.

The discoveries in the railway cutting led to no further investigations. Dr. Smith indeed collected from time to time, and contributed to the Society of Antiquaries, notes on any objects found upon the site. But such objects were few, and for more than half a century the memory of the buried altars, and a tradition of deep pits, in one of which there had been found a soldier standing upright with his spear, were all that remained to associate Newstead with the Romans. In 1904 Mr. Roberts of Drygrange, the owner of the ground, undertook some drainage operations in the field known as the Gutterflat, lying to the west of the Red Abbeystead. The drainers in their work cut through the foundations of a large building, and commenced to throw up from their trenches blackened soil, the remains of ruined hypocausts, mixed with fragments of tiles, mortar and pottery. A stone trough was also brought to the surface, as well as a number of earthenware water pipes of Roman make. The characteristic debris and the wall foundations suggested that systematic search might lead to valuable results. A proposal was made to the Council of the Society of Antiquaries of Scotland that they should take the work in hand. The Society had just completed its excavation of the fort of Rough Castle on the Antonine Vallum, and it was agreed that Newstead should be next attacked. The work was accordingly commenced on 13th February, 1905.

Rediscovery of the Fort

At the outset there was little to serve as a guide to the excavators. Everything on the surface had long since been levelled by the plough. Nothing was known of the extent, or indeed of the nature, of the site about to be explored. Perhaps it was owing to the recent finds in the well at Bar Hill that attention was first directed to the field adjoining the Gutterflat, known as the Well Meadow. Possibly the well of this fort too, if it could but be found, might yield something to rival the strange series of columns from the other. Besides, the farm labourers told of great blocks of stone over which the ploughs grated, and there was Dr. Smith's evidence as to the discovery of a sculptured symbol of the Twentieth Legion here. A beginning was accordingly made by cutting a trench diagonally from west to east across the southern half of the Well Meadow. The ground turned out to be very wet, the trench filling with water as it was dug. Still, a few hours sufficed to show that underneath

lay the foundations of walls. Towards the end of the first week the trench was driven into a bank of yellow clay, which proved to be the southern rampart of the fort. Here, then, was the Roman station for which Roy had vainly searched. The rest was a matter of patient digging.

The Roman Road

Before describing in detail the features of the station so far as they were revealed by four years of excavation, it is desirable to notice briefly the Roman road with which it was organically connected. On the great roads of the empire, which radiated from Rome, there must have been many spots which were once the scene of a similar combination of military works. As the army pressed onward in its march of conquest, pushing out into the barbarian lands, it secured its communications by establishing such posts as that which was found at Newstead. They were a recognised feature of the military roads, an important part of a well established system. We shall see that Newstead was undoubtedly occupied as early as the end of the first century A.D. In other words by the troops of Agricola. But there is more than one route by which a Roman army advancing northwards might have reached this point. The circumstance that Agricola's campaign of A.D. 78, if not that of the following year also, was conducted in North Wales lends some colour to the supposition that when he entered Scotland in A.D. So, he did so through Carlisle. On this assumption he might have followed the valley of the Liddell and the modern line of the North British Railway to Melrose. Another possible route was that of the ancient road known as the Wheel Causeway, which was used in the Middle Ages as a means of communication between Liddesdale and Jedburgh.¹ On neither of these lines, however, have we any evidence of Roman relics on Scottish ground. It is different with the ancient track which is known as 'the Roman road' to everyone familiar with the Borders. For miles across the uplands that separate England from Scotland, its track, and the mounds marking the site of forts that once protected it, can still be traced. It crosses the Wall of Hadrian near Corbridge on Tyne, passes Bremenium and Chew Green, the latter near the sources of the Coquet, and then plunges into the heart of the Cheviots.

¹ For a more detailed description of this road, see James Macdonald, 'Notes on the Roman Roads of the One Inch Ordnance Map of Scotland,' *Proceedings of the Society of Antiquaries of Scotland*, vol. xxix. p. 323, as also a note on the Antiquity of the Wheel Causeway by Professor Haverfield. *Ibid.* vol. xxxiv. p. 129.

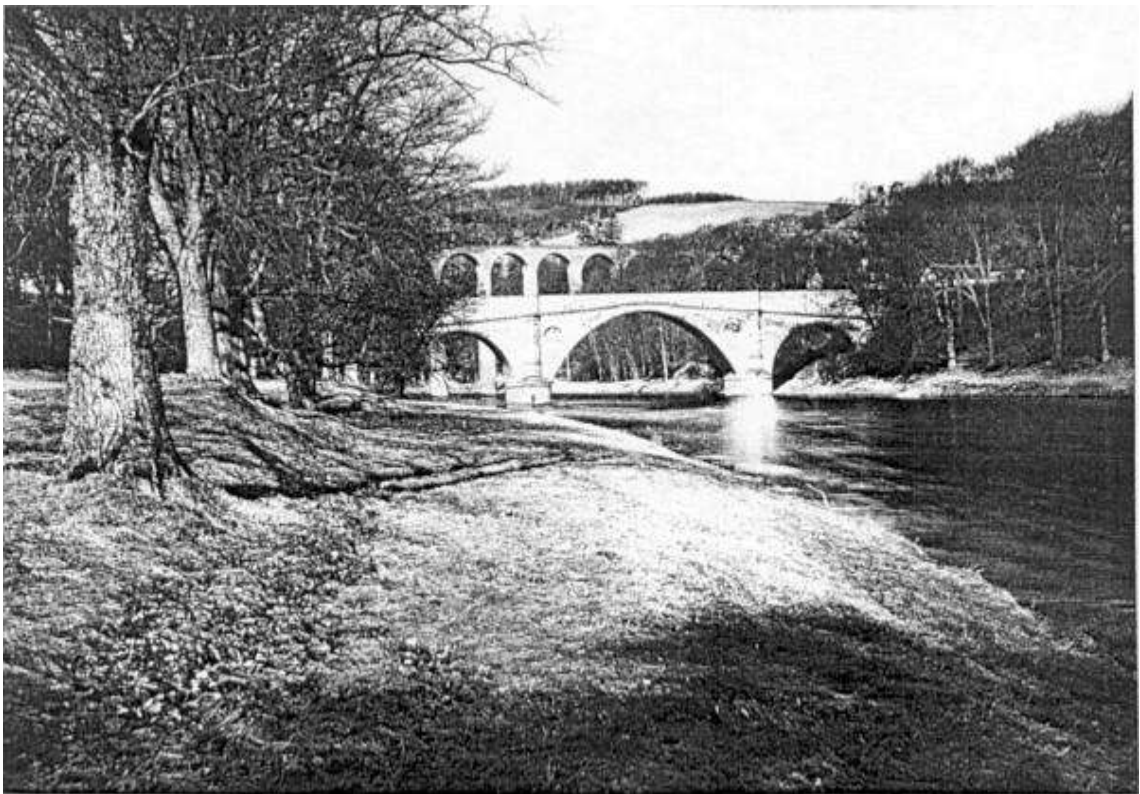
Emerging from the hills at Street House, it descends to the valley of the Kale, which it crosses just below Towford School. A little further on it passes on the left a large rectilinear enclosure, probably of Roman origin. Gradually ascending, it crosses Pennymuir, and, sweeping round the top of the ridges to the east of Cunzierton, runs from Shibden Hill in a straight line over hill and dale to the Oxnam. Here on the high ground to the south of the river, overlooking the ford, lay the fort of Cappuck, obviously intended to guard the crossing.

To the north side of the Oxnam the ground rises again, and the road, wet and marshy, hardly used save now and then by some chance wayfarer, continues its straight course over another billowy ridge of land to Jedfoot, where it is lost in the grounds of Monteviot. It reappears a little to the north-west of Ancrum House, running in exactly the same direction as it had done from Shibden Hill to Jedfoot, and eventually disappearing in the road from Jedburgh to St. Boswells, which follows the same straight course for a mile or two further. Beyond this the Roman road probably made in a nearly straight line for Newstead, skirting on the left the village of Eildon. From every vantage point of rising ground that the road crosses in its course from Street House northwards, there stands out as a landmark in the distance that most familiar feature of the border country, the triple-peaked Eildon. To many a Roman soldier marching northwards it must have served as a beacon. So far as Scotland is concerned, the excavation done on the line of this road is as yet confined to that carried out by the late Marquess of Lothian¹ on the fort of Cappuck in 1886. Partial though it was, it proved conclusively that the site was Roman. And the presence of a Roman fort high in this upland country proved no less conclusively the Roman character of the road which runs beside it. The relics found in the course of the excavation are too few to enable us definitely to estimate the limits of its period of occupation. But that the road constituted the line of advance to Newstead in the Antonine period seems clear. Further, the records of Agricola's campaign sixty years earlier were doubtless familiar to Lollius Urbicus and his men, and the presumption is that, in making their advance, they followed in his footsteps. The question can only be definitely solved by more excavation of the forts in the hill-country, Cappuck, Pennymuir, Chew Green. In the meantime, however, such evidence as we do possess

¹ *Proceedings of the Berwickshire Naturalists' Club*, 1893, pp. 382–9.

PLATE II. THE TWEED BELOW THE GREAT CAMP AT LEADERFOOT

The view is taken looking towards the north-west, just above the junction of the Tweed with the Leader. In the foreground is Leaderfoot Bridge. Behind it rise the arches of the Railway Viaduct seen in the distance in Plate I. In the wood on the high ground in the distance lies the small fort mentioned on page 17.



is in favour of Agricola's advance by this route across the Cheviots. In particular, it may be noted that among the pottery from Cappuck preserved at Monteviot there are one or two unpublished fragments of Terra Sigillata that may well date from the first century, as well as others referrible to the second century.

At Newstead the road must have crossed the Tweed. Possibly a branch may have diverged here westwards, following the valley of the river to Lyne, and so onwards to the western end of the Antonine Wall. But even of the course of the main road from Newstead onwards we cannot produce much evidence. The position of both camp and fort seems chosen primarily to command the passage over the river. Milne's reference to a bridge across the Tweed, the ruins of which were being further demolished in his time, has been already quoted. No trace of it exists to-day, and recent attempts to ascertain its site were unsuccessful. Roy, whose view was that 'the Watling Street' passed the river at this point, thought he could discover some remains of a camp at Channelkirk in Lauderdale. He gives a plan. But the remains upon the site are not now recognisable as Roman. Beyond the watershed at Soutra Hill, we again find definite evidence of Roman military occupation at Inveresk. This does not of itself prove definitely that the Roman road followed the route of the Leader valley. Inveresk might also have been reached by way of the Gala and the line of the North British Railway. But the road through Lauderdale and over Soutra Hill seems to have formed for many centuries the main line of communication between this part of Roxburghshire and the North; and it is not unreasonable to identify it with the original Roman road which in the north of England appears in medieval documents under the name of Dere Street. Monastic charters enable us to trace Dere Street from Durham and Northumberland through Roxburghshire and Lauderdale.

In the History of St Cuthbert, published among the writings of Simeon of Durham, and written between 1104 and 1108, there occurs a reference to the road known as Deorestrete. The passage narrates how the Bishop Ecgred 'built a church at the town which is called Gegnford [Gainford on the Tees] and gave it to Saint Cuthbert with whatever pertained to it from the river Tese to the Weor, and from the way which is called Deorestrete to the high ground towards the west and beyond the

river Tese three miles towards the south and six towards the west.* 'This' says the editor of the edition published by the Surtees Society, Mr. Hodgson Hinde, 'is the earliest mention in any medieval writer of Deorstrete, the great Roman thoroughfare through the county of Durham from south to north.'

Again, the Chartulary of Melrose includes a charter executed in the reign of William the Lion (1165-1214) by William of Hunum, in which he gives to the monastery the lands stretching 'from the stream of Cuithenhope up that whole path as far as the bank between Raweshawe and Cuithbrithishope, and so following the boundary between me and Richard de Umfraville to Derestreth on the west, and from Derestreth descending to the boundary of Chattou, and so by that boundary between me and Chattou to the stream of Cuithenhope.†

We have here the road on the Scottish side of the Border in the country which lies between Street House and Cappuck. Chattou is identified with the modern Chatto, along the boundary of which the Roman road still runs after passing Pennymuir.¹

In 1226, in a charter of Alexander de Chattou dealing with the lands of Rascaw or Rachawe, the boundary is described as running 'on the east side of Derestret, going up from Calne by the sike as far as Scolceuescluch, and by the same sike going up to the cross set up with our assent, and so straight thence to the head of Seteburn, and by the said burn coming down to the burn which comes down from Thedbrichteshop, and so descending to the stream of Cuithenhope.‡

* Postea idem sanctus episcopus Egred aedificavit ecclesiam apud villam quae vocatur Gagnford et dedit earn Sancto Cuthberto, et quicquid ad earn pertinet a flumine Tese usque ad Weor, et a via quae vocatur Deorestrete usque ad montem versus occidentem. Et ultra fluvium Tese tria milliaria versus austrum et sex versus occidentem. *Surtees Papers*, vol. li. p. 142.

† a rivo de Cuihezihop sursum totam illani semitam usque ad fossatum inter raweshawe et Cuithbrithishiope et sic totam divisam inter me et Ricd de Umfraille usque in derestreth versus occidentem et de derestreth descendendo totum usque ad divisam de chatthov et sic per illam divisam inter me et chatthou usque ad rivum de Cuithenop. *Liber de Melros*, vol. i. p. 722, No. 131.

‡ Scilicet ex orientali parte de Derstret ascendendo de Caine per sicum usque in Scolceuescluch et per eundem sicum ascendendo usque ad crucem de assensu nostro constructam et sic in directum usque ad Capud de Setehurne et per eandem burnam descendendo usque ad Burnam quac descendit de Thedbrichteshop et sic descendendo usque ad rivulum de Cuitheii hop. *Liber de Melros*, vol. i. p. 247, No. 280.

1 'Cuthbertshope, Roxburghshire, with an, Appended Note on Derestreet,' by George Watson, *History of the Berwickshire Naturalists' Club*, vol. xix. p. 333.

From the charter just quoted it appears that Derestreet lay to the west of the Kale, as does the line of the Roman road. We next get a trace of it in a charter dating from the reign of William the Lion by Robert de Berkeley and Cecilia his wife, conveying certain lands of Mackistun (the modern Maxton) to the Monastery of Melrose. These are described as 'a ploughgate of land in the territory of Mackistun set off as follows: That is to say, on the east side of Derestrete by the watershed of Morrig towards the south from the east side of the said street to the first sike on the north part of Lilisyhatef between Gretkerigge and Lilisyhatef and so towards the east by the same sike to that place which I Robert de Berkeley myself assigned to them in presence of my men and they have set up in Morric a great stone in witness and thence westwards to Derestrete.)*' The land conveyed must have been in the vicinity of Lilliard's Edge. The name Morrig still exists in the farm of Morridge Hall, which here lies on the outskirts of the parish of Maxton, the line of the old road, forming its boundary on the west.

Dating from the reign of Alexander II. we find another charter conveying lands in Maxton which gives Derestreet as a boundary. This was granted by John de Normanville in favour of the Monastery of Melrose. The boundary of these lands, which are described as forming part of the territory of Makeston, is said to follow 'the bank below Kelwelawe to Keluesetescloch [the termination is doubtless cleuch], and so descending by Keluesetescloch to the bank of Grenrig and so by the same bank to Lillesetheburn and so going up the said burn to the bank of Grenerig and by the bank towards the west to Derstret and so to the north following the line of Derstret to the Royal road which runs from Annandale towards Roxburgh and by the said road toward the east as far as the marches between Faringdune and the lands of the said Monks of Melros.†

* unam Carrucatam terre in territorio de Mackistun plenarie per has divisas scilicet ab orientali parte de derestrete a medio condoso de morrig versus austrum ex orientali parte ejusdem strate usque ad primum sicum ex aquilonali parte de lilisyhatef inter gretkerigge et lilisyhatef et sic versus orientem per eundem sicum usque ad illum locum quem ego Robertus de Berkeley ipsis coram hominibus meis assignavi et ipsi magnam petram in testimonium erexerunt in morric et inde versus occidentem usque derestrete. *Liber de Melros*, vol. i. p. 77, No. 90.

† illam partem terre in territorio de Makeston que inter has divisas obtinet scilicet per fossatum subtus Kelwelaue usque in Keluesetescloch et sic descendendo per Kelue-

In this extract we see Derestreet running northwards as in the last charter and meeting more or less at right angles the Royal Road which, coming from Roxburgh, must have followed the line of the Tweed.

We find it next in the neighbourhood of Lessudden (St. Boswells), where it is mentioned as a boundary in a charter of the same period by Robert de Londoniis, confirming to the Monastery of Melrose a gift of 'a half ploughgate of land, viz. as I have added and applied to that half ploughgate of land the rest of the land which lies contiguous as far as Derestredt and thence as the road descends in a slanting direction on the east down to the stream.'^{*} The stream is probably the burn which must have crossed the line of the road at the west end of the village.

A charter of Hugo de Morville to the Church of St. Mary at Dryburgh (circa 1150) conveys 'a half ploughgate of land in the territory of Newtown, viz. that which my steward William held from the west side of Derestrete in length and width as far as the Marches of Thirlestan.'[†] Sir Archibald Lawrie¹ identifies Newtown with Newton Don near Kelso, but it seems probable that in this he is mistaken, as the road must have lain far to the west of the latter. This is evident from the terms of another charter granted by John de Normanville of lands of Grenrig in the territory of Makiston, in which he gives as one of the boundaries, the road leading from 'Neutun' to Roxburgh,[‡] probably identical with the Royal

setesclach usque ad fossatum de grenrig et sic per idem fossatum usque ad lillesetheburne et sic ascendendo per eandem burnam usque ad fossatum de grenerig et per fossatum versus occidentem usque ad derstret et sic versus austrum per derstret usque ad regiam viam qua itur de valle anant versus Rokesburg et sic per eandem viam versus orientem usque ad divisas inter faringdune et terram eorundem monachorum de Melros. *Liber de Melros*, vol. i. p. 219, No. 244.

* Carta Robertus de Londoniis super carrucata terre de Lessedwine.

dimidiam Carrucata terre scilicet ego ipsi dimidie carrucate apposui et adjeci reliquum terre quod adiacet usque ad derestredt et sicut via descendit in oblico apud orientem usque in torrentem. *Liber de Melros*, vol. i. p. 76, No. 88.

† dimidiam carucata terrae in territorio de Newtown scilicet quam Willelmus senescallus meus tenuit ab occidentali parte de Derestrete in longum et latum juxta metas et divisas de Thirlestan. *Liber de Dryburgh*, p. 145, No. 201.

‡ viam quae itur de Neutun usque ad rokisburg. *Liber de Melros*, vol. i. p. 224.

¹ *Early Scottish Charters*, p. 422.

road already mentioned, showing that it was necessary in going from the one place to the other to traverse the Parish of Maxton, which certainly would not be the case in going from Roxburgh to Newton Don. Newtown, a mile nearer Newstead, would better fit the line of the road. The village is an old one, and is mentioned in a Melrose charter of the reign of Queen Mary, 1559.¹ This, however, would be a very long way from Thirlestane.

The course of the road after passing Lauder is more clearly indicated in a confirmation by Pope Celestine III. in 1196, by which he 'confirmed to God and the Church of St. Mary at Dryburgh and to the canons serving God there and to my Mother Church at Channelkirk, a toft and croft in the village of Samsonshiels, one toft and croft, namely a toft of one rood in front and a croft with land contiguous to the same croft of three full acres, close to my house from the west, and also that land arable as well as meadow which lies on the west side between the aforesaid croft itself and the burn, the march between my land and Pilmuir, that is to say, beginning on the south side at a certain stone cross set up on the edge of the same burn and extending as far as Derestrete in length northwards. To this likewise an acre which belonged to William, the son of Robert, with the land which lies between the same acre and hank between Samsonshiels and Pilmuir in breadth, and from the aforesaid stone cross as far as the way which leads to Wenneshead in length, and so by the same road on the east side continuously from the ditch of Pilmuir as far as Bradestrutherburn, and thence going on towards the north exactly as that stream formerly ran to the Leader.'^{*} The road is here following the line of the Leader

* Confirmasse Deo et ecclesie Sancte Marie de Driburgh et canonicis ibidem Deo servientibus et matri mae ecclesie de Childinchirch in villa de Samsonchelis unum toftum et croftum toftum scilicet unius rode in fronte et croftum cum [trium] plenarum acrarum terre contigue eidem crofto proximo domni mee ab occidente et insuper terram illam tam arabilem quam pratam que jacet ex parte occidentali inter predictum croftum suum et rivulum metam inter terram meam et Pilemuir videlicet incipiendo ex parte australi a quadam cruce lapidea statuta in margine ejusdem rivuli usque in Derestrete versus boream in longum. Ad hec etiam acram que fuit Vilielmi filij Roberti cum terra que jacet inter eandem acram et fossatum inter Samsonchelis et Pilemur in latum et a supradicta cruce lapidea usque in viam que ducit ad Wennesheued in longum et sic per eandem viam ex parte orientali continue a fossato de Pilemore usque in BradstrotherAburne et inde tenendo versus aquilonem sicut rivulus ille antiquitus currebat usque in Leder. *Liber de Dryburgh*, p. 123, No. 176.

¹ *Liber de Melros*, vol. ii. p. 649.

valley. Pilmuir lies about two miles to the west of Lauder, while the Bradestrutherburn has been identified with the Harryburn which joins the Leader to the north of the burgh of Lauder.¹ Again following the line of the Leader valley, but approaching the crest of the Lammermoors, we find it In the neighbourhood of Oxton, in a charter of A.D. 1206, by Alan, son of Roland of Galloway, Constable of the Realm of Scotland, conveying to the Church of Kelso five ploughgates of land in Ulfkelyston (Oxton) in Lauderdale. These are described as lying: 'From the head of Holdene going down by the Holdene burn as far as Derestrete and so by Derestrete northwards to Fuleford and by Samson's Marches to the Leader, by the Leader ascending in a straight course to the east end of the said town of Hulfkeliston, and from the east end of Ulfkiliston in a straight line by the south road ascending to Derestrete.'^{*}

The name does not appear in the charters of the Domus de Soltre, the Hospice of Soutra, but in a charter granted by King Alexander II. in 1228 we have references to the Royal road across Soutra Hill. It formed one of the boundaries of the land belonging to the Hospice. The march is described as running to the burn in Lynnesden, and from that burn eastward by the way which leads to the Royal road running towards Roxburgh.† While it is evident from the Maxton Charters quoted above that south of the Tweed the line of the Royal road did not coincide with the Derestreet, it is probable that in Lauderdale, and in crossing Soutra Hill both followed the same course, and this is the more plain, as we find that as they approach Dalkeith the line is identical. This may be seen from a charter of King Malcolm to the Monastery of Newbattle, in which he makes over 'the town of Gocelin, with its boundaries.' 'The town of Gocelin the cook, with its proper marches, namely from the east by

* Videlicet a capite de Holdene descendendo per Rivulum de Holdene usque in Derestrete et sic per Derestrete usque borearn usque fuleforde per divisas Samsonis usque in ledre et Sic per ledre recto tramite ascendendo usque ad capud orientale ejusdem ville de Hulfkeliston et a capite orientali de Ulfkiliston recto tramite per vicium australem ascendendo usque ad Derestrete. *Liber de Calchou*, p. 201, No. 545.

† Totam terram illam que jacet inter has divisas scilicet inter Brotherstanes et rivulum aquilonalem et rivulum australem et usque ad rivulum orientalem in Lynnesden et ab ipso rivulo orientali per viam que ducit ad regiam viam tendentem versus Roxburgh. *Registrum Cartarum Domus de Soltre*, No. 28.

1 Allan, *History of the Parish of Channelkirk*, p. 61.



PLAN I (top left). THE APPROACHES TO NEWSTEAD
 PLAN II. THE ROMAN FORT OF NEWSTEAD AND ITS ANNEXES, SHOWING
 THE GREAT CAMP

the marches between the land of Craneston and the land of Gocelynton to a certain stream which separates the foresaid lands, and so by the marches between the said lands towards the west as far as the land of Neubotle which King David my grandfather gave to them, and so northward by the marches as the land of Gocelynton extends to the land of Neubotle, thence eastward by the marches between the said lands as far as the Royal way which is called Derestrete, and so by the Derestrete northward to a certain deep sike, and so eastward by that sike between the marches of Dalkeith and Gocelynton to a marsh, thence through the middle of the said marsh to the east as far as the marches of Cousland, and so by the marches of Cousland to the said marches of Craneston. *Registrum de Neubotle*, p. 7, No. 10.*

Here, near Dalkeith, the road was in sight of; and probably heading for, Inveresk, a Roman site which is sufficiently established.

The Great Camp

As the work of excavation proceeded at the fort, the question not infrequently suggested itself why the highest point of the ridge a little to the east had not been taken as the central point, or had not at least been included in the defences. The reason ultimately became apparent when at a later stage of operations it became evident that the ground had formed the site of a great camp. In the winter of 1906–7 some exploratory trenches had been carried across the field lying between the fort and the Berwickshire branch of the railway, with but little result. Traces of a ditch running in a north-easterly direction were, however, discovered. As another ditch running south-east, on the south side of the main railway line, seemed possibly to be connected with it,

* Villam Gocelini coci cum suis rectis divisas scilicet ab orientali parte per rectas divisas inter terram de Craneston et terram de Gocelynton usque ad rivulum quenidam qui separat prenomatas terras et sic per rectas divisas inter easdem terras usque occidentem usque ad terram de Neubotle quam rex David avus meus eis dedit et sic versus aquilonem per rectas divisas sicut terra de Gocelynton se extendit usque ad terram de Neubotle deinde versus orientem per rectas divisas inter easdem terras usque ad viam regiam que vocatur derestrete et sic per derestrete versus Aquilonem usque in quenidam profundum sicum et sic versus orientem per sicum illum inter divisas de Dalkeith et de Gocelynton usque in unum maresium deinde per medium memoratum maresium usque orientem usque ad divisas de Cousland et sic per divisas de Cousland usque ad predictas divisas de Craneston. *Registrum de Neubotle*, p. 7, No. 10.

the investigation was resumed early in 1909 with a view to determining the system to which both apparently belonged. It proved to be the defence of a rectangular enclosure 1590 feet in length by 1340 feet in breadth, enclosing an area of forty-nine acres. The corners of the camp were rounded, and there were four entrances, one on each side. While the gates on the north and south occupied a central position, those on the east and west were placed nearer the northern end of the parallelogram. The ditch varied somewhat in dimensions, in part no doubt owing to the alteration of the surface through long years of tillage; but on an average it appeared to measure about seven and a half feet in width with a depth of five feet. It terminated on either side of the gates to allow the roads to pass out. Probably the rampart of the camp was built up from the spoil of the ditch, for there was no trace of any more permanent form of defence.

The gateways on the south, east, and west were carefully examined. But little could be done at the north gate beyond fixing its position, as it lay beneath a young plantation. The south entrance extended for forty-six feet between the ends of the ditches; the west entrance for forty-two feet; the precise dimensions of the eastern entrance were not ascertained. Each gate had been covered by a long straight ditch, known as a titulus, dug in front of it. These tituli appeared to have been from seven to eight feet wide, and they were placed directly in front of the openings at distances varying from thirty-eight feet in the case of the north gate to forty-seven feet in the case of the west gate. If the soil thrown up in digging them was heaped up behind, the entrances must have been reduced to comparatively moderate dimensions. The obvious purpose of the titulus was to mask the gateway, and so to render a frontal attack more difficult.

A glance at the plan will show better than any description how skilfully the strategic position of the great camp has been chosen. The dominating factor has been the course of the Tweed, the lines following the bend of the river. The highest point of the ridge, which must have served as the centre of the whole enclosure, commands a view in one direction of the ridges of land over which came the road from the Cheviots. In another it looks across the opening of the Leader valley, with the conical peak of the Black Hill standing high in the middle distance. A force planted here would have had complete control of the crossing of the river, and would have held the

PLATE III. THE SITE OF THE GREAT CAMP FROM THE SOUTH

The figure in the foreground is standing in the south gate. The telegraph posts further back indicate the line of the North British Railway. The crest of the ridge behind formed the highest point of the position. The ditch covering the west front crosses the hedge running northward on the extreme left. The position of the grave found in the ditch may be indicated by that of the third tree from the left on the top of the ridge. In the distance lies the small fortlet mentioned on page 17. The peak of the Black Hill marking the east side of the Leader Valley rises on the right



key of the roads to the north. One is reminded of various analogies along the Rhine—of Moguntiacum (Mainz) lying on the left bank directly over against the mouth of the Main, and of Vetera (Xanten) on the same bank confronting the entrance to the valley of the Lippe. And it is worth observing that to-day two railway lines converge within the very area of which we have been speaking—the main line from England and the branch that runs past Earlston and eastwards through the Merse towards the sea.

It is interesting to note that the position of the great camp must have conformed to the rules laid down by Roman military writers. It stood upon a slight rise, thus permitting the general to survey the whole interior; and it was near at river, which ensured an ample supply of water, but yet so high above it as to make inundation impossible.¹ No doubt the site was to some extent overlooked from the heights on the further side of the Tweed, but it is not improbable that the necessary precautions were taken to counteract this weakness. On the top of the hill beyond the river is a small oval fortified enclosure which may have been a Roman outwork. It occupies the edge of the declivity, pitched high enough to look down on the Tweed and the opening of the Leader valley. Its situation suggests that its purpose was to hold in check any movement from the northern uplands that might have been directed against a force passing over the river. In the spring of 1909 some trenches were cut across this enclosure, when it was ascertained that it had been defended by a single ditch, and that it had had two entrances, one on the east side, the other on the west. The ditch was V-shaped, but towards the bottom for a depth of ten inches the sides became perpendicular. This was noted in a portion cut through the rock to the south of the east gate. There were no traces of buildings in the interior; the only relic found was a small piece of pottery of an orange yellow colour, which came from the ditch at a depth of four feet. It was much finer in character than the ordinary native pottery, and although the surface was much injured by the action of the soil, there can be little doubt that it belongs to the Roman period.

The plan of the great camp, and more particularly the character of its gateways, would be sufficient to prove its Roman origin, even were other evidence wanting. It differs entirely from those annexes which are so commonly attached to Roman forts in Scotland and elsewhere. It must have been constructed for the accommodation of a large, probably a legionary,

1 *Hygini Gromatici Liber de Munitionibus Castrorum*, ed. Domaszewski, p. 29, § 56.

force; and its occupation must have been of comparatively short duration. In Scotland the only one of the excavated camps that compares with it in size is Inchtuthil, with its fifty-six acres. In England, Caerleon on Usk, fifty acres in extent, occupied by the Second Legion, corresponds closely to it in area. Abroad we find its parallel, so far as size is concerned, in such great enclosures as Novaesium and Castra Bonnensia on the Rhine, Carnuntum on the Danube, or Lambaesis in North Africa, all of which are known to have been established for the permanent occupation of legionary forces. Novaesium and Castra Bonnensia date from the early Empire, and were garrisoned by the Twentieth and the First Legions respectively. In extent each of these covers an area of about sixty-one acres. Carnuntum, which dates from the time of Vespasian and was garrisoned by the Fifteenth Legion, covers an area of forty-one acres, while Lambaesis, built in the reign of Hadrian, and garrisoned by the Third Legion, occupies fifty-two acres. In each of these fortresses there was stationed a single legion, the variations in size being probably due largely to the number of auxiliary troops that were brigaded with the main force.

As has been already stated, we have no buildings in the Newstead camp which would furnish a basis for a similar calculation. And we do not know enough of the forces which followed Agricola or Lollius Urbicus into Caledonia to enable us to put forward any theory as to the proportion of their armies that it might have held. Nor are permanent *hiberna* a wholly safe criterion for the capacities of camps required for service in the field in one or two campaigns. But its position and its size combine to prove that, at the beginning of one of the periods of advance into Scotland, it was occupied by an army marching to the north. To which of these periods it belonged is a problem worth discussing.

That the period of occupation was in any case short may be inferred from the paucity of remains, and especially from the absence of any trace of permanent building or fortification. On the highest part of the ground a considerable area was investigated by means of parallel trenches a few feet apart. Very little was found except the bases of three circular hearths. Whether these had belonged to the great camp, or to the particular annexe of the later fort which included this portion of the site, it is impossible to say. The scattered fragments of broken pottery so abundant in the fort itself; as well as in some of the other annexes, were almost entirely absent. A considerable length of the ditch on the west side, running from the

highest point of the ground down to the Berwickshire railway, was also cleared out. This yielded a few fragments of red Roman pottery, unfortunately so much decayed as to render impossible any attempt to fix the exact period to which they had belonged. But its excavation led to a discovery which is calculated to throw an interesting sidelight on the question of chronology. Two Roman burials were found in it. These appeared to be entirely isolated. There were no traces of other interments around them. As a matter of fact, they were the only graves encountered in the whole course of the excavations, though there can be little doubt that somewhere in the outskirts of the fort the cemetery is still to be found.

The burials, both of which were of cremated bodies, were placed one above the other in the ditch after it had been filled up. The ashes in both cases had been deposited in urns of a somewhat coarse greyish-brown pottery, ornamented with a broad band of lattice work pattern, the type of urn being one commonly found with Roman interments in Britain. The two urns had evidently been originally of the same size. But the one which was uppermost was only eight inches below the surface, so close to it indeed that the upper part had entirely disappeared, worn down no doubt by the plough passing over it. There was no trace of any protecting cist. Immediately beneath, at a depth of four feet nine inches, lay the second burial. The urn was resting on a sandstone slab, and four other slabs of sandstone two feet in height placed against each other, one on each side, formed a tent-like shelter over it. Similar grave-coverings, formed of large, flat roofing-tiles, have been found near many of the Roman military posts on the Rhine; the closest recorded Scottish parallel, which is from Cramond, appears to have had a less elaborate form of protection.¹ The urn was nine inches in height, and had an opening of four and a half inches in diameter at the mouth. A circular cover of sandstone, seven-eighths of an inch in thickness, had been fitted to it. The bones which the urns contained were in too fragmentary a state to make it possible to ascertain the age or sex of either individual. The discovery, however, gives us a valuable indication of date. It proves that the great camp had been abandoned before the burials took place. It proves, too, that a considerable length of time had elapsed since the abandonment, for in the interval the ditch had been almost entirely filled up. The complete urn, as well as the stone setting after its removal, are illustrated in Plate IV.

1 *Proceedings of the Society of Antiquaries of Scotland* vol. xxxi p. 244 ff.

Again, while the changes in the defences and the buildings of the Newstead fort furnished clear enough evidence of several phases of occupation—the earliest of which, as we shall have occasion to point out subsequently, must unquestionably be attributed to the end of the first Century A.D.—the great camp showed no sign of more than a single period. Thus all the circumstances irresistibly suggest that in it we have the remains of a fortification constructed by the army of Agricola in the first advance into Caledonia. In the later invasions a suitable resting-place, defended by ditches, would be ready to hand in the shape of the fort with its annexes.

The conclusion thus reached receives considerable support from a feature of the great camp to which attention has been drawn above. The presence of the long straight titulus in front of each of the gates may fairly be interpreted as confirming the other indications of an early date. It is a method of defence prescribed by Hyginus, who wrote (according to his latest editor) before the reforms introduced by Hadrian, and examples of its use are to be found in forts that can be definitely assigned to the first century. It was employed on one of the early forts at Wiesbaden, dating from about the beginning of the first century,¹ just as we see it at Newstead, while in the neighbouring fort a somewhat similar defence had also been employed but had been abandoned comparatively early. It is generally absent in front of the gates of the later stone forts, although its occurrence outside the east and south gateways of the later fort at Bar Hill² would seem to suggest that the device occasionally survived as late as the reign of Antoninus Pius. Similarly, the complicated entrances at Ardoch³ and at Lyne⁴ appear to indicate that at the time when these forts were built there was as yet no stereotyped pattern of gate such as is found later.

The Name 'Trimontium'

We have seen that the excavation of the great camp revealed no evidence that the occupation had been anything but temporary. The story of the Romans at Newstead centres mainly round the site further west where the fort was erected. Here all the conditions point to greater permanency—fortifications laboriously executed, buildings constructed of stone, masses of refuse that must have required

1 E. Ritterling, 'Toranlagen römischer Kastelle des ersten nachchristlichen Jahrhunderts,' *Annalen des Vereins für Nassauische Akerthumskunde*, vol. xxxvi. p. 4.

2 Macdonald and Park, *The Roman Forts on the Bar Hill*, plate ii.

3 *Proceedings of the Society of Antiquaries of Scotland*, vol. xxxii. p. 438, plate V.

4 *Ibid.* vol. xxxv. p. 175 ff.



1. CINERARY URN WITH ITS COVER



2. STONES PROTECTING THE URN

PLATE IV. THE BURIALS IN THE DITCH OF THE GREAT CAMP

years to accumulate. Of the name the spot bore in military records, we are entirely ignorant. The all too fragmentary inscriptions which came to light furnished no clue. And yet those marching northwards along the great road must always have looked to the triple Eildon as a landmark, and it may well be that they knew the fort as Trimontium. The name occurs in Ptolemy's *Geography*¹ as that of one of the four towns of the Selgovae situated in the south of Scotland. The form in which it appears in the original text (Τριμοντιον) is merely a Greek transliteration of a Latin word meaning 'the place of the three hills,'—precisely such a designation as would naturally have been applied, especially by those approaching from the south, to a settlement lying under the shadow of the Eildons.

There are several obvious analogies. 'Tripontium' mentioned in the *Antonine Itinerary*,² where it is placed in the territory of the Coritani, can only signify 'the place of the three bridges.'³ Again, the Brittones 'Triputienses,' who had been transplanted to Germany, appear to have received their distinguishing appellation because their new home was near some 'place of the three wells,' in the neighbourhood of the modern Vielbrunn,⁴ in the country between the Rhine and the Main. Lastly, in the reign of Antoninus Pius, the town of Philippopolis in Thrace actually bore the name of Trimontium, and on a unique specimen of one of the coins of the city, preserved in the Fitzwilliam Museum, Cambridge, the river-gods are represented with three mountain peaks rising behind them. No doubt the country of the Selgovae is generally believed to have lain further to the west, and for this reason Horsley and others have been induced to locate the Trimontium of Ptolemy near Birrenswark in Annandale.⁵ Roy, however, as we saw above, preferred to look for it at the foot of the Eildons, this too in express defiance of his 'authority,' the spurious itinerary of Richard of Cirencester.⁶ And it is safe to say that neither Birrenswark nor any other group of hills in the south of Scotland suits nearly so well.

¹ Bk. ii. c. iii.

² P. 477.

³ Haverfield, *Victoria County History*, vol. i. p. 231.

⁴ E. Fabricius, *Ein Limesproblem*, p. 17.

⁵ Horsley, *Britannia Romana*, p. 377; Maitland, *Hist. of Scotland*, i. p. 142; Chalmers, *Caledonia*, ed. 1887, vol. i. pp. 120f.

⁶ Roy, *The Military Antiquities*, p. 116.

CHAPTER II

The Fort and its Defences

Various Occupations

AT a comparatively early stage in the investigation of the fort, it became clear that there were at least two occupations to be reckoned with, and that the fort whose defences were first encountered had been partly built above another fort which was smaller in size, and therefore earlier in date. The evidence regarding the successive periods of occupation will be discussed in detail later. In the meantime it is sufficient to point out that we have really to deal with two forts, somewhat different in outline,—an early fort that probably witnessed only a single period of occupation, and a somewhat larger fort which bears unmistakable marks of having undergone considerable change and alteration from time to time while it was still in Roman hands. Among the forts already excavated in Scotland, Birrens, Camelon, Rough Castle, and Ardoch, as well as possibly others, have yielded evidence that is suggestive of more than one occupation. The plan of Bar Hill alone shows two distinct systems of fortification. One feature which the early forts at Newstead and Bar Hill have in common is a certain irregularity in the plan of their defences. This at once distinguishes them from the type of *castellum* so common on the German Limes, with its long straight ditches following the line of the walls, and its gates with flanking towers. The difference is typical of the change from earthen ramparts to walls of stone. Many of the devices employed by the earlier engineers must have been rendered unnecessary when stone walls with battlements took the place of mere mounds of earth. And so it is that continental parallels to the original *castella* at Newstead and at Bar Hill must be sought in works which are older than the close of the first century of our era. The ditches that guarded the Agricolan fort at Bar Hill recall those that protected the

north gate of Caesar's lines round Alesia.¹ Similarly, the earthen fort of Hofheim,² irregularly nine-sided, was occupied from about A.D. 40 to 60, and Waldmössingen,³ irregularly four-sided, likewise dates from the first century.

Defences of the Early Fort

The early fort at Newstead covers, with its defences, an area of 11.97 acres. It was protected by an earthen rampart and ditches. The sections cut through the line of this rampart gave as a rule little information as to its character. For the most part, it doubtless consisted of the earth from the ditch piled up and beaten into a hard mass. This, however, had been thrown back again, when the later fort was built.

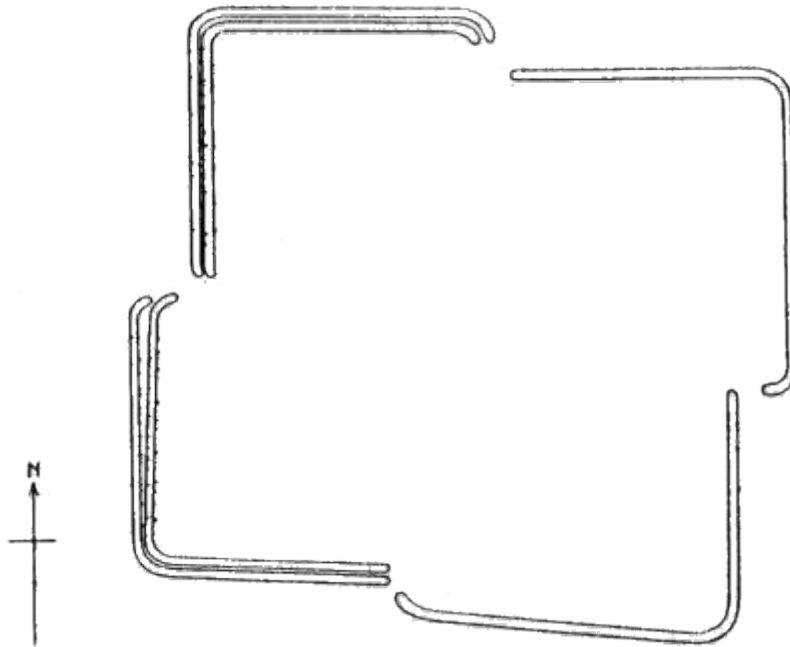


FIG. 1 PLAN OF EARLY FORT

Only on the west front, where probably the ground was softer, was more satisfactory evidence forthcoming. There the sections made towards the south-west corner showed under the later rampart a system of construction which appeared to belong to the earlier one. At a depth of six feet from the modern surface a band of paving five and a half feet wide was found lying on the edge of the inner ditch. It was composed of blocks of red

1 Napoleon III., *Histoire de Jules César*, Atlas, pl. xxviii.

2 Ritterling, *Das frühromische Lager bei Hofheim*, p. 23.

3 *Der Obergermanisch-Raetische Limes*, Lief. 6, Kastell Waldmössingen.

sandstone roughly squared with the hammer. Behind it for a width of seventeen feet were two parallel lines of oak branches laid close together at right angles to the ditch. Eight feet from the front of this layer of branches and eighteen inches above them was a single line lying in the same direction. From the front of the upper line other branches could be noted sloping down to the front of the lower line, but these were not placed so carefully as the horizontal layers. All over, the average thickness of the branches was from two to three inches, and some of them appeared to have been split.

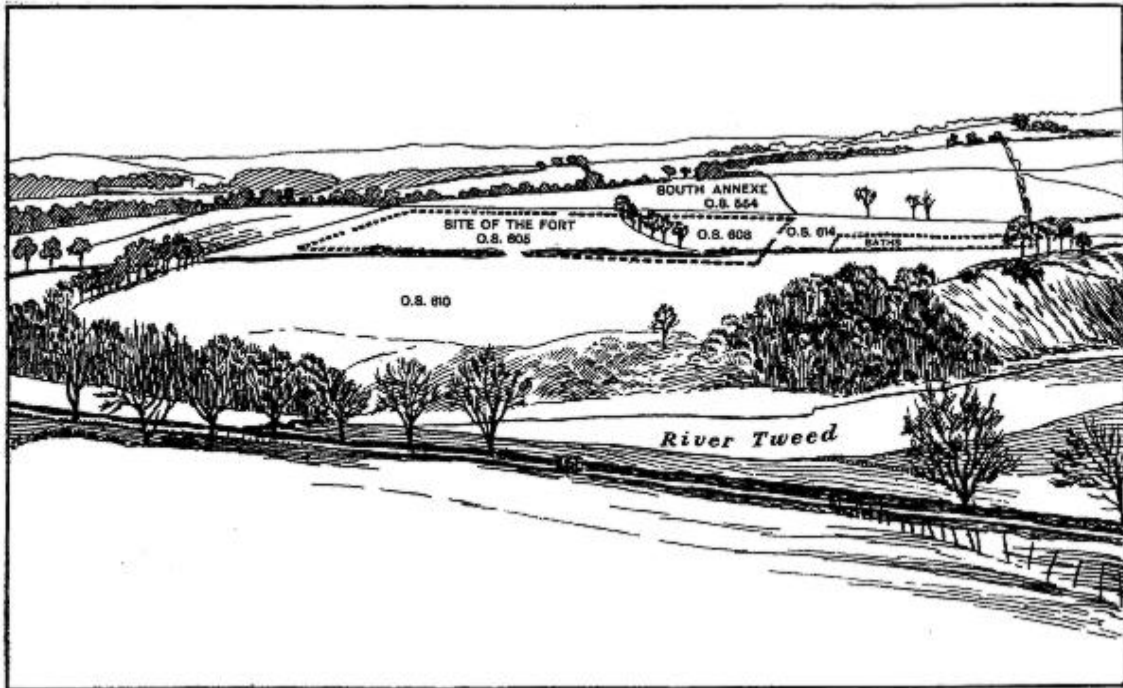
We have here perhaps an example of something akin to the *cervoli*, or tree trunks with branches attached, which Hyginus prescribes for the base of a rampart of turf, where from the nature of the soil the sod breaks because of its excessive softness, and a fosse cannot be made without the sides tumbling in,¹ a method of construction of which we have an example in the Fort at Coelbren, in South Wales, which probably dates from the first century.² The section did not disclose any quite definite distinction between the outline of the earlier rampart and the clay forming part of the rampart of the enlarged fort subsequently placed above it. But on the side towards the ditch a darker band of colour seemed to indicate that the earth from the ditch below had been thrown on the top of the layers of branches. What further defence, if any, was added to the rampart and ditches we cannot tell. On the south side the sockets of large posts were met with in three places on the line of the rampart behind the ditch of the early fort, and it is possible that these may have been foundations of a palisade.

In front of the rampart were the ditches. A double line of them ran round the western half of the fort, but round the eastern half the line was only single. They were from four to five feet in depth, and nine to ten feet in width. All were of the ordinary V-shape, which was commonly used by the Romans. Much the most interesting point connected with them was the evidence they furnished as to the gates. Examination proved that they were not continuous, there being a clear break at each of the four entrances. Moreover, in all four cases, the ditch on one side of the passage was some forty feet in advance of the line of the corresponding ditch which advanced to meet it from the other side, while the extremity of the line that lay furthest out was curved inwards so as partly to cover the

¹ *Liber de Mun. Castr.* c. 51.

² *Archaeologia Cambrensis*, vol. vii. 1907, p. 129.

PLATE V. SITE OF THE FORT



The view is taken from the high ground on the north bank of the Tweed overlooking the Site of the Fort which is indicated as a rectangular enclosure formed by a dotted line. The smaller enclosure also indicated by a dotted line is the Site of the Baths.



opening. This arrangement suggests that the gates themselves were placed at right angles to the ramparts, just as they were in many fortified works of the Middle Ages. In Germany the nearest approach to the contrivance just described is to be seen in the earthen fort at Hofheim.¹ A further distinction between the Newstead gates and those generally found in Roman forts is that they were not placed directly opposite each other, a peculiarity which can be paralleled from the camp of Kneblinghausen in Westphalia. This interesting enclosure, which was excavated in 1902, has the shape of a somewhat irregular parallelogram with rounded corners. None of the entrances are exactly opposite one another, and those on the north and south bear much the same relation to each other as do the corresponding entrances at Newstead.²

Of the early fort as a whole, it may be said that nothing exactly resembling it in plan has yet been found in Scotland, nor, apparently, in Germany either. We are told that Agricola himself used to choose the sites of his camps, and that no general ever showed greater ability in the selection of suitable positions. No fort which he built, we are assured, was ever carried by storm; none was ever surrendered or abandoned by its garrison.³ One cannot help surmising that possibly we have in the Newstead plan an example of his skill in fortification. The protection of the entrances was a problem on which the early builders of towns and forts seem to have lavished much ingenuity. They did what they could to secure that the gate should be safe from the full force of a direct attack; they sought to compel the advancing enemy to expose his right flank, that is, the side unprotected by his shield; and they endeavoured to arrange that the defenders should be able to ply him with missiles in the rear.

In the fortifications of Mantinea in Greece, for instance, dating from about B.C. 320, there were seven gates each constructed on a slightly different plan with overlapping walls, towers, and other devices to make attack difficult. In most of these the entrance was placed at right angles to the line of the wall in the same relative position that the gates of the early fort at Newstead bore to the ramparts.⁴ At Bar Hill the early

1 Ritterling, 'Toranlagen römischer Kastelle,' Fig. 8.

2 Hartmann, 'Das Römerlager bei Kneblinghausen,' *Mitteilungen der Alterthums-Kommission für Westfalen*, Heft iii. p. 101, Taf. xix

3 Tacitus, *Agricola*, c. 22. 2; cf. c. 20. 2.

4 Rochas D'Aiglun, *Principes de la Fortification Antique*, p. 80.

fort had a single gateway; but to reach this it was necessary to penetrate the outer defence at a point further to the north or south, and to pass round behind the double ditch cut in front of it. Thus, no assailant could avoid presenting his uncovered side to the defenders on the rampart. Hyginus prescribes a somewhat simpler, but equally effective, device for the protection of the gates of a camp.¹ It was known as the *clavicula* or 'bolt.' As the wall or rampart approached the entrance from the left side it suddenly curved inwards, as if to form a semicircle with the wall or rampart coming to meet it from the opposite side. But the semicircle was not completed. A gap wide enough to allow of a gateway remained open. The result was that the attacking party were forced to operate in a comparatively narrow space, and to expose their right sides to the concentrated fire of those on the rampart above them. This contrivance was employed by Caesar at all five gates of his camp on the Aisne,² and it is also to be seen at Kneblinghausen, where indeed it is an indication of the early period to which the camp belongs. Something of the same idea underlies the Newstead plan. The effect of the way in which the entrances were arranged was to narrow down the space in which the enemy could operate, and to make the attacking force pass immediately in front of the defenders with its right flank turned towards them.

The Abandonment of the Early Fort

The early fort seems to have been abandoned after a period of occupation which, though perhaps of no very great length, probably covered several years, to judge by the amount of material which had gathered in the ditches. That on the west side contained an accumulation of some four to five feet of black silt, from which a varied collection of broken pottery, metal objects and leather was obtained. A curious feature here was the occurrence of regular black lines in the filling. A typical section was one taken at the south-west angle where the ditch bends to the south, and where it underlies the rampart of the later fort. At this place the total depth from the modern surface was twelve feet two inches. The uppermost five and a half feet consisted of the clay of the later rampart. Within the next three feet, nine parallel black bands, about four inches apart, crossed the deposit horizontally. Below these, for a thickness of three feet eight inches, was the usual brown vegetable silt. The black bands at first gave the impression that they had been caused

¹ *Liber de Mun. Castr.* c. 55.

² Napoleon III., *Histoire de Jules César*, Atlas, pl. ix.

by periodic vegetable growths during the gradual silting up of the ditch after the abandonment of the fort.

In the circumstances expert opinion was obviously desirable. The material was accordingly submitted to Mr. Francis J. Lewis) of the University of Liverpool, and to Mr. Robert Campbell, B.Sc., of the Geological Department of the University of Edinburgh. The results of their examination were unfortunately indecisive. Mr. Lewis came to the conclusion that there was no evidence that the alternations of clay and peat represented annual growths. The regularity and the thickness of the clay between the bands of peat, as well as the frequent occurrence of fragments of pottery, seemed to be against that theory. It looked as if the peaty matter had not been formed *in situ*. On the other hand, the black lines did not appear to represent strata of turf used in filling up the ditch, since they were proved to consist of peaty wash and mosses. The silt was probably rather the sort of deposit which might be found in a ditch flooded by a strong rush of water, at certain intervals, by artificial agencies. If this view be right, there is no alternative but to suppose that the silt and peaty bands were laid down during the actual occupation of the fort. Mr. Campbell, who was fortunately able to examine the deposit on the spot, agreed that the peaty beds had not grown *in situ*. At the same time a careful scrutiny of the material seemed, in his opinion, to negative the idea of sedimentation by stream action, and he was inclined to consider that the ditch must have been filled up by artificial means.

The curious stratification of the west front had no parallel in that portion of the ditch excavated on the east. For the most part, the same is true as regards the south. This was doubtless due to the fact that, owing to the higher level of these ditches, the water from them would gravitate towards the west, which formed the lowest point of the system. Nor was there in the upper part, where it had been filled by the overlying clay of the later rampart, any sign of the growth of hazel and whin along the sides after the abandonment, such as was noted at Bar Hill. The evidence from the ditch, so far as obtainable, thus favours the opinion which subsequent discoveries of pottery suggested, namely, that the abandonment of the early fort was immediately, or at no long interval, followed by the construction of the later one.

The Evolution of Roman Forts

In Germany, along the Roman frontier line or *Limes* that ran from the Rhine to the Danube, there are many forts in which excavation has revealed

more than one distinct system of fortification, and where we can trace an early fort, defended by earthen ramparts, passing through a gradual process of evolution in its defences into something larger and stronger. The Saalburg, for instance, has been more which probably carefully investigated than any other Roman work in Germany, presents evidence of no less than six periods of occupation.¹ Similarly, at Kapersburg² we have three successive forts occupying very nearly the same ground: the earliest a simple earth fort with a single ditch; the second slightly larger but otherwise much the same, except that the rampart, instead of being simply of earth, had consisted of two parallel dry-stone walls with earth packed in between; the third, again somewhat larger, defended by a ditch and a solid stone wall five feet four inches in thickness. So, too, at Zugmantel³ we can follow three stages in the existence of the fort. In the first it was small in size, and had a ditch and an earthen rampart. In the second stage it was considerably enlarged, while round it there ran a stone wall about four feet thick. Finally, it was still further enlarged, and the surrounding wall was made no less than six feet six inches thick. Illustrations of this evolutionary process can be cited from our literary sources. Arrian, in his *Periplus*, written in the time of Hadrian, describes the fort on the Phasis on the south coast of the Black Sea, a little post garrisoned by some four hundred men and surrounded by a rampart and two broad ditches. 'Formerly,' he writes, 'the rampart was of earth, and the towers planted upon it were of wood. Now both ramparts and towers are made of brick.'⁴ Closely analogous is the well known inscription from Bumbesti in Roumania, commemorating the replacement in stone of the turf walls of a dilapidated fort. The alteration took place in the year A.D. 201.⁵

It is this very process of evolution that we have to follow at Newstead—a simple earthen fort, early in date and irregular in its ground-plan, passing into a later stone-walled fort of what was no doubt a standard type. But although the earthen fort here preceded the stone-walled fort, and is usually found to do so elsewhere, an earthen fort is not necessarily an early fort, nor a

1 H. Jacobi, *Führer durch das Römerkastell Saalburg*, p. 16.

2 *Der Obergermanisch-Raetische Limes*, Lief. 17, Kastell Kapersburg.

3 *Ibid.* Lief. 32, Kastell Zugmantel.

4 Macdonald and Park, *Bar Hill*, p. 31, where the passage is quoted.

5 IMP. CAES. L. SEPTIMIUS SEVERUS . . . ET IMP. CAES. M. AVR. ANTONINUS . . . MVROS CESP[IT(ICIOS)] CASTRORUM COH. I. AVRELIAE BRITTONUM (MILLARIAE) ANTONINIANA VETVST(ATE) DILA[PSOS] LAPIDE EOS RESTITUERUNT PER OCTAVIUM IULIANUM LEG IPSO[RUM] PR. PR. C.I.L. vol. iii. 14485a.

fort with stone walls necessarily a late construction. Other considerations must be taken account of—conditions of permanency, the presence close at hand of the necessary materials, the predilections of individual commanders, and the like. The fort at Gellygaer, for instance, with its rampart faced on both sides with masonry, was probably erected in the first or very early in the second century, while the earthen ramparts of Birrens with equal probability date from a period at least some fifty years later. In the general development of defensive works, no doubt the earthen fort preceded the fort defended by stone walls, but we know for certain that the transition did not take place everywhere simultaneously.

The Later Fort

The later fort at Newstead, inclusive of its defences, covered an area of 20.824 acres. The interior space was 15.716 acres. It is thus much the largest Roman fort yet excavated in Scotland. Birrens measures only about four acres, Camelon and Lyne each nearly six acres, Castle Cary three and a half acres, Rough Castle about one and a half acres, and the later fort at Bar Hill just over three acres. Inchtuthil and the great camp at Newstead have of course a much larger area. But they fall into quite a different category, having been constructed, as we saw above, for another purpose altogether. In Germany the same two main classes are to be noted. Besides the great legionary fortresses like Novaesium and Castra Bonnensia there were many small forts corresponding in their general dimensions to Birrens or Camelon, and holding perhaps a cohort of auxiliary troops as a garrison. Newstead, like a small minority of the German castella, is peculiar as coming, in respect of size, between the cohort camps and those intended to accommodate a legion. There is therefore no doubt that it must have been of greater importance in the scheme of advance than the ordinary frontier-post, whose object was merely to guard a ford, or to protect the line of communications.

The Ditches

The fort itself was of the usual rectangular shape, and greater in length than in breadth, measuring from the inner face of the wall 810 feet in the one direction by 720 feet in the other. The corners were rounded, and the four gates, one in each side, were placed opposite each other. The defences consisted of three parallel lines of ditches, a wall, and a rampart. These had to be planned entirely from sections cut across them, as no trace of their outline remained above the surface. On the north, observations were seriously interfered with by the high-road, which covers the greater part of the line of the fortification. At the north-west corner, however, the

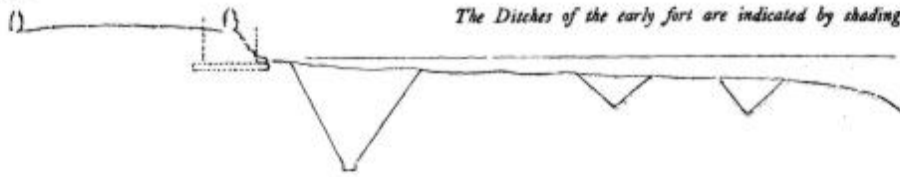
foundations were exposed lying beneath the hedge on the north side, and here the presence of the three ditches underneath the rapidly sloping surface was ascertained. On the other sides nine sections in all were made. In these the black deposit clearly marked the outline of the ditches off from the subsoil in which they had been cut. For the most part they appeared to be V-shaped, scarp and counterscarp lying at the same angle. But in that portion of the inner ditch which was cleared out on the west front, as well as in that which masked the west gate, the sides became perpendicular about eighteen inches or two feet from the bottom, which, again, was about a foot in breadth and quite flat. The same type of ditch was noted at Bar Hill.

In other respects the different sections displayed a considerable want of uniformity. Thus, along the east front the breadth of the berm, or space between the wall and the edge of the innermost of the triple line of ditches, varied from three and a half feet to six feet. To the north of the gate on this side, owing to the deflection of the outermost ditch, the space between the outer face of the wall and the edge of the counterscarp of the outermost ditch measured ninety-three feet, whereas to the south of the gate the corresponding dimension was only sixty-six feet. The normal width of the innermost ditch was here probably about twelve and a half feet, and its depth twelve to fourteen feet, the two outer ditches being smaller and shallower. In the section taken diagonally across the south-east corner, the middle ditch proved to be eleven feet wide by eight feet deep, and the outer ditch thirteen feet wide by nine feet deep. Generally, it may be said that the middle ditch had been less important than either of the other two. Again, the outline of the sections cut upon the south presented one marked point of contrast with those cut upon the east. While the berm remained about the same, the sectional line was much more zigzag in character, a feature which was also noted in some of the ditch sections at Novaesium.¹ It is probable that this was the result of alterations on the original plan.

Lastly, in both of the southern sections, the outer ditch assumed the appearance of two ditches running parallel and separated only by a slight midrib. Whether this is due simply to changes brought about in the course of periodical cleaning, or whether it was part of the original design, is uncertain. Professor Ritterling has explained a somewhat similar arrangement at Hofheim as being intended to facilitate the fixing, in the bottom

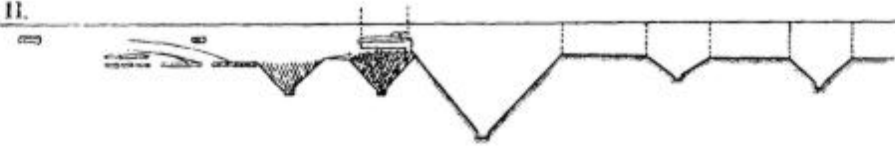
1 Koenen, 'Beschreibung von Novaesium,' *Bonner Jahrbücher*, Heft 111/112, p. 211, Fig. 12.

SECTION I.



The Ditches of the early fort are indicated by shading.

SECTION II.



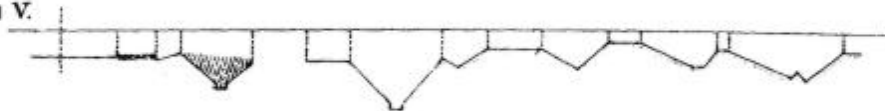
SECTION III.



SECTION IV.



SECTION V.



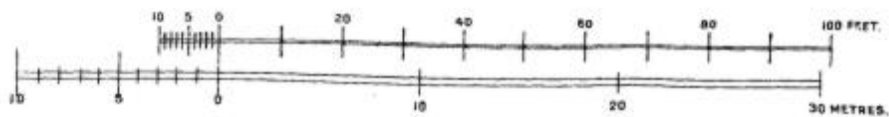
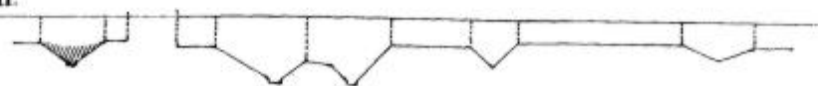
SECTION VI.



SECTION VII.



SECTION VIII.



of the ditch, of a line of branches having their tops pointing outwards, the better to form an obstacle.¹

In front of the east gate—the *Porta Praetoria* of the fort—the roadway passed out on solid ground, but it did not, at least when first constructed, follow a straight line. The inner and middle ditches stopped on either side, leaving a space of about thirty-eight feet between the ends, but the outer ditch on the south side was prolonged so as to cover the gateway, thus deflecting the road to the north, while in its turn the outer ditch coming from the north with its line somewhat bent outward, again altered the course of the road to the south. The space for the track passing between these outer ditches was narrowed down to about twelve feet. On the south side the three lines of ditches were looped together, but this had no parallel on the north side; while running diagonally across the road from the end of the inner ditch on the north to that of the middle ditch on the south, was a narrow foundation trench thirteen inches wide, and carried down to a depth of one foot nine inches in the subsoil, which appeared to have been intended for a palisade or some such wooden barrier. In its complexity the plan recalls that of the east gate at Ardoch, or the earlier phase of the north gate at Lyne. In front of the west gate of the fort and the earlier gates on the north and south, an arm of the inner ditch had originally been carried across the front of the gate, thus forming a barrier closely analogous to the *titulus*, an obstacle whose presence opposite the gates of the great camp further to the east has already been alluded to. According to Hyginus,² the *titulus* was, however, an independent ditch of a length corresponding to the breadth of the gateway, sixty feet in front of which it was to be placed. A typical example from Scotland is the one which guarded the south gate at Bar Hill. In the cases under discussion the obstacle was not a true *titulus*. Although it covered the entrance, much as a *titulus* did, it allowed only a single passage on the left of the exit. Its outline was, in fact, that of an everted *clavicula*.

The portion of the inner ditch extending in front of the west gate was almost entirely cleared out. It proved to be seventy feet in length, seventeen feet wide opposite the gate, and sixteen feet nine inches deep

1 Ritterling, 'Toranlagen römischer Kastelle,' Fig. 10.

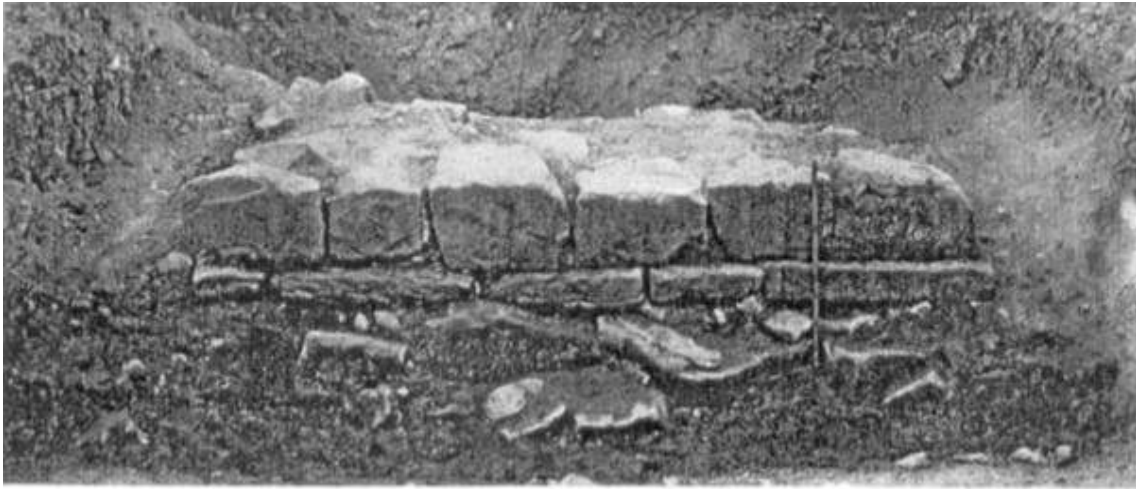
2 *Liber de Mun. Castr.* edn. Domaszewski, § 49. *Regressis pedibus exterius sexaginta per latitudinem portarum similiter fossa fiet, quod propter brevitatem titulum cognominatum est.*

from the present surface. The character of the bottom has already been indicated. The pottery found appeared to be indistinguishable from that recovered from the ditch of the early fort. The quantity, however, was not very large. The corresponding portion of the inner ditch at the north gate was not excavated further than was necessary to determine its position. That opposite the south gate produced almost no relics.

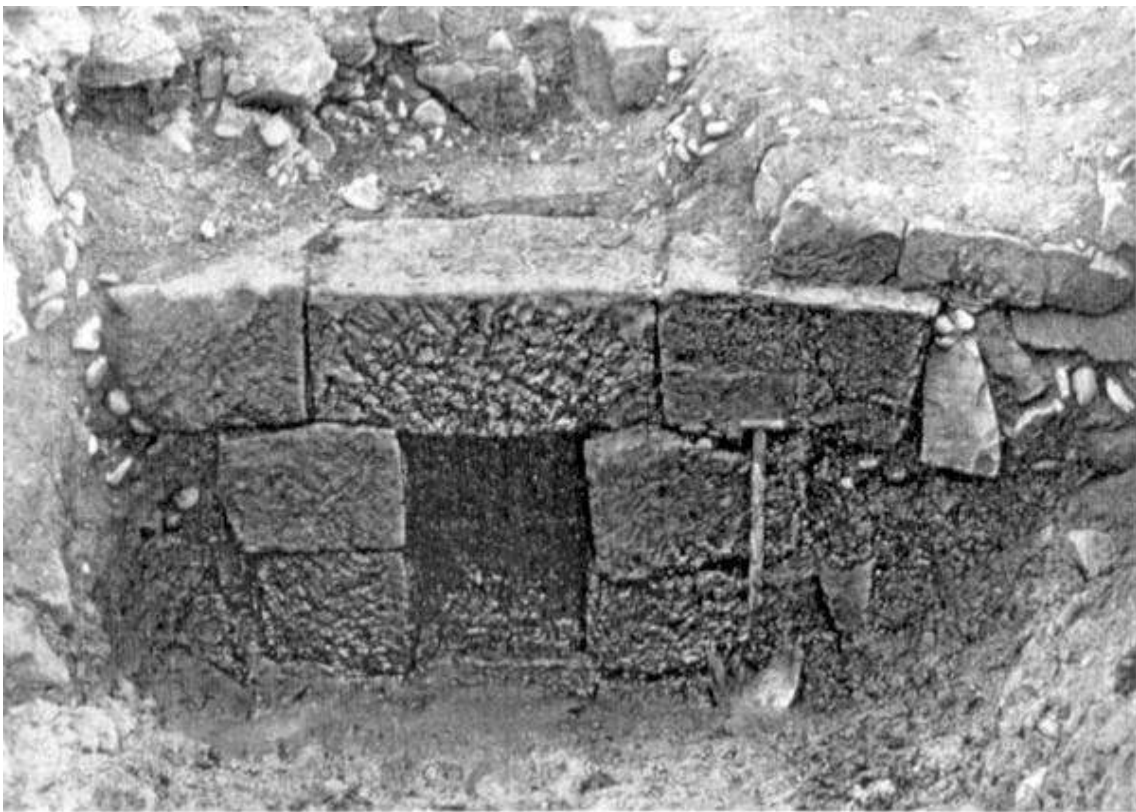
An interesting circumstance connected with these 'clavica-shaped ditches' has still to be recorded. It was definitely ascertained, on evidence which will be produced later, that there had been at some time or other a reorganisation of the defences which had resulted in the filling up of those portions of the inner ditch which projected in front of the north, south, and west gates. That is, the use of this form of obstacle was deliberately abandoned. Nor was recourse had to it again in the subsequent reconstruction, when the area of the fort was so much reduced that the original north and south gates had to be closed and new ones opened some distance further east. Similarly, in the south annexe the early gate was covered by an overlapping ditch, but there was none in front of the later one. Whatever may have been the reason for the difference in the plan of the defences which distinguished the east gate from the gates on the other sides of the fort, it is clear that the method of protecting the gate was in all of them based upon the same principles, and the fact that the protection of the gates, which on the north, south and west was insured by means of an overlapping arm of the inner ditch, was on the east accomplished by the prolongation of the outer ditches, seems to prove that the triple ditches which surround the enlarged fort all belong to its original plan.

The Wall

Behind the inner ditch of the fort lay the berm, a narrow platform, the existence of which was no doubt due to the fact that the heavy wall had to be placed sufficiently far from the ditch to prevent its weight causing subsidence. For the greater part of the circuit all that remained of the wall were the cobbles which had formed the foundation, with here and there a piece of red sandstone among them. Where it had crossed the ditches of the early fort, or where, as was the case on the west front, it was placed above one of them, the cobbles were carried down to the bottom. The superstructure itself had been almost entirely removed. Fortunately, however, on the west side near the south angle of the fort, a portion was discovered showing the lower courses in sufficiently good preservation to



1. Foundations of the wall



2. Mouth of main drain passing beneath the wall on west front
PLATE VI. THE WALL OF THE FORT

enable a fair idea to be formed of the manner in which the whole had been built. An illustration of these remains are given in Plate VI., Fig. 1.¹

The wall, which was seven feet seven inches thick, lay on a base of cobble stones nine inches deep and about eight feet six inches wide. In front of this the foundation projected for nearly a foot. Above it were two scarcement courses of rough blocks of red sandstone. On these was laid a course of long hammer-dressed stones four and a half inches high. In the portion exposed one of these stones had a length of three feet ten inches, the other of three feet seven inches. They were in turn surmounted by a course of hammer-dressed blocks eleven inches high, and from a foot to eighteen inches in length. The latter had a width of about sixteen inches, while the centre of the wall was filled in with rough blocks. In the portion described the inner face was better preserved than the outer, which had lost its upper course. It was quite evident that the defence was a real wall, not merely the *revêtement* of a rampart. Two stones lying on the line of the berm at the south-west corner, eight inches thick, with the typical diamond broaching, possibly indicated the width of the upper courses and the character of dressing which may have been employed upon the exposed face.

The Rampart

Immediately in the rear of the wall was the rampart, which had been about thirty-eight feet in width at the base. It was formed of fine yellow clay, containing few if any stones. Its inner margin was supported on a kerb, which had a base of eighteen inches and was two feet in height. On the side next the rampart the kerb was almost vertical, while on the opposite side its three courses were stepped. The actual structure of the rampart itself seemed to differ slightly in the sections taken, but in most of them there was noted a band of cobble stones eight feet in width, with straight margins, lying seventeen feet from the outer margin of the kerb, and thirteen feet from the inner side of the wall. A somewhat similar rampart base was observed at Birrens,² and again at Ardoch.³ Inside the rampart, and directly behind it, was a road running round the margin.

The Reducing Wall

Allusion has already been made to a reconstruction, which resulted in considerably reducing the size of the later fort. This was effected by building across it from north to south a wall which may be conveniently distinguished as 'the reducing wall.' It cut off an area, lying on the west side, equal to about one-third of the whole

1 The footrule shown in this and succeeding Plates is two feet long.

2 *Proceedings of the Society of Antiquaries of Scotland*, vol. xxx. p. 17.

3 *Ibid.* vol. xxxii. p. 439.

interior. No trace was found of a ditch either in front of the reducing wall, nor of any rampart behind it. Further, although the foundations of the reducing wall were followed to within a short distance of where it would actually meet the north and south walls respectively, all efforts to discover the actual junction were fruitless at both extremities. It is possible that its base had rested on the rampart clay at either end, and that all trace of it at these points had been removed in the subsequent destruction of the rampart. Its construction, however, as well as that of its gateway, leave no doubt as to its defensive character. The best preserved portion of it which is shown in Plate VII., Fig. 1, lay some forty feet south of the place where it was pierced by the gateway. There its foundation of cobbles was about one foot nine inches thick and five feet six inches wide. On these were lying heavy blocks of red sandstone. Six of these, *in situ*, on the west side of the wall, varied in width from two feet to fourteen inches, and in length from three feet six inches to two feet. The whole had evidently been about five feet six inches thick. The less substantial character of the new wall and the absence of any ditch in front of it not improbably indicate that the older defences beyond were still in use, though it was perhaps beyond the power of the attenuated garrison to man them fully.

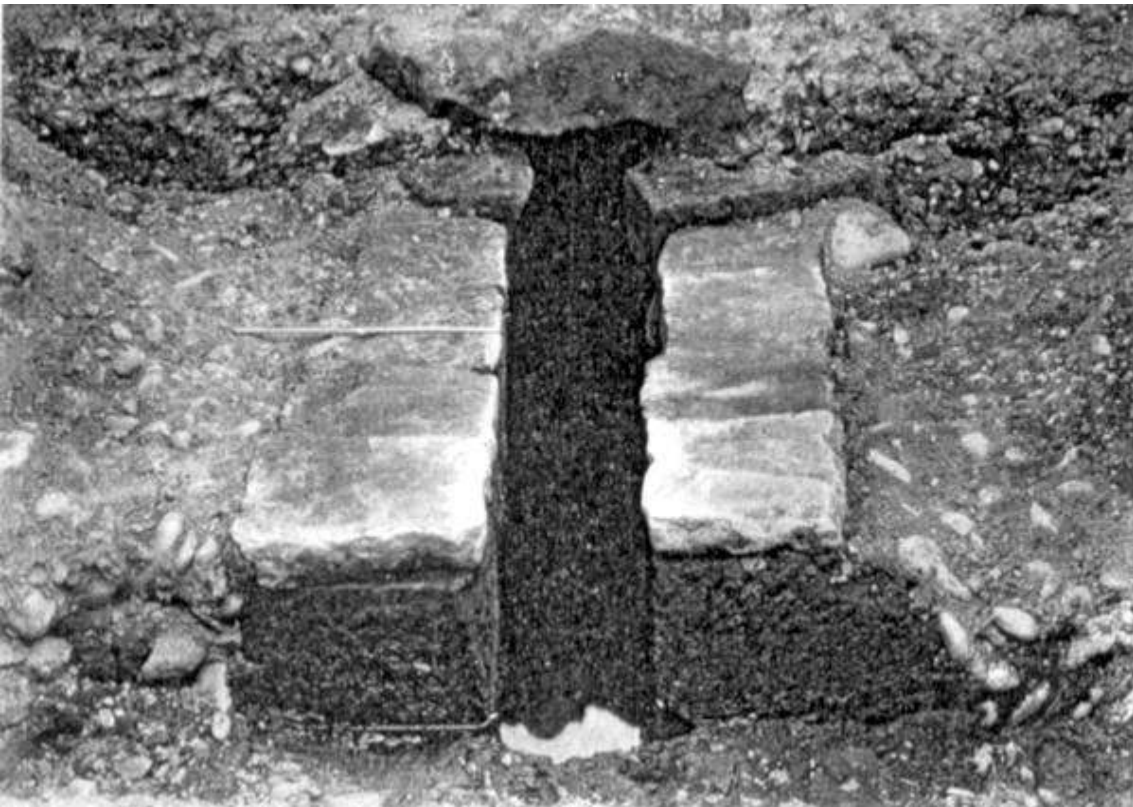
The Gates

The Roman sites hitherto excavated in Scotland have not produced many details that illustrate the construction of gateways. With the exception of Castlecary¹ they have been earthen forts, in which gateways as well as gates must have been of wood, and they have accordingly yielded little that was of any value for the purpose. Even at Castlecary, where the use of stone walls makes it certain that the gateways had been of a similarly substantial character, not much was added to our knowledge. The opening was found to be ten feet wide in each case. There appeared to be no towers nor any projection beyond the line of the outer face of the wall. On the other hand, the wall itself returned at right angles inwards, for a distance of fourteen feet on either side of the entrances, these returns being eight feet thick. The exact position of the gates themselves was not ascertained. At Newstead the entrances were not without interest, but the absence of details was again disappointing. It was no doubt due to the fact that the heavy masonry, which would naturally be employed there, would early disappear, once the deserted fortifications began to be used as a quarry.

1 *Proceedings of the Society of Antiquaries of Scotland*, vol. xxxvii. p. 25.



1. Foundation of the reducing wall



2. Drain passing beneath the reducing wall
PLATE VII. THE REDUCING WALL

The later of the two gates on the south seem to have been constructed on the lines of those of Castle Cary. There was the same return of the ends of the wall, but nothing definite could be ascertained as to the precise position of the gate or the guard chambers. Close to this entrance there were found two sandstone blocks, one on either side, each having a circular depression cut in it at one end. They had evidently been used as pivot stones. The larger of the two was twenty and a half inches long, sixteen inches broad, and eight and a half inches thick. In one of them a harder river-stone had been fixed in the pivot hole, probably to enable it to withstand the wear and tear better. The west gate showed a little more detail; the actual opening was twelve feet wide, and the line of the cobbled roadway, slightly raised in the centre, was quite distinct. On the south side the wall had evidently returned almost at right angles, although only the cobbles of its foundation remained. It had projected four feet in advance of the corresponding wall on the north side of the gate, which was faced with a single course of sandstone blocks and curved inwards.

A rather more definite impression was gained of the east gate of the fort and also of the gate in the reducing wall, albeit not a single stone of the masonry of either had survived. In the latter case the stonework must have been removed when the defences were once again enlarged, for the later road passed over the undisturbed cobble foundation of the disused gateway. It was quite plain that it had been of the type common in the Limes forts. The opening was nine feet wide. On either side had stood a guard-house, which had projected three feet in front of the wall. On the exposed side, the foundations of these guard-houses were nine feet in thickness, indicating walls of at least eight feet. On the sides next the gate they were thinner, —not more than six feet,—while at the back and on the sides that abutted on the reducing wall, they were only three and a half feet thick. Each contained a small chamber eight and a half feet by six feet. The width of the entrance justifies us in inferring that the door was only single, not double. The east gate had the same character. There the outline of the guard-houses could be made out, the floors showing traces of charcoal some fifteen inches below the surface. But here also every fragment of masonry had disappeared, while the cobbles from the road and from the destroyed walls had been thrown out in a confusion which made it difficult to obtain exact measurements.

The Fort as it originally appeared

The mere details of foundations and the dimensions of these long filled

up ditches can have little real meaning unless they convey to us some impression of the appearance of the fort as it existed when tenanted by its Roman garrison. Unfortunately there are many blanks in the evidence, many points in regard to which we are left in doubt. It is only by comparison with the facts obtained from the excavation of similar defensive works elsewhere that we can hope to reconstruct the picture. The triple line of ditches stretching in front of the wall is easy to imagine. But there is nothing at Newstead to tell us how high the wall itself had stood. We only know that it was strongly founded and that it was seven feet seven inches thick.

In Britain, as on the Continent, the walls of other permanent forts have been levelled for so long that they give us little help in the task of reconstruction. To find the nearest parallel we must turn to the walls of towns. The Roman wall of London, recently exposed near Newgate, was eight feet six inches thick,¹ the wall of Cologne from six feet six inches to seven feet four inches. The wall round Nîmes and that round Arles² were just such walls as we find at Newstead; they were sufficiently thick to admit of two men passing each other on the top, and of some considerable height. Possibly the Newstead walls were crenellated. This is a feature which we find in the town wall of Pompeii.³ There the wall was double, with a filling of earth between. The outer wall rose to a height of twenty-six to twenty-eight feet above the ground, and terminated in a breastwork six feet high. Each battlement had a traverse of stonework covering the left side of the soldier as he looked from the wall, and protecting him from being enfiladed. Behind him the inner wall rose some sixteen feet higher, the object of the added elevation being to prevent missiles dropping into the town. Increased power of resistance, especially against battering-rams, was secured by heaping up against the inner wall an embankment of earth forming a rampart. Stairs at the sides of the gate towers gave access to the platform on the top.

Pompeii was of course a city, and its walls dated from a considerably earlier period than those of Newstead. There is no reason to suppose that the feature of the high inner wall was reproduced in the defences of the frontier forts. But dressed copestones for battlements of the same type as those of Pompeii have been found in the ditches of the forts, or associated

1 *Archaeologia*, vol. lix. p. 126.

2 Blanchet, *Les enceintes Romaines de la Gaule*, p. 258.

3 Rochas d'Aiglun, *Principes de la fortification antique*, p. 56, plate ii.

with walls of Roman towns, on the Rhine. They are to be seen, for instance, at the Saalburg,¹ at Böckingen,² and at Trier,³ as well as in many other places. Of the wide rampart lying at the back of the wall we have the remains at Gellygaer in Glamorgan,⁴ where the steps placed at the side of the gate towers to give access to the platform were also found. The height to which the walls were carried no doubt varied very considerably in different places. Here, as in every other detail of Roman fortification, the conditions of the site, the presence of material, the danger of attack must all have counted for much. At Caerleon on Usk the wall at the southern angle still stands some fifteen feet high.⁵ At Holzhausen the remains are considerable, and it has been calculated that the total height with breastwork and battlements was fifteen feet.⁶ In some cases it must have been greater. The late fort of Dâ Gânîya on the Eastern Limes on the borders of Arabia was defended by a wall of seven feet two inches thick with fourteen towers. In 1888 it was still standing in places nearly thirty feet high. The battlements had, however, disappeared.⁷

Of the towers which were not infrequently set on the walls of forts, we have no trace at Newstead except at the gateways. At Castlecary at least two of the angles were probably equipped with this extra defence. Several towers had stood on the walls both at Gellygaer and at Housesteads,⁸ while at Wiesbaden there were no less than twenty-eight.⁹ On the other hand, at the Saalburg, at Zugmantel, and at Holzhausen; the towers were only on the gates, a position in which we almost invariably find them in the stone-walled forts. It is quite possible that the Newstead gate towers may have risen some little height above the platform of the wall, for in the forts of the Eastern Limes the towers on the walls were of more than one story,¹⁰ while at Pompeii they had three floors, and reached a height of about forty-five feet.¹¹

1 Jacobi, *Das Römerkastell Saalburg*, p. 69.

2 *Der Obergermanisch-Raetische Limes*, Lief. 10, Kastell Bockingen, Taf. iii fig. 25.

3 *Westdeutsche Zeitschrift*, vol. xv p. 222.

4 Ward, *The Roman Fort of Gellygaer*, p. 39.

5 Liverpool Committee for Excavations, etc., in Wales and the Marches, *First Annual Report*, p. 56.

6 *Der Obergermanisch-Raetische Limes*, Lief. 22, Kastell Holzhausen.

7 Brunnow and Domaszewski, *Die Provincia Arabia*, vol. ii. p. 8, Taf. xli.

8 *Archaeologia Aeliana*, vol. xxv p. 245.

9 *Der Obergermanisch-Raetische Limes*, Lief. 31, Kastell Wiesbaden.

10 Brunnow and Domaszewski, *Die Provincia Arabia*, vol. i. Odrub, p. 431, Taf. xxii.















11 Rochas d'Aiglun, *Principes de la fortification antique*, p. 89.

None of the Newstead gates appear to have had more than a single entrance. It is probable that the passage was roofed with a barrel-vault, traces of this vaulting having been discovered at Birdoswald, and again at Housesteads. It made the gateway more secure, and enabled the *chemin de rond* to be carried across above it, so that the defenders could pass directly from one part of the wall to another without descending at the gateways. It can still be seen not only at Pompeii, but also in the gateways of the Aurelian wall at Rome; as well as in the fort of El Kastal on the Eastern Limes, where the remains of a second story above the gate are visible. [1] Thus bearing in our minds an impression of the exterior aspect of the fort, we may pass to the consideration of its interior plan and buildings.

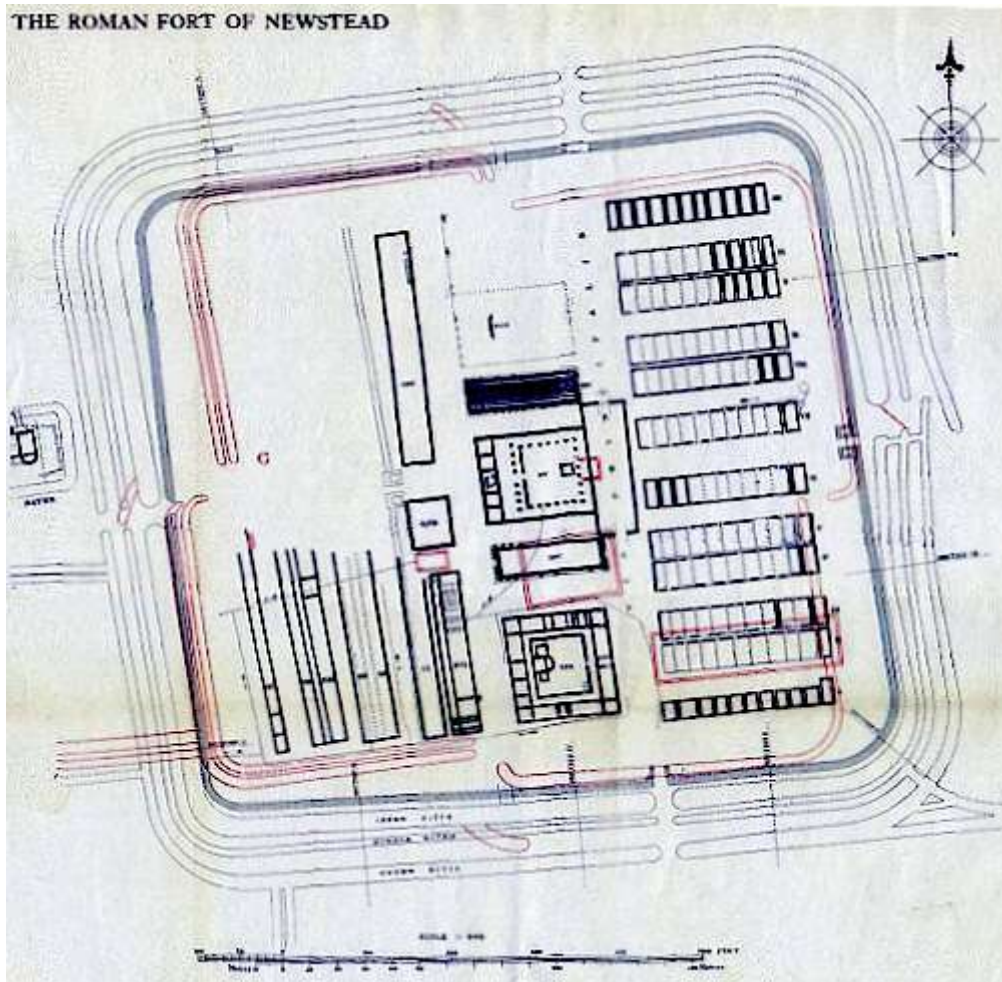
¹ Brunnow and Domaszewski, *Die Provincia Arabia*, vol ii. p. 95.

Plan IV, The Fort with its Buildings. Key

PLAN OF FORT OF NEWSTEAD

-  walls of buildings in use during final occupation.
 -  inferred walls.
 -  position of drains.
 -  crossing the ditches, indicates position of sections. To the north of Block XVI it is employed to indicate the probable position of a building.
 -  passing through north and south walls, indicate position of gates of early fort, and of enlarged fort during its first occupation.
 -  in Block XV, indicates foundation of Sacellum vault.
 -  position of pillars.
 -  in Blocks XVI and XVII, indicate sleeper walls.
 -  in Block XIX, indicates remains of an earlier building.
 -  post-holes.
 -  between the ditches on the north front, indicates remains of a small building.
 -  reducing wall and gateway.
 - Blue tint* wall of the fort.
 -  foundations of buildings, all probably earlier than the fourth period of occupation.
in red tint
 -  foundations of early ovens.
in red tint
- Red lines* are also employed to indicate the ditches of the early fort; the overlapping ditches of the first occupation of the enlarged fort in front of the N., S. and W. gates; and the trench of the palisade in front of the east gate.

THE ROMAN FORT OF NEWSTEAD



CHAPTER III

Interior Buildings of the Fort: The Principia

Introductory

SUCH knowledge as we possess of the buildings to be found within a Roman fort comes chiefly from the plans recovered by excavation. Of the small permanent forts like Newstead no description survives in the works of military writers. Hyginus, who, as we saw above, is believed to have written in the beginning of the second century A.D., gives a series of rules for the laying out of the encampment of a great army in the field,—a force composed of three legions with auxiliary troops, and numbering upwards of 30,000 men. This force, it need hardly be said, is purely hypothetical. The opportunity for excavating such a camp as Hyginus describes cannot arise. We have, however, various examples of the permanent camps, or, as they may perhaps more correctly be termed, the fortresses occupied by legionary troops. Of these Carnuntum, Novaesium, and Lambaesis are the most completely excavated. Novaesium was constructed to hold 9222 fighting men—roughly a modern division. Carnuntum is much smaller—the proportion is roughly 3:2. Lambaesis again is larger than Carnuntum, but this is perhaps only due to the fact that the legionaries now had more comfort and more room. As has already been pointed out, the essence of the difference may be that in the former case the auxiliaries were brigaded with the legionary troops. In all these there occur certain main features which are characteristic of the Hyginian plan. Some of these features we can still recognise in the more restricted area of the fort at Newstead, and even in those of smaller size. In short, the laying out of camps was evidently a recognised science. Thus, although the plans known to us in Britain, as well as on the Continent, exhibit considerable variety, the same general scheme was adopted nearly everywhere.

The Hyginian Camp and its Modifications

The Hyginian camp was rectangular, being greater in length than in breadth, and having the corners rounded. It had four gates. One of these, the *Porta Praetoria*, occupied the centre of the front which faced the enemy, while the corresponding gate, or *Porta Decumana* occupied the same position in the rear. On either side were the *Portae Principales*, with a broad street running between them—on the right the *Porta Principalis Dextra*, on the left the *Porta Principalis Sinistra*. These latter gates lay directly opposite each other, and nearer to the front than to the rear, so that the road which passed between them, the *Via Principalis*, divided the whole camp into two unequal portions. In the centre, facing the *Porta Praetoria*, at the point where the street leading to that gate crossed the *Via Principalis*, lay the *Praetorium*, or quarters of the commander. Behind the *Praetorium* a third street, known as the *Via Quintana*, ran parallel to the *Via Principalis*. The section of the camp lying in front of the *Praetorium* was called the *Praetentura*. The spaces on either side of the *Praetorium* were the *Latera Praetorii* while the section lying between the *Via Quintana* and the *Porta Decumana* was termed the *Retentura*. All round the camp a clear space or *intervallum* separated the rampart from the tents of the soldiers. In the three main sections into which the camp was divided, the different corps forming the army had each its place allotted to it.

When we pass from the hypothetical camp of Hyginus to the plans of actual fortresses such as Novaesium we find that, while (as already indicated) the main features of the Hyginian scheme are reproduced, the conditions of a permanent settlement and the reduction in the number of troops to be accommodated have so far modified the plan that we are no longer able to apply it for the identification of the various buildings. The same plan, still further modified by reason of its smaller garrison, reappears at the fort at Newstead. But in an area so small, and with no definite information to guide us as to the exact nature of the garrison, we cannot draw from the Hyginian scheme anything more than a few general indications as to the character of some of the buildings, nor can we be quite certain that the technical terms employed by Hyginus to describe the main parts of his camp were used in dealing with a small permanent fort.¹

1 Professor Haverfield has stated clearly the manifest distinction between the *Praetorium* of the Hyginian camp and the central building which constitutes so invariable a feature in the forts of the second and early third century. The latter has usually been spoken of as the *Praetorium*, but it is probably more correct to call it the *Principia*. *The Roman: Fort of Gellygaer*, p. 99, Appendix I.

PLATE VIII. THE EASTERN EILDON HILL FROM THE SITE OF THE
PRINCIPIA

The view is taken from the Red Abbeystead field, near the site of the Principia looking to the south-west. In the distance rises the Eildon Hill showing some trace of ancient earthworks round its summit. In the foreground on the left is the hut used by the excavators.



Again, in most of the small permanent forts that have been excavated, the plans of the various structures which covered the interior are obviously incomplete. Any tents which may have housed the garrison can have left no indication of their position. Buildings of wood and even of stone have often disappeared completely, so that in many cases, especially in the forts of the German Limes, we find little remaining but the central Principia. And yet, as fort after fort is excavated, the gaps in our knowledge are gradually being filled in, so that we can lay down the plans of the various buildings with some approach to completeness, and can recognise certain definite types, each designed for some special purpose.

In Britain, at least, these types are fairly constant. We find them more or less perfectly reproduced at Birrens, at Camelon, at Ardoch, and at Lyne, just as at Housesteads and at Gellygaer. The Principia occupies a central position opening upon the Via Principalis. On either side of it, in the spaces corresponding to the Latera Praetorii of the Hyginian camp, we have a number of buildings, evidently of an administrative character, grouped together. In the space lying in front of the Principia—corresponding to the Hyginian *Praetentura*—we have barracks for the soldiery. The space behind it—corresponding to the *Retentura*—is similarly occupied. The same general plan was employed in the larger area of the Newstead fort.

Streets and Drains

Of the streets which divided the fort, the Via Principalis, running between the gates on the north and on the south, was the broadest. In width it seems to have occupied a space of from forty-five to sixty feet, but no kerbs or definite margins were discovered. The parallel street to the west was less wide. It measured about forty feet, and this was also the width of the street running from the Principia to the east gate. A carefully devised system of drainage carried off the surface water from the low-lying portions of the fort. A stone-built drain ran from the south-east corner of Block XIII westwards. Crossing the Via Quintana, it followed the line of the inner ditch of the early fort, into which it had been carefully built, to a depth of eight feet. It was one and a half feet wide and was covered with large slabs of stone. Into this drain was carried the surface water from the streets running north and south between the barrack blocks of the Retentura. A second main drain ran from the east side of the Via Principalis, and, crossing the street, passed along the north side of Block XIII. Into this drain was led the

water from the west side of this block, as also the water from the Courtyard of the Principia. Another large drain was traced between Blocks XVII and XVIII running westwards through the Retentura. It passed beneath the reducing wall, where its structure was well preserved and where it had a depth of eighteen inches and a width of fifteen inches (Plate VII., Fig. 2). All of these drains were probably brought together and carried into the inner ditch on the west front, passing beneath the wall of the fort in a strongly built channel, having an opening two feet eight inches high by two feet broad (Plate VI., Fig. 2). With the exception of a drain running along the south side of the street near the east gate no drains were noted in the Praetentura. The ground here was higher and less liable to be flooded.

General Condition of the Buildings

Before dealing more particularly with the various buildings, it may be noted that, throughout the excavations, the remains of their stone-work were so scanty as to make it almost impossible to recover any of their details. Long centuries of cultivation and systematic quarrying had well nigh brought about their utter destruction. Walls were in most cases reduced to foundations. Hardly a doorway of any kind could be traced. Search for such masonry as may be seen *in situ* at Chesters and Housesteads, or in the impressive buildings recently exposed at Corbridge on Tyne, was vain. As a matter of fact, the only building within the fort which was laid bare in anything like its entirety was the Principia. The rest were merely outlined by following the walls, diagonal trenches being cut across any chambers which were discovered. This method has many drawbacks, and it should be avoided wherever circumstances permit of more thorough exploration. But the cost involved in removing the earth from the large area to be dealt with at Newstead made it impracticable to proceed otherwise.

The Principia

Of the various buildings which once occupied the area of the smaller Roman forts the Principia is the one of which excavation has recovered the greatest number of plans. That this is so is probably due to the fact that it was usually erected in stone. And it is as common a feature of the forts in Germany as of those in Britain. Nearly all of the plans conform to a general pattern, although there are variations in detail. The best specimens of the building as we find it in Britain are at Birrens, Housesteads, and Gellygaer. In all of these we have an outer courtyard surrounded by pillars, which was entered from the Via Principalis, and also an

inner courtyard from which access was obtained to a row of chambers, varying in number, placed against the back wall. The building of this type at Newstead measured 131 feet in length by 104 feet in breadth, and is the largest of the kind we know in Britain. The Principia at Chesters approaches

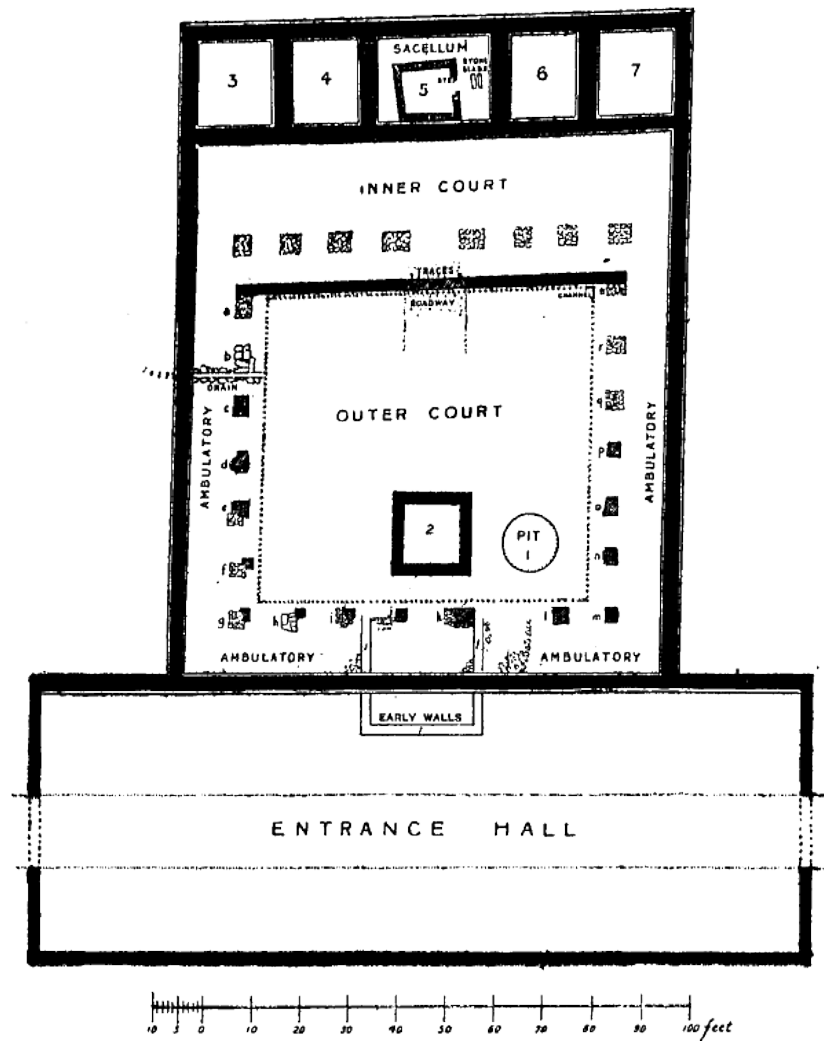


FIG. 2. PLAN OF THE PRINCIPIA.

it in size, measuring 123 feet long by 97 feet broad. Birrens, on the other hand, is only 70 feet long by 80 feet broad, and Gellygaer 80 feet by 69 feet. To this main building, which may be taken as representing the normal plan in Britain, there was added, at Newstead, a long entrance hall or portico extending across the Via Principalis in front of the building and measuring

160 feet in length by 50 in breadth. One side of it was formed by the front wall of the Principia, which was prolonged at either end so as to touch the adjoining buildings to the north and south.

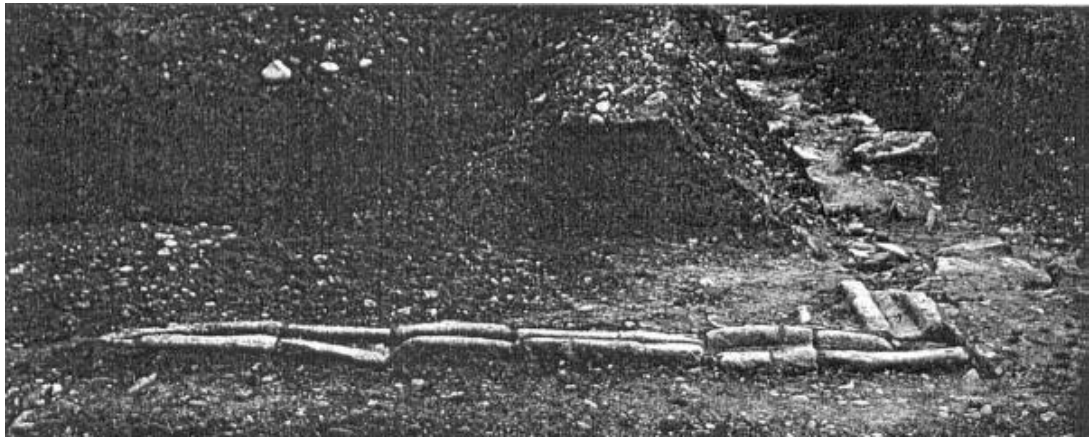
Very little of this last mentioned structure remained. Even the cobble stones of its foundations had entirely disappeared in some places. The best preserved portion was the wall at the north end, and there the line of the roadway entering the building was quite distinct. Nothing was found to throw light on the details of its construction, no tiles or other roofing material to suggest that it had been covered in. But that part of the front wall of the Principia which was continued towards the north, for the purposes of this portico, as may be seen from the photograph reproduced in Plate IX., Fig. I, had its foundation laid on a very much higher level than the other portion or than the main north wall which abutted directly upon it, thus conveying the impression that the long hall had not been erected at the same time, but was an addition made towards the end of the occupation of the fort.

Fragmentary though the traces of the entrance hall were, they added greatly to the interest of the building, as nothing of the kind appears yet to have been found in Britain. In the German Limes forts, on the other hand, such a hall is a common feature. There, as at Newstead, it is usually long and somewhat narrow, having not only doors at the end, but also wide openings in the sides. In Germany the name *Exercier-Halle*, or Drill Hall, is usually given to this building. But it is very doubtful whether there is sufficient evidence to support the use of such a term, or to show the purpose of the structure. The so-called Praetorium at Lambaesis, probably the most complete military building which has come down to us from Roman times, provides a parallel. Here also we have a hall thrown across the *Via Principalis*. Unlike the corresponding buildings in Germany and at Newstead, however, it has its longer axis at right angles to the *Via Principalis*. On each side is a wide arched doorway, large enough for the entry of wheeled vehicles, and flanked by smaller doorways for foot passengers. It is altogether a building of greater architectural pretensions than anything that seems to have existed in the smaller forts. M. Cagnat^[1] describes it as a triumphal arch of considerable size with four façades. It seems at Lambaesis to have formed a stately approach to the Principia. Possibly it may have served a somewhat similar purpose at Newstead.

¹ Cagnat, *Les Deux Camps de la Légion III^e de Lambèse*, p. 22.



1. Junction with wall of 'Exercise Hall' on north side



2. Gutter in outer courtyard



3. Pillar base and paving of ambulatory on south side of entrance

PLATE IX. THE PRINCIPIA

The Outer Courtyard

From the hall just described, access must have been obtained to the outer courtyard of the main building. No trace of the doorways could be found. All the stones of any value for building purposes which lay near the surface had disappeared, and little remained of the court itself save the lower foundations of the walls. On the east, adjoining the outer hall, absolutely nothing but this substratum was left. The method employed had been to dig a trench down to the subsoil, and to lay in it a bed of river cobbles about one foot in depth and four feet in width. Next came a scarcement course of stone—usually the metamorphosed sandstone from the Eildon Hills—of the same width and six inches in height. On this again was built the wall, two feet six inches in thickness. The only portion showing both faces was found on the north side of the courtyard. It measured two feet in length, and consisted of two courses of hammer-dressed masonry bedded in lime, standing fourteen inches above the scarcement.

The court walls enclosed a wide space sixty-three feet by seventy feet, covered with gravel and open to the sky. Around it on the north, south, and east ran an ambulatory, supported on pillars. The fourth, or west, side was bounded simply by its wall, through the centre of which a gateway would in all probability give entrance to the inner court. The ambulatory had a width of ten feet. It appeared to have been slightly higher in level than the courtyard, and to have been flagged with sandstone. Its roof, which was probably a single span set against the outer walls, must have sloped inwards, as was clearly proved by the remains of a stone gutter, found still in its original position, at the north-west corner of the court, Plate IX., Fig. 2. This gutter doubtless surrounded the margin of the courtyard, receiving the water from the roof, which passed into a stone drain, eleven inches wide and ten inches deep, lying just beneath the paving of the ambulatory on the south, and so into the large drain running to the west. The roof was probably covered with red tiles, though the number of pieces found was small when compared with those which lay in the chambers at the back. It had been supported on twenty pillars of stone placed at regular intervals of about eight feet.

In most cases nothing was left of these pillars except the cobble foundations on which they had rested. At the south-east corner, however, the remains gave a more definite clue to the original appearance of the ambu-

latory. There the heavy sandstone base of the corner pillar (g) was still *in situ*. It measured twenty-five inches by twenty inches, and stood nine inches high. It was splayed on three sides. On the fourth, or south, side it was only roughly hammer-dressed, as though that portion had been imbedded in the paving of the ambulatory. On the top of this base was a single stone of the pillar itself, sixteen inches square and seven inches deep. On the south side of the ambulatory, again, only the pillar lying immediately to the west of the corner-stone had left any traces. Here was a heavy base (f), twenty-two inches by twenty-three inches by ten inches, splayed carefully towards the north, less carefully on the west, and left quite rough on the other two sides. Upon this base lay a single stone of the pillar it had supported. This measured fifteen inches by fourteen inches by seven and a half inches, and was of dressed sandstone. On the north side hardly anything was found but the circular settings of cobble stones on which the bases had been set. On the east side the evidence obtained was more important. The base of the first pillar from the south-east corner (h) was *in situ*. It resembled those already described, and was splayed on the north, south, and west, but rough on the east. The next base immediately to the north (i) consisted simply of a large sandstone block, very roughly shaped, and measuring twenty-two inches by twenty-one inches by twelve inches, lying on a slightly larger flat undressed slab of sandstone, five inches thick, which appeared to rest on cobbles. The place of the next base towards the north (j) was marked by a single squared block twenty inches by sixteen inches by ten inches. None of the other remains gave much indication of details.

Indications of Alteration

The impression left by these bases was that the pillars had been rude in execution, and that old material had been employed in their construction, while it seemed quite evident that the pillars on the south side of the entrance had, during some process of alteration, been moved from their original positions, probably with a view to widening the ambulatory. On the south-east, beside the corner base (g) already described, an older foundation was brought to light. It was roughly square in shape, measuring forty-two inches by forty inches, and consisting of two layers of cobble stones embedded in clay. The sandstone base rested partly on the corner of this foundation, partly on disturbed soil. Precisely similar conditions were observed on the site of the second pillar on the south side (f), while in the case of the first pillar from the corner on the east side (h) the older cobble foundation lay immediately to the south. The possibility of the bases having

been pulled off their original foundations during the demolition of the building was negated by the fact that in the last instance the older base was covered with a couple of courses of roughly laid flat sandstones, in all eight and a half inches deep, which came to the level of the edge of the splay of the stone base, and which must have formed part of the paving of the ambulatory (Plate IX., Fig. 3). It is extremely important to note these details, as they furnish evidence of one at least of the changes which the building had undergone, a change which must have taken place when it was last reconstructed.

Small Chamber

The floor of the courtyard had been covered with gravel; at the entrance the gravelled road leading into the building was very distinct. Standing within the courtyard, immediately beyond the entrance, was the foundation of what appeared to have been a small chamber (2), (Plate X., Fig. 1). It measured internally eleven feet two inches square, and the wall of red sandstone was two feet five inches thick. It was carefully built with hammer-dressed stones about one foot long by six inches deep, of which the first course and a single stone of a second remained. The north, south, and east sides lay on cobbles, the west wall on hard impacted gravel, perhaps an old road. Gravel lay above the wall, and it seemed possible that the building had been pulled down and its foundations covered over in the last period of occupation. The plans of forts in Britain do not furnish any parallel to this chamber. Something of the same kind, however, is to be seen at the Saalburg, where a square foundation occupies a Site against the ambulatory in the outer courtyard. A similar foundation occurs at Butzbach,¹ but there also the building stands at the side against the ambulatory. In neither of these cases did excavation give any detail which enabled the purpose of the building to be inferred. At Newstead it was carefully cleared out, but beyond some fragments of melted lead no remains were found within. The position of this small building in the outer courtyard appears to be unique. It may have formed part of an older Principia that looked west. But there is also the possibility that it may have been a shrine.² According to Hyginus, an altar appears to have stood in a similar position in front of the general's quarters in a field encampment.

The Well and its Contents

To the right of the small chamber was a deep pit. This occupied a

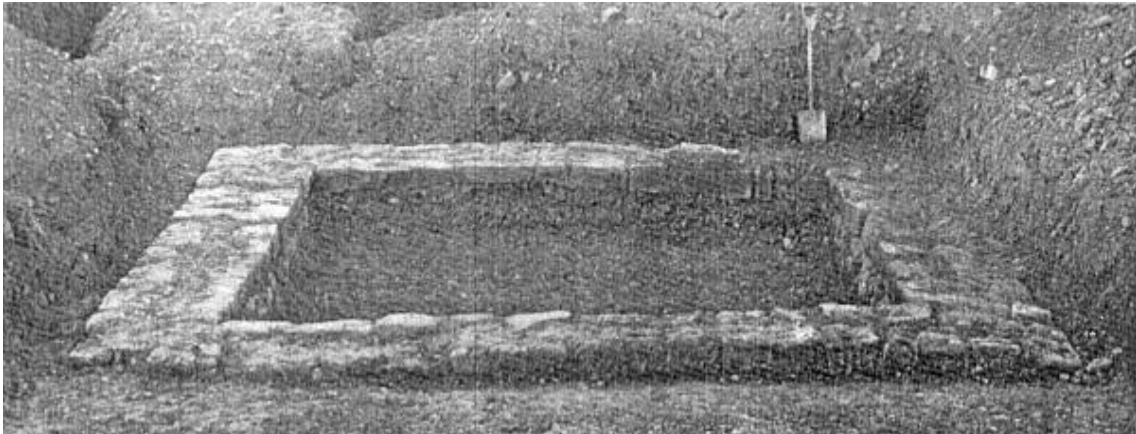
1 *Der Obergermanisch-Raetische Limes*, Lief. I, Kastell Butzbach, p. 7.

2 Professor Bosanquet makes the interesting suggestion that the building may have served as a guard-house.

position in which it is common to find a well or cistern. Thus at Birrens, at Bar Hill, and at Gellygaer, the well was in a similar situation to the left of the entrance. At the Saalburg there are wells in the outer courtyard on either side of the entrance. It is therefore probable that the Newstead pit had originally been constructed for the storage of water. Its discovery in September 1905 gave the first indication of the possibilities of the site. It proved to be circular, having a diameter of twenty feet at the surface. At the bottom, which was reached at twenty-five feet six inches, it had narrowed to a diameter of six and a half feet. From a depth of about twenty feet from the surface it was filled with a confused mass of red sandstone blocks, for the most part of small size, such as might have been employed for the masonry of walls or the sides of a well. A few of these showed the diamond broaching which is frequently met with in buildings of the period. Stones dressed in this way occurred here and there among the buildings at Newstead, but on the whole their use was less common there than that of simple hammer-dressed stones.

Over forty cartloads of these smaller stones were taken from the pit.¹ Mixed with them were a number of much larger blocks. In all some twenty-four of the latter were brought to the surface from various depths,—one or two from the very bottom. It was quite plain that the majority of them had been used as building material. All had been more or less shaped, perhaps unfinished; some were carefully tooled. One large block nineteen inches broad, twelve inches high, and twenty-two inches in depth had been cut for the rebate of a door. The front of this was tooled with diamond dressing. Another stone, twelve inches long by twelve inches deep, was shaped like a pilaster or a rounded cope for a wall. The lewis hole employed to lift it into position was visible upon the face. A third was carefully tooled in a manner which recalled the work to be seen on the lids of Roman sarcophagi such as those that lie in the Church of St. Ursula at Cologne. Yet another, and this a block of considerable size, bore on its side, roughly incised, the figure of a boar, the symbol of the Twentieth Legion, while a much smaller stone had the same symbol in relief. One of the large blocks found in the bottom was shaped like the bases of the pillars already described.

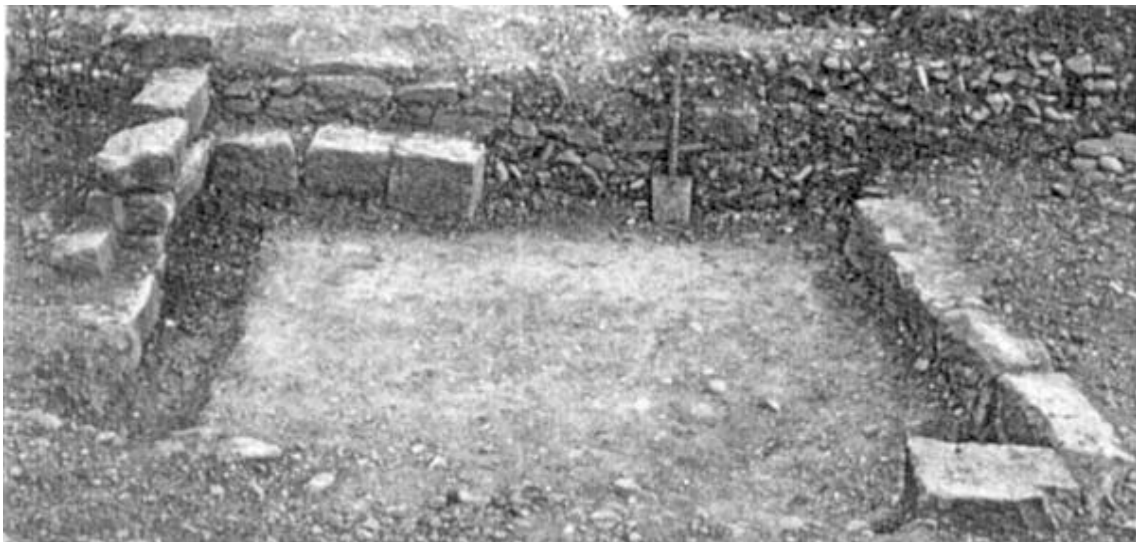
1 The building stones from the pit, together with the gutter stones from the courtyard of the Principia, were removed by Mr. Roberts to Drygrange, where they are now erected in the form of an arch. The pit was filled up with modern rubbish.



1. Foundation of square building in courtyard



2. Masonry of back wall, Chamber no. 6



3. Foundations of Treasure Chamber beneath Sacellum
PLATE X. THE PRINCIPIA

Progress in cleaning out this mass of heavy material was slow, and the upper levels did not yield much return for the labour involved. A fragment of an inscribed tablet lay near the surface. At eight feet down a human skeleton was exposed. It appeared to be crushed among the stones, the head towards the south. Beside it were a fine bronze pen annular brooch and four small glass beads decorated with gold foil, the latter having evidently formed part of a necklace. Work had been proceeding for some days, and a depth of twelve feet had been reached, when on 14th September, 1905, a hurried message told that an altar was being uncovered. It could be seen from above lying face downward among the black earth, and there was an anxious moment as it was carefully turned over by the men, and the earth cleared from the inscribed face. The possibilities of the great pit had passed into certainties, and the workmen dug on expecting many things from its dark recesses. Beneath the altar was a first brass coin of Hadrian, and in the damp earth, now growing blacker in colour, bones of animals began to make their appearance. Presently the skull of an ox, the *Bos Longifrons*, and some leather, reached the surface. Several of these skulls, with skulls of horses, pieces of antlers, and many fragments of leather and of broken amphorae, were recovered as the work went on. At twenty feet two fragments of antler, fixed together so as to form a pick-like object, were uncovered. At twenty-two feet was a human skull lying beside portions of scale armour, an iron bar, the necks of two large amphorae, and the bottom of a cup of red ware, the last having the stamp **PROBVS**, also a portion of a second human skull. At twenty-five feet came a quern stone, two knives (one with its horn handle), a sickle, many pieces of amphorae, fragments of an iron cuirass with brass mountings, a linch pin, and portions of an oak bucket. Bottom was touched on 23rd September. The material taken from the lowest level was carefully washed, when it produced a number of small objects of interest—armour scales of brass, pieces of iron chain-mail, the umbo of a shield, a brass coin of Vespasian, several iron arrow heads, and many nails.

The Inner Courtyard

The outer courtyard was separated from the inner one by a wall, two and a half feet thick. A wide doorway had evidently occupied the centre, as the cobbling of the road that had passed through it was distinctly visible. None of the stonework of the door itself remained. The inner court measured 100 feet long by 30 feet wide. Along its east side, and parallel with the wall dividing it from the outer court, were eight circular settings of cobbles, which had evidently formed the foundations of a series of pillars.

There was a corresponding row of moulded column bases in the inner court of the Principia at Housesteads, where they were interpreted as indicating the line of a colonnade which had been supported against the wall separating the inner from the outer court.

Its Five Rooms

Entering off the inner court was a row of five rooms just as we find at Birrens, at Chesters, and at Gellygaer. Hardly anything remained but the whinstone cobble foundations of the dividing walls. In Plate X., Fig. 2, we have a portion of the main outer wall of the second chamber from the north side of the building (6). It exhibits the formation of the cobble substratum. The different character of part of the masonry is probably due to some subsequent alteration of the building. The foundations of the walls on either side of the central room were four and a half feet wide, the others only four feet. A few stones of the scarcement course of the north wall of the central chamber remained in position, from which it seemed probable that the wall itself had originally been three and a half feet thick. The wall resting on the four feet foundation may have been about three feet. This distinction in thickness of the walls has been noted elsewhere, and is no doubt due to the fact that the central chamber formed the Sacellum, and contained the shrine of the standards, while beneath its floor was preserved the military treasure, often placed in an underground vault. Over the ruined floors of the four outer chambers lay a stratum of fine gravel, and in the debris were many fragments of large red flanged tiles which had fallen from the roof above.

The Strong Room

Within the central room were the foundations of a small inner chamber which appeared to have been set into it (5), and which measured about eleven feet square. It did not appear to belong to the original plan of the building, for the walls, which were about a foot thick, had been built of old materials, and did not run parallel to those of the room in which they had been placed. Moreover, in digging a foundation for the east wall of the interior chamber the cobble foundations of the wall of the larger room were exposed, showing that the smaller chamber had been sunk lower than the flooring of the original room. This is clearly shown in Plate X., Fig. 3, in which the foundations are viewed from the west. In the centre of the north wall were the remains of a stair. The courses on one side of the entrance remained to a height of twenty inches, and showed the rebate for the door, which must have opened inwards. The lower step of the stair which remained was about three feet long. The masonry was rough. The

floor of this treasure chamber was covered with a thick bed of clay six inches deep lying on cobbles and flags. Two tiles were embedded in the clay with the upper stone of a much worn quern. Below the clay were found the neck and handle of an amphora bearing the stamp SER·B.¹

The only other objects which came to light in the excavation of these rooms were a well-preserved fibula,² and—from the room on the north side (7)—a number of fragments of thin bronze which had formed part of a cuirass.³ But in the excavation of the courtyards of the Principia were found some sixteen coins, a number of fragments of pottery, among which were pieces of early decorated bowls of Terra Sigillata, many small bronze objects such as fibulae, mountings of girdles, and hanging ornaments, as well as playing 'men' of bone and of vitreous paste. Under the colonnade of the outer court on the north side lay a considerable quantity of grain.

General Impression

The impression left by many visits during the progress of the work was that the buildings at Newstead, as might have been expected in an outpost planted beyond the permanent frontiers of the empire, showed little of refinement in their construction, and that the masonry had not much of that massive solidity that is so apparent at Corbridge. In dealing with the fortifications attention has already been drawn to the evidence of change. Similar evidences were writ large in the buildings, and in none of these more clearly than in the Principia. Those furnished by the moving of the pillars of the outer courtyard, and by the addition of the long hall over the street in front, have already been dealt with. It remains to speak of the wall dividing the outer from the inner courts.

The Dividing Wall

This did not appear to have formed part of the original plan of the building. It was two and a half feet thick, but its cobble foundation lay on disturbed soil—a layer of clay five inches thick, mixed in places with charcoal, and having one foot of gravel below—the whole suggesting an earlier floor level. On the other hand, the pillar bases lying within the inner court were founded on the subsoil, the foundations being of river cobbles and two feet deep. Now the existence of a cross wall separating the outer from the inner court of the Principia is a common enough feature of Roman forts, as, for example, at Housesteads. But in some forts, which may be dated approximately to the end of the first century, there is no trace of anything of the kind. Thus at Wiesbaden, built about the year A.D. 83, we have but a single courtyard with an

1 Plate lii. Fig. 9.

2 Plate lxxxvi. Fig. 15.

3 Plate xxiii.

ambulatory running round all the sides save that facing the Via Principalis At Gellygaer again, there is no sign of a wall separating the outer from the inner courtyard, but simply a single row of pillars. Even at Birrens, which probably does not date from an earlier period than the reign of Pius, a single row of pillars formed, in the original plan, the boundary between the outer and the inner courtyard. It was only at a subsequent period that the space between them was filled up with masonry. There is thus reason to believe that the type of Principia such as we find at Housesteads, with a wall and roofed passage separating an outer from an inner courtyard, is later than the type in which the outer courtyard is terminated by an arcade of pillars, and, further, that at Newstead one type was succeeded by the other.

Various Periods

The evidence we possess at Newstead does not, however, enable us to identify the Principia, of which the outlines were recovered, as belonging even in its earlier form to the first century, or, in other words, to the fort established during the period of Agricola's advance. On the contrary there is ground for supposing that the Principia of the Agricolan fort faced in the opposite direction towards the west. Those changes in the fort which point to this conclusion will be dealt with later. In the meantime it will suffice to say that, from the remains of the building itself, it seems plain that in the alterations detailed above we have definite marks of two distinct periods, while beneath lie the traces of a still older occupation. The most definite of these traces were observed at the east end of the outer courtyard. Here, flanking the entrance, were the foundations of two walls of red sandstone (1), one foot ten inches in thickness. They consisted of broken sandstone embedded in clay, the usual river stones being absent. It was noted that the main east wall of the central building had cut through these earlier walls, and they were traced beyond it for a distance of six and a half feet under the later roadway and 'Drill Hall.' Here the two walls had been joined together by a third (1), twenty-five feet eight inches long, having a width of two feet six inches, and founded in the same way. The three walls may have enclosed the Sacellum of an earlier Principia facing the west. The suggestion that the enclosure had formed part of an older fort was confirmed by the discovery of another building, built in the same fashion and placed in alignment with it, lying beneath the adjoining buttressed building on the south. A further evidence of this older occupation was obtained in cutting through the ambulatory on the south side of the later Principia. Here, at a depth of two feet below the surface of the

cobble foundation two coins were found, a denarius of Vespasian and a legionary denarius of Mark Antony.

The Character of the Principia

The Praetorium of the Hyginian camp appears to have extended from the Via Principalis back to the Via Quintana, and to have been divided into three parts—in the rear a portion termed the *posticum*, in the centre the quarters of the general, and in front an open space in which, occupying the most important position, before the door of the general's tent, was placed the altar on which he sacrificed; on the right of it was the spot where he took the auguries, on the left the tribunal from which he addressed the army.¹ Probably the Principia of forts such as that of Newstead preserves something of this plan. But it seems clear that the building had ceased to be the quarters of the commandant, and that the structure with its pillared courtyard had a certain affinity to the Forum of a city.

Between the Forum at Silchester and the Principia at Newstead there is a resemblance which is obvious. The latter must have formed the administrative centre of the fort. That it was no longer a dwelling is shown by the excavation of the Principia at Lambæsis, a building infinitely more complex than the one at Newstead or any of those to be found in the Limes forts in Germany. There, after passing through the archways overhanging the Via Principalis, we enter a great paved court surrounded on three sides by an ambulatory whence access was had to a series of chambers. Beyond is an inner courtyard slightly higher in level, and surrounded in turn by a second series of chambers. From the inscriptions found in these latter, M. Cagnat shows that they were occupied as *scholae*, or special rooms, by associations formed of the officers of different grades who were serving in the Third Legion, and that the central chamber, about which they were grouped, contained the shrine of the standards.² Just in the same way that in this legion's Principia the shrine, with its standards and other precious emblems, occupied the central position, facing the entrance as does the altar in a great church, so the Sacellum must have stood in the Principia of the smaller forts—the object of veneration, the symbol of command. As a matter of fact, in most of the *castella* that have been excavated we find one chamber distinguished from the others—the Centre of five as at Newstead, or the centre of three

1 Hyginus, *Liber de Mun. Cast.* p. 54.

2 Cagnat, *Les deux Camps de la Légion III^e Auguste à Lambèse*, p. 33 ff.

as at Gellygaer—by having its walls of greater strength. Sometimes the room ends in an apse as at Kapersburg¹ and Feldberg.² Occasionally it merely projects a little beyond the back line, as at Gellygaer or the Saalburg.

The Sacellum

Not infrequently we find beneath the floor, as at Newstead, a sunk compartment or vault, in which was deposited the military treasure. One of the earliest discoveries which gave a clue to the purpose of this vault was made at Bremenium or High Rochester, where an underground receptacle or vault, with a flight of steps leading into it, was found in the rear of the Principia. The entrance at the foot of the stairs was closed by a stone slab which moved in a groove upon iron wheels.³ In the vault was lying an altar dedicated to the genius of the Emperor and of the standards of the First Cohort of the Varduli and of a numerus of pioneers at Bremenium.⁴ This altar must originally have stood in the shrine above, and with it the standards and the imperial images.⁵ Many inscriptions upon altars to Jupiter, to Mars, to Victory, and other gods of the army, which must have had a place in these shrines of the standards, might be cited. One from Niederbiber is of special interest: a standard-bearer and an image-bearer dedicate a standard, with its shrine, and a votive tablet of marble, in honour of the deified imperial house and the genius of the standard-bearers and image-bearers.⁶ Of the imperial images which must have stood within the shrine we have a trace at the Saalburg in the fragments of a bronze statuette of the Emperor Antoninus Pius. Remains of a similar figure were found in the ruins of the corresponding chamber at Theilenhofen.⁷ At Lambaesis sacred images of gold are mentioned in one of the inscriptions.⁸

In all probability the treasure deposited beside the standards included not merely the military pay chest, but also certain monies that were actually the property of the soldiers. According to Vegetius, the latter comprised

1 *Der Obergermanische-Raetische Limes*, Lief. 27, Kastell Kapersburg.

2 *Ibid.* Lief. 25, Kastell Feldberg.

3 Bruce, *The Roman Wall*, p. 318.

4 GENIO D(OMINI) N(OSTRI) ET SIGNORUM COH(ORTIS) I VARDULL(ORUM) ET N(UMERI) EXPLORATOR(UM) BREM(ENIENSIIUM) GOR(DIANORUM) EGNATIUS LVCILIANVS LEG(ATVS) AVG(VSTI) CVRANTE CASSIO SABINO TRIB(VNO). *C.I.L.* vii. 1030.

5 *Aquilas et signa Romana Caesarumque imagines adoravit*. Suetonius, *Caligula*, 14. For many other references to Latin texts, see Von Domaszewski, *Die Religion des römischen Heeres*, p. 9.

6 Von Domaszewski, *Op. cit.* p. 13.

7 *Der Obergermanisch-Raetische Limes*, Lief. 24, Kastell Theilenhofen, p. 7.

8 Cagnat, *Les deux Camps*, p. 37.

one half of the donativum or imperial largesse,¹ which was employed to provide for those who through sickness or other misfortune had to abandon the service prematurely, while the legionary soldiers at the same time contributed to another fund, which was also kept there and from which was defrayed the cost of their own burial.² The standard-bearers thus became the custodians of the regimental funds, and naturally the men who filled the office were chosen not only for their fidelity but also for their education.³ To protect the sacred emblems and the treasure of the Sacellum a special guard was posted. An inscription from Aquincum commemorates the restoration of a guard-room for the men guarding the standards and the sacred images,⁴ while at Ostia the name of M. Mikenius Julius, trumpeter of the Seventh Cohort 'attached to the guard' was found scratched upon a stone near the shrine.⁵

While the Sacellum with its standards and its images has everywhere disappeared, the treasure-chamber in many cases remains. A typical vault was recently discovered within the Principia at Brough in Lancashire. It was eight feet in length, and varied in width from five to seven feet, with a depth of eight feet. It was entered at one end by a flight of eight steps. The floor was of cement. In the wall, broken up and used as a building stone, was a portion of an inscribed slab dating from about the year A.D. 158, showing that the vault itself was not earlier than the second half of the second century.⁶ At Lambaesis the treasure chamber was about six feet in depth. At Aesica, Chesters, Bremenium and South Shields it was also of some depth. On the other hand, at Wiesbaden,⁷ at Gnotzheim,⁸ and at Murrhardt,⁹ its foundations lay near the surface, indicating that at these forts, as at Newstead, the floor of the Sacellum itself must have been raised considerably above the natural surface of the ground, and must have been approached by a flight of steps. It seems probable that in many instances such treasure-chambers were added in the latter part of the second century. Thus the vault at Brough, as we saw above, evidently belongs to a reconstruction of the Principia. This seems to be the case also at Butzbach,

1 Vegetius, 2. 20.

2 Cagnat, *L'Armée Romaine d'Afrique*, p. 457; also Nicole, *Archives militaires du 1^{er} Siècle* (Geneva, 1900), p. 18.

3 Vegetius, 2.20.

4 Von Domaszewski, *op. cit.* p. 13.

5 *Ibid.* p. 14.

6 Haverfield, *Victoria County History: Romano-British Derbyshire*, p. 204.

7 *Der Obergermanisch-Raetische Limes*, Lief. 31, Kastell Wiesbaden, p. 25.

8 *Ibid.* Lief. 70, Kastell Gnotzheim, p. 8, Taf. ii. fig. 2.

9 *Ibid.* Lief. 44, Kastell Murrhardt, p. 7.

where the chamber is said to be an insertion of the third century.¹ The irregular shape and inferior material point to the same conclusion at Newstead.

The other Rooms

It is generally believed that the rooms which flank the central chamber were intended to serve as the regimental offices. Not infrequently we find one or more of them heated by hypocausts. Professor Ritterling assigns the four chambers which adjoin the Sacellum at Wiesbaden to the chief officers of the commandant's staff. One he allots to the *cornicularius* or adjutant, a second to the *beneficarii* or officers of the staff, a third to the *actarius* or officer in charge of the commissariat, and the fourth to the *librarii* or regimental bookkeepers.² Possibly the two last might have been installed in one apartment, which would have left a room for the watch. In the Principia at Niederbiber the dedication to the genius of the standard bearers and image bearers, already referred to, was found in the room immediately adjoining the Sacellum on the east, while in the corner room a dedication to the *genius tabularii* by a *librarius* was found, and here also in a small chamber adjoining were the remains of cupboards and locks.³ In a room occupying a similar position at Lambaesis was found an inscription showing that it had been occupied as the *tabularium* of the legion, and that it had also been used for the meetings of a college of regimental clerks, *librarii et exacti*. In the same college we find a *cornicularius* and an *actarius*.⁴

The store of arms was probably situated somewhere in the Principia, or in its immediate neighbourhood. The association between the two is shown in the well-known inscription from Lanchester which commemorates the restoration of the *principia et armamentaria*.⁵ The find of a *lorica* in one of the chambers at Newstead can hardly be taken as sufficient evidence of the locality of the *armamentaria*, although at Housesteads some 800 arrow heads came from rooms in a similar position. At Lambaesis the military stores appear to have been kept in some of the chambers opening upon the outer courtyard. In one of these there were found about 6000 sling bolts of terra-cotta and about 300 stone balls, while in an adjoining room lay an altar dedicated by the *custodes armorum*.

¹ See Bosanquet, *The Roman Camp at Housesteads, Archaeologia Aeliana*, vol. xxv. p. 221.

² *Op. cit.* Kastell Wiesbaden, p. 27.

³ Dorow, *Römische Alterthümer in und um Neuwied am Rhein*, cited by Bosanquet, *The Roman Camp at Housesteads, Archaeologia Aeliana*, vol. xxv. p. 223.

⁴ Cagnat, *Les deux Camps*, p. 37.

⁵ IMP. CAESAR M. ANTONINVS GORDIANVE P(IVS) F(ELIX) AVG. PRINCIPIA ST ARMAMENTARIA CONLAPSA RESTITVIT . . . *C.I.L.* vii. 446.

Another dedication from the same part of the building was by an *optio*, who styles himself *curator operis armamentarii*.¹ In several of the Principia of the forts on the German Limes long narrow rooms occupy the position of the ambulatory at Newstead, on either side of the outer courtyard, and these are believed to have been employed as *armamentaria*.² Quite recently, indeed, it has been suggested by Professor Ritterling, in his memoir on the Fort of Wiesbaden, that the space beneath the colonnade surrounding three sides of the outer courtyard was partitioned off with wood and employed for stores. This is an arrangement for which we have some evidence at Niederberg, where in the outer courtyard of the Principia we have on one side, in the space corresponding to the ambulatory at Newstead, a long wing divided into four rooms, while on the opposite the front of the corresponding wing is formed by a line of six pillars which had supported a wooden roof, and inside of which were found ballista balls and bolts.³

1 Cagnat, *Les deux Camps*, etc., p. 43.

2 See Hettner, *Westdeutsche Zeitschrift*, vol. xvii. p. 347.

3 *Der Obergermaniische-Raetische Limes*, Lief. 12, Kastell Niederberg, p. 2.

CHAPTER IV

Interior Buildings: Storehouses, Dwellings

The Storehouses

ON either side of the Principia there stretched two long narrow buildings supported by heavy buttresses. The actual walls were two and a half feet thick, and the buttresses projected in the building to the south three and a half feet, and in the building to the north two and a half feet beyond. In each case the interior measured one hundred and eighteen feet long by thirty feet wide. The heavy cobble foundations, six feet four inches wide, were carried out to the outside line of the buttresses. Nothing was left to indicate how the roof had been constructed, neither stones nor tiles, but there can be little doubt that the heavy buttressed walls were intended to bear the thrust of an arched roof and that the buildings in question were the horrea, that is, the granaries or storehouses of the fort. The floor was specially constructed to keep the place dry. It was supported on low sleeper walls about seventeen inches thick which ran the whole length of the building. Between each of these walls was a flue or air space one foot in width. Against the west wall of the south building were the remains of a loading platform ten feet long and fourteen inches high. Unfortunately its original width could not be ascertained. The existence of this platform would appear to show that the building was certainly at one period entered from the west. We have a parallel to it in the granaries at Corbridge and Gellygaer, all of which have loading platforms at the entrance.

Near the south-west corner of the building at a distance of two feet two inches from the wall stood a portion of a column with a circular base and a double torus moulding.¹ It is made of the red sandstone common in the fort and was still in an upright position, the top being so near the surface that the ploughs had grated upon it. In Plate XI., Fig. I, it is to be seen with

¹ The column was removed with other stones from the Fort to Drygrange.



1. Block XIV. Pillar and south-west corner of building



2. Block XIII. Chamber with cellar
PLATE XI. REMAINS OF BUILDINGS

the south angle of the granary wall beside it. It rested upon hard impacted gravel without any trace of a special foundation. As no other columns were found in front of the building, it was at first thought that it was no longer in its original place, but had simply been left there in the demolition and removal of the buildings. This view must, however, be reconsidered in the light of the discovery in 1909 at Corbridge, in front of each of the granaries, of the bases of four pillars which had obviously supported a portico. In the case of the north building the foundations alone remained. These gave no satisfactory indication of the position of the doorway.

Masonry of the two Buildings

An interesting distinction was noticeable in the masonry of the two granaries. Both had the same strong cobble foundations. But the remaining masonry of the south building consisted of well-squared blocks of red sandstone showing no signs of alteration, while the north building had evidently been reconstructed. Its walls consisted of sandstone interspersed with blocks of blue greywacke from the river bed, and such old material as pieces of brick and quern stones. It seemed probable that it had been demolished during one of the periods of occupation, and again, at a later period, rebuilt on its old foundation.¹ Neither of the granaries just described can, however, have belonged to the Agricolan fort, for, as was mentioned above, the south building partly covered the remains of a large rectangular block occupying a space 80 feet in width and not less than 115 feet in length, and founded on sandstone chips, a feature which seemed to be characteristic of an early period. A human skeleton lay on the floor of the south building near the east end, and beside it were a denarius of Trajan and a second brass coin of Hadrian, a red veined marble bead, and a button. Probably these were relics of the final abandonment.

In all the British *castella* where stone buildings occur we find one or more of these buttressed storehouses, usually in close proximity to the Principia. We have several examples even in Germany, where buildings other than the Principia have rarely survived. A good instance is that at Weissenburg.² There the buttressed walls had two narrow slits for ventilation, a feature which was noted at Castlecary,³ and at Rough Castle,⁴ and also

1 Much the same feature was noted in 1909 at Corbridge as at any rate very probable.

2 *Der Obergermanische-Raetische Limes*, Lief. 26, Kastell Weissenburg, p. 14.

3 *Proceedings of the Society of Antiquaries of Scotland*, vol. xxxvii. p. 42.

4 *Ibid.* vol. xxxix p. 34.

at Corbridge-on-Tyne. [1] At one end were two small chambers, one of which, with a hypocausted floor, was perhaps an office for the *tabularius horrei*, while the floor of the main building was covered with burnt grain, showing the purpose for which it had been used. A human skeleton was found here too. It should be added the term *horreum* occurs in several inscriptions. Thus at Corbridge one of these buildings contained an altar erected by an officer who styles himself *praepositus curam agens horrei* that is, 'special superintendent of a granary.' [2] At Aesica on the wall of Hadrian we have a record of the rebuilding of a *horreum* by the garrison in 225 A.D., and at Niederbiber there is a dedication by a *numerus* of Britons to the genius of the *horreum*.

The Commandant's House

While none of the buildings dealt with so far would appear to have been constructed to serve as dwellings, the block which adjoins them on the south has the unmistakable characteristics of a dwelling-house. Parallels to can be found difficulty not in the but in towns it without only forts, such as Caerwent and Silchester. It lies between the south buttressed building and the south gate. We find a building resembling it in a similar position at Housesteads and at Lyne, and probably also at Birrens, Castlecary, Camelon, and Rough Castle, while at Gellygaer the corresponding building lies immediately to the north of the Principia. At Newstead the house was almost square, occupying a space of 130 feet in breadth by 122 feet in depth. The main entrance was from the Via Principalis by a passage eight feet wide. This passage gave access to a corridor which ran all round the house, enclosing an open court which formed the centre. On the outer side of the corridor were the doors of the various apartments. Its inner side directly adjoined the court, except at the west end, where an apsed room with two small wings projected beyond it into the enclosure.

Here, as everywhere in the fort, the walls had been reduced almost to their footings, and the floors and the sills of the doorways had all disappeared. It was possible, however, from the jambs to trace three entrances from the corridor into the central court, as well as the doorways of the entrance passage. At the south-east corner of the courtyard, close to one of the entrances from the corridor, lay a large slab of yellow sandstone, six and a half feet by three and a half feet. It had grooves roughly cut in it, and might have formed the base of a cistern. In the wall beside it was an opening for a drain,

1 *Archaeologia Aeliana*, 3rd series, vol. v. p. 6.

2 *Ibid.* p. 91.

the continuation of which it proved impossible to trace. The courtyard itself had been covered with fine gravel. In the absence of doorways it was not easy to determine the exact number of rooms that the house had contained, as some of the divisions may have been merely sleeper walls for the support of floors. It seems probable, however, that it had consisted of some nineteen apartments. That opening upon the entrance passage was perhaps inhabited by the porter.

On the south side facing the rampart were what appeared to be the kitchen and the servants' quarters. A black deposit lay on the floors of several of these rooms. In the floor of the second room from the south-east corner of the building was a small pit which yielded an iron pickaxe. On one side of the room next to it on the west was a built cellar or stoke-hole, shown in Plate XI., Fig. 2, thirteen and a half feet long by two feet one inch wide. Except on the south side the walls remained in fair condition to a height of about four feet. They were built of hammer-dressed sandstone courses. On the west side a depression in the wall suggested the position for steps. A flue or drain issued from the north end, but it had disappeared beyond the wall. It is possible that the house had rooms with hypocausts which were heated from here. Four bricks of a type commonly used for hypocaust pillars were found lying together in the corridor, but these were the only traces of any arrangement of the kind. Indeed, no hypocaust was discovered in any of the buildings within the fort itself. In the built cellar there was found a small globular pot of white ware, covered with a black engobe, like Castor ware.¹ In the room adjoining it were the remains of what had probably served as a hearth. It was placed in one corner, and was more or less circular in shape, twenty-one inches by thirty inches, and terminating in a flue-like arrangement; the whole measured five feet ten inches in length. The sides were formed by sandstone blocks. The suggestion that the offices of the house had been here is perhaps confirmed by the presence of the base of the cistern at this side of the courtyard as noted above. The entrance from the corridor would be arranged conveniently for drawing water. The rooms on the west gave little indication of their use. In one there was found a bronze key, in another a fragment of a vessel of yellow-brown castor ware; yet another showed traces of a floor of *opus signinum*—a pavement formed of broken brick and lime.

The apsed room projecting into the courtyard had been destroyed down to its cobble foundations, only a single stone of the scarcement course

1 Plate xlviii. fig. 40.

remaining. A wall foundation crossed it near the spring of the apse, either to carry the floor or to form the support of a raised platform. The ruin of this chamber with its wing on either side was too complete to furnish any indication of its use. Professor von Domaszewski suggests that it was a shrine—the shrine of the genius Praetorii.[1] The only indication we have of apsed rooms in Roman forts elsewhere in Scotland, other than those belonging to baths, occur in the corresponding buildings at Camelon and Castlecary. An apsed room forms part of a house in the same position at Chesters, and it is not improbable that from such a room in the fort at Chesterholm or Vindolana on the wall of Hadrian came three altars discovered in 1831, two of which at least bore dedications to the genius of the Praetorium. The building in which this discovery was made is described as standing a short way within the eastern gateway on the northern side of the main street. 'One of the rooms had a circular recess, and on the outside of it were found three noble altars with their faces downwards.' [2]

On the north side of the building the only indication of a floor was in the large room towards the west, where a layer of *opus signinum* had been put down over rough stone flagging. There was no sign of any arcading round the courtyard, and it seems probable that the wall of the house had been solid. The only detail of its construction obtained was at the north-east corner where the stones on the side next the passage had been neatly rounded. Fragments of window glass were found in the courtyard, which suggests that it had had glazed windows. Some indication as to this may be gained from the small wings of the apsed chamber. Between these and the inner wall a space of three feet has been left as if for light, which would not have been necessary had the corridor been partially open to the courtyard. A few fragments of red tiles were found in the courtyard. These had probably formed the roofing.

Buildings of the type we have been discussing occur more rarely in the Limes forts than in Britain. But even there examples are occasionally met with, occupying very much the same position as the house at Newstead. In Britain this building is usually identified as the residence of the commandant, and the plan of the house at Newstead points to no other purpose so clearly. Of all the buildings of the kind in this country, it is,

1 *Romisch-Germanisches Korrespondenz-blatt* Jahrgang ii. p. 40.

2 Bruce, *The Roman Wall*, p. 212. In this connection the inscriptions may be noted upon two votive plates of bronze adhering together preserved at York—one to Oceanus and Tethys, the other to the gods of the General's Praetorium (θεῖς τῆς τοῦ ἡγεμονικοῦ πραιτωρίου) by Demetrios the scribe.

perhaps, the most simple and symmetrical; and, although details of its construction are awaiting, its general arrangement seems plain. The plans of the corresponding houses at Housesteads, Gellygaer, and Lyne are not sufficiently complete to enable us to fill up any of the missing details. The buildings in a similar position at Chesters and at Aesica show remains of hypocausts. Otherwise they add little to our knowledge. At Weissenburg on the Raetian Limes the group of administrative buildings is much better preserved than is usual in the smaller forts in Germany.¹ There the Principia, the Storehouse, and a square house with a central courtyard occupy the same relative position as at Newstead, while a number of the rooms on the side of the house farthest from the rampart have been furnished with hypocausts.

Although the general plan of the Newstead house differs from that of the majority of the ordinary Roman houses in Britain, we find, both at Caerwent and at Silchester, one or two private dwellings which closely resemble it. The best examples at Caerwent are the houses No.111² and No. VII.³ In both of these, the rooms open as at Newstead from the outer side of a square corridor which runs round the four sides of an inner court or garden. In house No.111 the corridor roof has been supported on columns, the sides having probably been open. The ambulatory was paved with tesserae of brick. At Silchester the same arrangement reappears in house No. 1 Insula XIV.⁴ All of these are buildings of some pretension, exhibiting traces of the refinement characteristic of private dwellings. Nor is this courtyard type of house confined to Britain. We find it, for instance, at Timgad in North Africa in the precincts of the Forum, perhaps as an official residence. In this case the roof of the corridor is supported by light shafts like a Moorish patio. And we find it at Mont Beuvray in France, where the building must date from the time of Julius Caesar or Augustus. In this dwelling, with its central court bordered by columns, M. Déchelette recognises the model of the *villae urbanae* of the end of the Republican period.⁵

The Officers' Quarters

Of the building which must have occupied the space on the north, corresponding to that occupied by the courtyard house on the south, almost no trace could be found. The surface soil was very shallow, and nearly

1 *Der Obergermanisch-Raetische Limes*, Lief. 72, Kastell Weissenburg.

2 *Archaeologia*, vol. 57, p. 301, pl. xl.

3 *Archaeologia*, vol. 58, p. 222, pl. viii.

4 *Archaeologia*, vol. 55, p. 216, pl. x.

5 *Les fouilles de Mont Beuvray*, 1897 to 1901, Paris, 1904, p. 45, fig. 4.

every remnant of stone-work had disappeared. That a building had once stood upon the site was, however, clear. A portion of a well-built wall of the usual character, eight feet in length, faced the Via Quintana, and in line with it further to the south were some post holes, perhaps the relics, of a still older structure. Towards the middle of the space a short length of a flue was also discovered, running north and south. But, carefully though the ground was trenched, it proved impossible to lay down any definite plan. Still, it is safe to assume that here also, as at Lyne and Birrens, there was situated another more or less square block of building, forming the quarters of some of the officers other than the commandant.

The Barracks in the Praetentura

We may turn now to the long lines of huts which occupied the Praetentura, or, in other words, the space between the Via Principalis and the east rampart. These were the barracks of the soldiery. The buildings consist of twelve rows of small huts arranged in pairs, each pair having a street between them. Six of the rows lay on each side of the main road leading from the Principia to the east gate. Many of the foundations had been much disturbed, lying, as they did for the most part, quite near the surface. Only the rows on the north and south (Blocks I and XII) could be traced in their entirety. These were more deeply covered owing to the mass of soil and clay which had been thrown down in the destruction of the rampart. The same cause had preserved the huts at the east end of the other rows. Except in the case of Block No. II, where even the foundations had almost entirely disappeared, the lines of the front and back walls of the huts that had composed the rows were plainly made out. Further, the number of cross-walls recovered was sufficient to warrant the conclusion that the internal arrangement of the twelve rows had been identical, and that each had contained eleven huts. The rows (with the exception of Block No. I, which measured 205 feet) were about 190 feet in length. Each hut occupied a space of thirty-five feet by about fifteen feet, there being some variation in size. The huts in the row were separated from one another by intervals of two feet, and the streets between the lines had a width of twenty-three feet.

In addition to its greater length, Block No. I presented certain peculiarities that should be noted. The foundation of the south wall was continuous, although the cross-walls of the huts were separated by the usual intervals. Again, the huts themselves were somewhat smaller in

dimensions, generally occupying a space of about twenty-four feet from front to back, and varying somewhat in width. The hut next the rampart at the east end of the row was, however, as much as thirty-five feet in length, and projected towards the north beyond the line of its companions. This suggests that a verandah may have run along the front, as was the case at Gellygaer and elsewhere, but no trace was discovered of posts for its support. The exceptional length of the row, which has been already noted (205 feet), was doubtless intended to compensate for its reduced width.

The soil on which these huts lay showed many traces of occupation. Pottery was of frequent occurrence, especially on the site of Block No. 11, where a fine bowl of Lezoux ware, bearing the stamp of Cinnamus,¹ and another decorated bowl,² as well as some coarser dishes, were discovered. At the west end of Block No. IV a number of iron objects—portions of wheel tyres and rings from axles—were found. Many small bronze objects, enamelled trinkets, and coins also came from this area. The most interesting find was, however, a bronze oenochoe,³ which was taken out of a rubbish pit under Block XII. The pit was clearly of earlier date than the building, for the dividing walls of the two huts at the east end were built over it, and its existence was only ascertained by observing a slight subsidence of the foundations above it. The pit was not the sole evidence of an earlier occupation of the Praetentura. To the south the ends of the rows lay over the ditches of the Agricolan fort, and between Blocks I and III there were discovered the foundations of a large building, which, since it crossed the Agricolan ditch, could not have belonged to the first occupation, but must yet have been earlier than the lines of huts above it. Trenches had already been driven across the Praetentura from north to south, in hopes of finding earlier buildings, but without result, when in February, 1908, in cutting across the line of the Agricolan ditch, the workmen came upon the heavy foundations of the building of which we have been speaking. They lay at a considerable depth a trench had been cut down some two feet into the subsoil, and in this had been laid heavy sandstone blocks, from three feet six inches to three feet nine inches thick. As illustrating the level of the building, it may be noted that the top of the foundation at the east end lay from seven feet ten inches to five feet three inches below the modern surface, while in the case of the later buildings, the distance from the surface to the bottom of the foundations was only three

1 Plate xlv.

2 Plate xl. fig. 14.

3 Plate lv.

and a half feet. The early building was of a long rectangular shape occupying a space of about 224 feet by 57 feet, the interior measurements being 217 feet by 50 feet. Whether any further remains of older buildings lie beneath the surface of the Praetentura is uncertain. Excavation was carried some distance to the north on the line of the east wall of this block, in hopes that a series of early barracks might come to light. But nothing had been found when the exigencies of cultivation interfered to put a stop to the search.

The rows of huts at Newstead take the place of the long buildings which we see in the plans of Birrens, Camelon, Gellygaer, and Housesteads. The Newstead blocks are of greater length than any of those mentioned, but this is largely due to the huts being separate constructions with an interval between each. At Camelon and Gellygaer only the outlines were recovered; the excavation obtained no evidence as to the internal sub-divisions. At Birrens a few partitions are noted, but the plan is plainly incomplete. At Housesteads, the numerous partitions which were traced belonged to different periods, and it was thus a matter of difficulty to determine the exact manner in which the blocks had been subdivided at any one time. The use of these buildings and their internal plan is made plain from a study of the barracks in the three legionary fortresses of Novaesium, Lambaesis, and Lauriacum. In the case of a field force, tents of leather were employed to house the soldiers, and probably in the earliest occupation of Newstead only tents were used, if we may judge from the number of tent pegs which the ditch of that period yielded. In the more permanent forts, however, tents must have gradually given place to buildings of wood and stone, although in the Newstead huts and in the subdivision of the long blocks the tent tradition obviously survives.

Hyginus, laying down his rules for the encampment of a large field army, deals with the space occupied by its different units. It was customary to quarter the soldiers according to centuries. Two centuries, which in his time were each composed of eighty men, were grouped together in pairs, each pair forming a maniple. The maniple occupied a space 120 feet long by 60 feet broad, which was termed a *striga*. A *striga* comprised twenty tents, arranged in two parallel lines of ten, the lines being separated by a road twelve feet wide. Between each tent and its neighbour was a space two feet in width, the *incrementum tensurae*. The single rows were termed *hemistrigia*. In the width of the *hemistrigium* the eight soldiers grouped together

in each tent were allowed a space of ten feet, five feet were allowed for arms and equipment, and nine feet for packhorses or other beasts of burden.

While it is certain that in the great legionary fortresses, and also in Newstead, the principle of the system described by Hyginus underlay the whole arrangement, it is quite clear that considerable latitude was permitted in its application, both as regards the space covered by the *strigae* and as regards the number of huts which they contained. At Novaesium we find thirty-one of these double lines each longitudinally divided by its street or court. Twenty-one of the *hemistrigia* contain eleven rooms. In this respect they resemble the blocks at Newstead. There is, however, an important difference. At one end of each line is a larger house projecting beyond the line of huts, in some degree resembling the projection at the end of Block No. I at Newstead. This is generally recognised as the dwelling of the centurion. The two projections belonging to each pair faced one another, while on either side of the road beyond there ran a line of posts or pillars, which must have supported a verandah. Attention has already been drawn to the fact that both of these features are to be seen reproduced in the first century fort of Gellygaer. At Lambaesis, which originally dates from the reign of Trajan, the barrack blocks have thirteen huts in each line, and the line terminates in a larger dwelling like the houses believed to have been occupied by the centurions at Novaesium. M. Cagnat thinks it possible that ten of the thirteen huts at Lambaesis were occupied by the eighty men of the century, each hut being allotted to a *contubernium* of eight men, while the three that remain might have been used as offices,¹ or as the quarters of the officers of lower grade, such as the *optio* or the *tesserarius*. It is to the shrines of these barrack blocks that he attributes three inscriptions found at Lambaesis, dedications to the *genius centuriae* by the *optiones* or by veterans.

The eleven huts of the Newstead row might have been distributed ten to the men and one to the inferior officers, but we have no trace of the centurion's dwelling. It seems probable that, in the interval that elapsed between the erection of the buildings at Lambaesis, Novaesium, and Gellygaer, and the final occupation of Newstead in the second half of the second century, some modification had been made in the plan of such barrack buildings. Discipline was to a certain extent relaxed, and probably greater space allowed to troops. Certainly in the barrack lines at Lauriacum² on the Danube, a legionary fort dating from the time of Marcus Aurelius, the

1 Cagnat, *Les deux Camps*, p. 54.

2 *Der Römische Limes in Österreich*, Heft viii, Taf. ii.

barrack blocks are divided into twelve huts of more or less uniform size and character, and the centurion's dwelling is absent.

Unfortunately, the remains of the Newstead huts gave no clue to their internal arrangements. It is, however, probable that they were to some extent divided by partitions. This was the case in the legionary forts, and apparently also in the barrack blocks at Housesteads. At Novaesium each hut is divided into two unequal portions. In the inner and larger room lay the men, and in the outer one were stored the arms and baggage, while it has been suggested that, following the Hyginian plan, the beasts of burden were haltered below the verandah. At Lambaesis and at Lauriacum the internal arrangements of the barrack huts are revealed still more clearly. In both of these fortresses we have the large inner room for the men, while the outer room is divided into an entrance passage and a small room, partitioned off for the arms and stores. There can be little doubt that a somewhat similar arrangement must have obtained in a permanent fort such as Newstead. Whether the animals were tethered in front of the huts is more doubtful. We have no trace of the covered verandah, which would be almost essential for this purpose in the rigours of a Caledonian winter, and it may well be that, in the comparative security of a walled fort, the animals were no longer tied by the tent-doors, but were housed more suitably elsewhere.

In the Retentura of the fort there are two classes of structure to be dealt with—long narrow buildings which are obviously barracks, and others whose identification presents greater difficulties.

The Retentura

Block XVII, measuring 198 feet by 37 feet, lay in the rear of the courtyard house. The walls were two feet in thickness, and in places they were still standing to a height of two feet, showing four courses of hammer-dressed masonry. A single buttress was noted supporting the wall on the east side. The building was probably entered at the south-east end from the Via Quintana. A corridor, nine feet wide, ran along the west side, giving access to the various rooms. At the north end it was crossed by a number of dwarf walls set apart at irregular intervals, with air passages between, intended no doubt to keep the building dry, or perhaps to heat it. There were, however, none of the usual signs of a hypocaust. This building has perhaps a parallel in Block XI at Housesteads which occupied much the same position. At Housesteads one of the rooms contained an apsidal structure, possibly the remains of a bath, which helped, along with other features, to differentiate the block from the ordinary

groups of barrack huts. In length, Block XVII at Newstead did not differ much from the Blocks I–XII in the Praetentura, but its internal arrangements seem to have been different. Besides, were we to include it as a barrack with the blocks lying beside it on the west, the plan would present the unusual feature of seven blocks placed side by side, whereas in the Praetentura they are placed, as in other forts, in pairs. It is not improbable that the building may have been the quarters of the superior officers' commanding the troops who lay in the barracks beside it on the west.

A Workshop

Block XVIII occupied a space of fifty-one feet by sixty feet. It lay immediately to the north of the preceding, and was strongly built on a foundation of cobbles. A hedge with some large trees crossed it diagonally, and this rendered thorough examination difficult. But it may be noted that no traces of cross walls were discovered, and nothing of the interior arrangements, beyond a large flagstone on the west side, which from the burnt appearance of the clay beside it might have been a hearth. It is not easy to point to a similar building in any fort hitherto excavated elsewhere. The position is that of the *Quaestorium*, or office occupied by the paymaster, on the Hyginian plan. The title has been applied to buildings found in the Limes forts in Germany, but the correctness of such an attribution appears to be very doubtful.¹ The position and size of Block XVIII seem rather to indicate that it may have been a workshop.

Between Blocks XVII and XVIII lay a small building which was not in alignment with either, and which was founded at a lower level. It occupied a space of forty feet by twenty-five feet. The walls were two and a half feet thick, and seemed to have been built almost entirely of whitish yellow sandstone, and to be founded upon one foot's depth of broken chips of the same stone lying on a bed of sand. At one point the wall was fifteen inches high and showed two hammer-dressed courses. The whole floor was covered with river cobbles laid in finely puddled clay. The relative level of this building as compared with that of Block XVII is shown by the fact that the highest point of its wall lay from four feet nine inches to five feet below the modern surface, while that of Block XVII, of which the same height remained, was little more than eighteen inches down. A

¹ Von Domaszewski expresses the opinion that there is not the smallest proof of the provision of a *quaestorium* for a permanent camp. *Neue Heidelberger Jahrbücher*, Band ix. p. 145, note 44.

drain which passes through the 'reducing wall,'¹ near this point had been carried through the building. The method of foundation, and the depth at which it lies, associate this small structure with the early walls lying below the Principia and Block XIV in the Praetentura. All probably belong to the same period. Its size suggests a single hut in a barrack line. But it was unfortunately discovered towards the close of our work in this area, and at a time when it was impossible to ascertain whether any similar huts lay beneath the adjoining buildings.

The Stables

To the north of Block XVIII lay a building covering a space of 280 feet by 40 feet, and therefore exceeding in length anything else in the fort. Like most of the other buildings it was founded on cobbles, and it had walls of sandstone two and a half feet thick. The outline of the whole was uncovered, and zigzag trenches were carried from end to end of the building. These latter failed to bring to light any signs of partitions or cross walls. Near the north end, however, on the east side of the building, was the foundation of a wall forty feet long, which had probably belonged to some earlier building. Pottery was almost entirely absent, and of the few metal relics discovered a small bronze key was the most noteworthy. Immediately to the west of Block XIX there was traced a trench running parallel to it, and extending the whole length of the wall. It appeared to have been employed for a foundation, though all traces of stonework had disappeared. Possibly it had belonged to a second block of equal size. At Gellygaer, which in the opinion of some scholars has been planned for the occupation of a *cohors quingenaria equitata*, we have a long building (Block IX) occupying a space of about 147 feet by 40 feet, and divided longitudinally by a single partition wall. This was probably used as a stable for the horses of the cohort.² The building at Newstead, covering nearly double the area of that at Gellygaer, is practically the same width, and may well have been employed for the same purpose.

Barracks in the Retentura

To the south of the road, in the space which lay between Blocks XVII and XVIII and the rampart, was a series of barrack blocks. The remains were very scanty, often not more than a single stone of the footing of the walls being left. The walls appear to have been about two feet in thickness. The

1 See p. 33 *supra*.

2 Professor Fabricius, in discussing the plan of Gellygaer, allocates this building to the cavalry: *Römisch-germanisches Korrespondenzblatt*, 1908, p. 34. See also the opinion expressed by Professor Ritterling, *Kastell Wiesbaden*, p. 40, footnote.

buildings were arranged in six blocks, forming three *strigae*. Only one of these (Block XXV) could be traced for its entire length to the edge of the road leading to the west gate. It measured 270 feet. It seems likely that Blocks XX to XXV were of the same length, and that they also extended northward to the road. Block XX was probably shorter. Its width, thirty feet as compared with fifteen feet in Block XXV, would more than compensate.¹ Although the excavation gave unsatisfactory results owing to the scanty nature of the remains, it seems plain that in these *strigae* we have the same system that had been followed in laying out the barracks of the Praetentura. The walls of the blocks, however, are continuous. Besides, the blocks themselves were, with the exception of No. XX, much narrower, and accordingly the huts were so arranged that they lay with their greatest length towards the street. Hardly any of the cross walls were found, but Blocks XXIII and XXV each furnished one complete hut which serves to give an indication of the rest. These huts measured respectively twenty-one feet by seventeen feet and twenty-one feet by eleven feet. As has already been noted the size of the huts in the Praetentura (Blocks I to XII) varied slightly. If this variation is allowed for, it will be found that the measurements of the two huts of the Retentura, and therefore presumably their fellows, go far to indicate that Blocks XXIII and XXV were similarly sub-divided into ten or eleven huts.

Barrack Yard

In the space which lay to the north of these *strigae* there was no trace of any corresponding buildings. The ground was carefully trenched down to the subsoil, but, with the exception of a large circular oven, nothing was discovered to suggest that the space had ever been occupied. This oven was of the usual horse-shoe type. It lay almost on the line of the rampart of the early fort to which it possibly belonged, and close to the street leading to the west gate. The wall stood about one and a half feet high, and was composed of cobbles and stone from the Eildon Hills embedded in clay. The wall showed a batter on the exterior. The opening of the oven lay towards the east. The clay was of an orange red colour, showing that it had been exposed to fire. Remains of two other smaller ovens lay beneath Block XXV, and were apparently of earlier date. The ground of this area appeared to have been covered with coarse gravel. It is curious to note that even in the earlier fort, to which

¹ We have already noted in the Praetentura the greater length of Block I to compensate for its smaller width.

the barrack buildings just described cannot possibly have belonged, the signs of occupation were much greater in the southern than in the northern half of the area. The Agricolan ditch north of the west gate yielded almost no relics. The same ditch on the south contained many fragments of pottery, pieces of leather, and metal objects which had been thrown into it. If, as seems probable, the cavalry of the garrison was stationed in the Retentura, we may see in the *strigae* here the quarters of the men, and in the long building (Block XIX) the stables for their horses, while the open space on the north would form a convenient barrack yard.

The Garrison

While the information obtained from the exact subdivision of the Newstead barrack blocks enables us to arrive at some approximate estimate of the size of the garrison, we are unable to speak definitely as to the troops which composed it. The absence of inscriptions is much to be regretted, for those found in the course of the recent excavations add little to what was already known from the discoveries of altars in the eighteenth and nineteenth centuries. Altogether, we have from the site three altars bearing dedications by G. ARRIUS DOMITIANUS,¹ centurion of the Twentieth Legion Valeria Victrix, three stones bearing the legion's cognizance, a boar, and one fragment of a tablet, which appears to refer to the same legion. We have also a dedication of an altar by AELIUS MARCUS,² decurion of the Augustan Ala of Vocontii, and another by L. MAXIMIUS GAETVLICVS,³ who simply styles himself a centurion of a Legion, but who is no doubt identical with LVCIVS MAXIMIUS GAETVLICVS, a centurion of the Twentieth Legion, whose altar dedicated to Jupiter Dolichenus has been found at Aesica.⁴ These dedications are all by individuals, and from none of them do we learn the precise capacity in which the dedicators were present at Newstead. Was G. ARRIUS DOMITIANUS, who is responsible for no less than three, or L. Maximius Gaetulicvs, in command of legionary troops? Or were either of them seconded to command a garrison of auxiliaries? Were these soldiers contemporaries? Or do their dedications date from different epochs of the fort's history? These are questions which so far we are unable to answer with confidence. The altar of G. ARRIUS DOMITIANUS, which was found in the pit in the Principia,

1 (1) DEO SILVANO PRO SALVTE · SVA ET SVORVM G·ARRIVS DOMITIANVS > LEG XX·V·V·V·S·L·L·M.
 (2) I · O · M · G · ARRIVS DOMITIANVS > LEG XX · V · V · V · S · L · L · M.
 (3) DIANA REGINAE : G · ARRIVS DOMITIANVS > LEG XX · V · V · V · S · L · L · M.
 2 CAMPESTR(IBVS) SACRVM AEL(IVS) MARCVS DEC(VRIO) ALAE AVG(VSTAE) VOCONTIORVM
 V·S·L·L·M.
 3 DEO APOLLINI L · MAXIMIUS GAETVLICVS · > LEG. 4 *Archaeologia Aeliana*, vol. xix. p. 271.

had been placed there after the reign of Hadrian. The other two altars which bear his dedication both appear to have come from the ditch of the east annexe, which cannot belong to the earliest period of occupation. The *nomen* Aelius of the decurion Aelius Marcus suggests that he lived not earlier than the reign of Hadrian. The few fragments of pottery associated with the altar of L. MAXIMIUS GAETVLICVS indicate that it had been thrown into the pit in which it was found during the second century.

Probably, then, all of the altars belong to the second century. At the same time the evidence they convey is insufficient to determine the garrison of the fort at any one period. On a permanent frontier, such as we have in the German Limes, the legionary troops were stationed in the rear—in the great fortresses at Windisch, at Strassburg, at Mainz, at Bonn,—while the auxiliaries held the chain of smaller posts that marked the actual line of the frontier. Such obviously was the case in Britain too during the more or less settled period which appears to have followed the advance of Lollius Urbicus. The legions lay at York and at Chester; the auxiliaries—Tungri, Baetasii, Hamii, Nervii, and others—occupied the posts on the Wall of Hadrian and the Vallum of Pius, as well as on the lines of communication. There is no doubt, however, that the legionary troops took part in the expeditions into the north and in the building of the Vallum of Pius. The Ninth, the Second (Augusta), and the Twentieth Legions, possibly also the Second (Adjutrix), accompanied, or may have accompanied, Agricola in his expedition into Caledonia. The Second (Augusta), the Sixth, and the Twentieth Legions all took part in building the Antonine Vallum, and we find the traces of legionary troops as well as of auxiliaries in more than one of the Roman forts in Scotland. From Castlecary, we have inscriptions commemorating the Second and Sixth Legions and the First Cohort of Tungrians.¹ From Birrens we have inscriptions of the Sixth Legion, the Second Cohort of Tungrians, and the First Cohort of Germans styled Nervana.² The evidence from the inscriptions on the Wall of Hadrian seems to prove that from time to time advanced posts were garrisoned by legionary troops, as, for example, the dedication of an altar to the god Cocidius by soldiers of the Twentieth Legion, which was found in a mile castle to the west of Birdoswald, and is now at Lanercost.³ As a matter of fact, the presence of this legion in the north is attested by many inscriptions, not only

1 *Proceedings of the Society of Antiquaries of Scotland*, vol. xxxvii. pp. 75, 78.

2 *Ibid.* vol. xxx. p. 47 ff.

3 Bruce, *The Roman Wall*, p. 268.

from the line of the wall, but also from forts in front of it, as at Netherby, or in its rear, as at Lanchester.

At Newstead the three altars of G. ARRIUS DOMITIANUS give him no title higher than that of centurion, nor have we evidence of any other kind that he was set over a garrison of auxiliaries, though instances of such employment of a centurion are known elsewhere. But the mere fact that he appears to have dedicated three altars suggests that he was a personage occupying a position of prominence. That L. MAXIMIVS GAETVLICVS belonged to the Twentieth Legion seems evident from the altar found at Aesica. [1] Of the three representations of the boar, the symbol of the legion, two at least are on heavy stones that must have formed parts of buildings. The fragmentary inscription from the upper level of the pit in the Principia is too incomplete to base theories upon, but it also has evidently dealt with the Twentieth Legion. When we add to the testimony of these stones the indications of change and alteration, gleaned from the foundations of the fort, and confirming what we may learn from history of the short and somewhat insecure hold that the Romans gained in Scotland, it would clearly be unsafe to conclude that the garrison of Newstead was necessarily an auxiliary force. Rather, it appears probable that at one period of its existence the fort had held a contingent, possibly a vexillation, of the Twentieth Legion; but the evidence seems insufficient to enable us to define this period with certainty.

The general plan of the fort suggests that the barracks of the Praetentura were constructed for infantry, and that the Retentura was laid out for the occupation of cavalry, and we might suppose that in its latest period the soldiers of the Twentieth Legion occupied the lines of barrack blocks of the Praetentura, while the horsemen of the Vocontian *ala* were quartered in the Retentura. When, however, we endeavour to dispose of this force in the buildings discovered, the scheme is not without difficulties. The sixty centuries which composed a legion were grouped in ten cohorts each consisting of three maniples. At Lambaesis three *strigae*, forming the barracks of a cohort, are to be seen on either side of the Porta Praetoria. The same arrangement existed at Novaesium, and we have a similar disposition of the buildings at Newstead. In both of these larger forts we are dealing with the housing of legionary troops, and we know that the legionary century of the time of Hyginus was composed of

1 We have a parallel instance at Auchendavy on the Antonine vallum where we find four altars dedicated by the centurion M. COCCEIVS FIRMVS of the Second Legion AVGVSTA.

eighty men, and that in each of its ten tents eight men were quartered, making a total of 480 for the legionary cohort. Accordingly, if we assume that the inscriptions found at Newstead give us a clue to the nature of the garrison in its final period, we must place in the barracks of the Praetentura two cohorts of 480 men, in all 960, and in the barrack blocks of the Retentura the horsemen of the Vocontian *ala*.

Of the history of this *ala* we know little. At some time in the first century it appears to have been stationed in Lower Germany. But it was specially associated with Britain, for an inscription found at Hemmen in Germany bears a dedication by a decurion who styles himself '*decurio alae Vocontiorum exercitus Britannici*,'^[1] a descriptive title doubtless used to distinguish it from another *ala Vocontiorum* which was stationed in Egypt. If we assume that it was a force nominally of 500 men, an *ala quingenaria*, it would probably consist of 480 men divided into sixteen *turmae* or troops each containing 30 men, and each commanded by a decurion. As the officers of each troop—the decurion, the *duplicarius*, the *sesquiplicarius*—had each more than one horse, the horses of the *ala* might number as many as 544. Now, if we assume that the men of the *ala* occupied the barrack buildings of the Retentura, and that the long building to the north (Block XIX) was their stable, we are met with the difficulty that the accommodation for the horses would obviously be insufficient, unless indeed we were to assume, from the single foundation trench lying to the west, that a second block of the same size lay beside it—an assumption which the evidence is, perhaps, too slender to justify.

If, again, we suppose that the garrison was, during the last period of occupation, a purely auxiliary force, the numbers must be estimated on a somewhat different basis. The auxiliary cohorts were either *miliariae* or *quingenariae*, that is, they had nominally a strength of 1000 or 500 men. They were primarily infantry forces, but most of them were *equitatae* or furnished with a certain proportion of mounted men. A *cohors miliaria equitata* was composed of 240 horsemen, or ten *turmae* of twenty-four men, and of 760 infantry. The infantry were quartered in ten centuries. On the other hand, a *cohors quingenaria equitata* was composed of 120 horsemen and 360 infantry, or 480 men in all. The infantry were quartered in six centuries, each of sixty men. Now the twelve barrack blocks of the Praetentura at Newstead were not apparently constructed to hold a *cohors*

1 *C.I.L.* xiii. 8805.

miliaria. On the other hand, it is possible to adopt the view of Professor von Domaszewski,¹ and argue that they were intended to hold the infantry of two *cohortes quingenariae equitatae*—360 men on each side of the gate. That the number of occupants in each hut should be reduced to six instead of ten, as in the auxiliary encampments referred to by Hyginus, von Domaszewski attributes to the relaxation of discipline which had taken place in the interval, bringing with it larger ideas of comfort. In the Retentura, according to this hypothesis, there would be stationed the 240 horsemen of the cohorts. In Block XIX there would just be space to accommodate the horses of the two cohorts, tethered in two double lines.² In any event, it is apparent that in its final period the number of the garrison cannot have been more than 1500. Nor can it have been less than 1000, for any smaller force would have had difficulty in holding the circuit of its walls against a determined foe.

1 'Das Lager bei Newstead' *Römisch-Germanisches Korrespondenzblatt Jahrgang ii.* p. 40.

2 In arriving at the space necessary to accommodate this number of horses, we have to acknowledge the help of Professor Ewart and of Colonel H. J. McLaughlin of the Army Remount Department.

CHAPTER V

Traces of Successive Occupations

Records of Change

ON many of the Roman sites which have been excavated, both in this country and on the continent, we find evidences of changes and alterations—traces of successive occupations. Forts rapidly constructed to hold an expeditionary force were strengthened as settlement became more permanent. New methods of fortification gave place to old. Increased garrisons made enlargement necessary. These were among the more obvious causes of the phenomena that have been observed. Abroad, for example, the various occupations brought to light at the Saalburg, at Kapersburg, and at Zugmantel have been already noted. The changes which have been revealed in these cases through the recovery of the ground plans, have in others been commemorated by inscriptions. Thus, an inscription from Dacia of the year A.D. 140 tells of an addition to the size and strength of a fort which had become too small for its garrison.¹ The inscription telling of the restoration of the walls of a fort from Bumbesti in Wallachia has already been cited.²

Again, in England on the line of the great road leading from the Wall of Hadrian into Scotland, we have evidence of restorations of older work both at Bremenium and at Habitancium. At Bremenium a cohort of the Varduli commemorate the entire reconstruction of a *ballistarium*.³ At Habitancium a tablet in honour of the Emperor Septimus Severus and his sons Caracalla and Geta celebrates the rebuilding of the gate with the walls. '*Portam cum muris vetustate dilapsis a solo restituit*.'⁴ Lastly, in Scotland the excavation of Birrens brought to light beneath the buildings

1 IMP. CAES. TITO AELIO HADRIANO ANTONINO. AUG. PIO. TRIB. POT. III. COS. XII. CASTRA N. BURG(ARIORUM) ET VERED(ARIORUM) QUOD ANGUSTE TENDERET DUPLICATO VALLI PEDE ET IMPOSITIS TURRIBUS AMPLIAVIT PER AQUILAM FIDUM PROC. AUG. *C.I.L.* iii. 13796.

2 See *supra*, p. 28, footnote 2.

3 Bruce, *The Roman Wall*, p. 322; *C.I.L.* vii. 1045.

4 *Ibid.* p. 336; *C.I.L.* vii. 1003.

actually planned, some traces of still older erections, while at Bar Hill a fort apparently of the Agricolan period lay beneath the fort of the Antonine age. Unfortunately at Camelon the different occupations have not been accurately defined. But both there and at Ardoch it was quite evident that there had been more than one.

So it had been also at Newstead, and, as the work of excavation progressed, it became possible to estimate the nature of the alterations which had from time to time been made on the original plan. From modifications of buildings, fillings of ditches, changes of levels, the story of the different phases through which the fort had passed was gradually unfolded. It will be convenient, even at the risk of some repetition of facts already stated, to bring together this evidence in the order of its discovery.

Evidence of two or more Occupations

Before the digging had proceeded very far, it became apparent that at least two occupations had to be dealt with. The foundations of the long buildings in the Retentura were clearly lying on disturbed soil. This gave the first indication, and the discovery of the ditch of the early fort passing beneath the clay rampart of the later occupations, and having at one point the drain of a later period built into it, provided ample confirmation. But it was not until the central buildings came to be investigated that alterations were observed which pointed to three and possibly four separate reconstructions, each of which suggested a distinct period of occupation. Finally the alterations on the earlier gateway of the later fort on the south supplied the evidence of probably a fifth period. The alterations in the buildings were most plainly marked in the Principia. The large hall which had been thrown over the Via Principalis was undoubtedly later than the outer courtyard to which it was attached. The walls of both were founded on cobbles, but at the point of junction on the north side, the cobbles of the west wall of the hall stood on a level with the top of the scarcement of the north wall of the Principia. Again, at the end of the inner courtyard the treasure vault in the Sacellum proved to have been no part of the original chamber. Its walls were built of old material, and were not in alignment with the walls of the Sacellum itself. Its foundations were lower than those of the room in which it stood, and in laying them the cobble foundations of the main walls had been exposed. The method of putting down these foundations by cutting a trench and filling it with river cobbles has already been explained. To remove the side of one of them was to weaken it, and it hardly seems possible that

in erecting two walls side by side contemporaneously, such capable builders as the Romans would thus have left one of the bases uncovered, especially in view of the small difference in level. In the clay of the floor, too, were relics of an older period. Moreover, as we have already seen, such vaults have been noted as later additions at Butzbach in Germany and at Brough in England. Once more, the wall dividing the outer from the inner court lay on disturbed soil, and considerably higher than the foundation of the row of pillars to the west. In the outer court the pillars on the south side showed signs of alteration.

It seemed quite plain that we had here two occupations, in both of which the building had had its principal entrance from the same main street on the east. But the early system of ditches could not belong to either of these occupations. Not only did the ramparts of the later occupations lie over them, but the barrack buildings on the east were actually built above them. The south gate of the early fort lay almost at the end of the later Via Quintana, the street which, running parallel to the Via Principalis, crossed the fort immediately to the west of the Principia.

Four Occupations

We were thus in possession of proof of three occupations. So far, however, no evidence was forthcoming to show why, in enlarging the position of the fort, the early entrance to the south had been abandoned, and the line of the Via Principalis moved further to the east. The first definite indication of four occupations was obtained in the excavation of the gates on the south side. At the end of the Via Principalis it was found that the ditches had been filled up with river stones to allow the road to pass over them. In the large ditch immediately in front of the wall, which was undoubtedly later than the first occupation, nine feet of black silt lay below the cobbles. It was clear from this that at an earlier period the ditch at this point must have been open, and that either it must have been crossed by a drawbridge, or there must have existed elsewhere another entrance, which had subsequently been superseded by the road, to carry which the ditch had been filled up. As the Via Principalis of the plan had clearly been used during two occupations, its continuation crossing the ditches at this point, the earlier entrance (if it existed) must have marked an occupation intervening between the oldest occupation of all, with its peculiar gateways, and the two later ones. It must have been an occupation during which a great strengthening of the defences had taken place, and during which the road doubtless passed out on solid ground.

Careful search revealed no trace of a drawbridge, but an examination of the ground at the south end of the Via Quintana brought to light the heavy bottoming of a road crossing the early ditch and passing beneath the rampart, to disappear again where it was cut by the later ditches. Here, then, was the position of the earlier gateway we had been in search of. It was, indeed, natural that it should be so, as the main road from the south in the earliest occupation had entered almost at this point. The disappearance of the road on the line of the later ditches proved that, with the formation of the gate at the end of the Via Principalis, this gate had

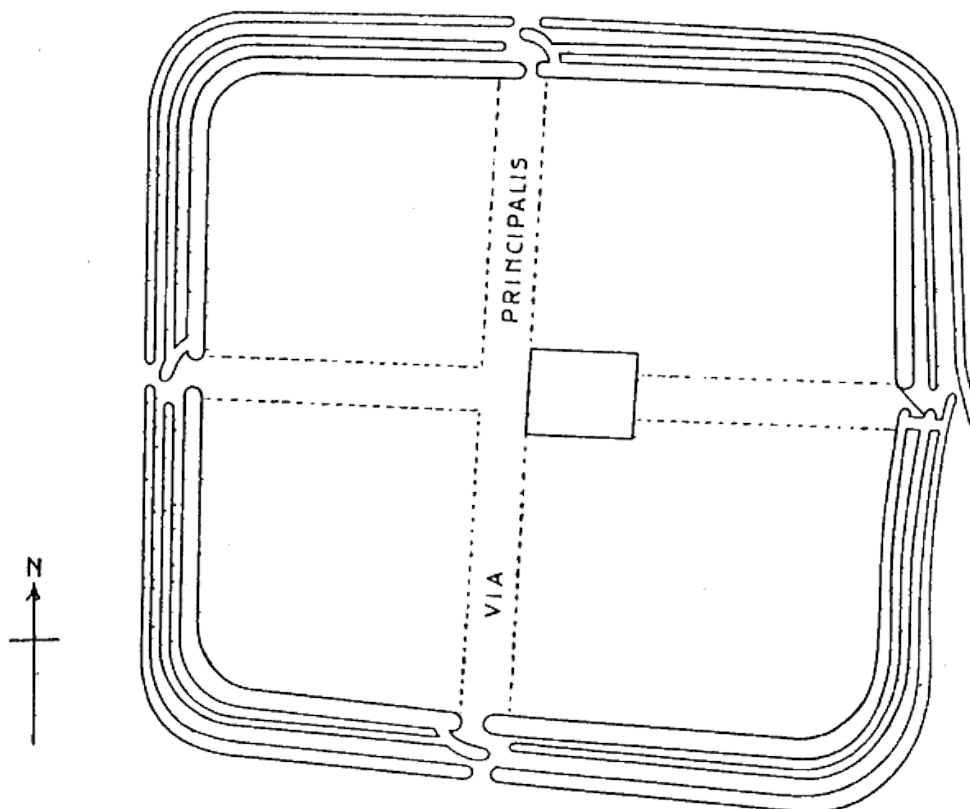


FIG. 3. PLAN OF THE LATER FORT IN ITS FIRST PERIOD.

The position of the openings in the outer ditch opposite the north, south, and west gates can only be inferred.

been closed and the ditches carried through the roadway. The position of the earlier gate was further confirmed by an examination of the double ditches surrounding the annexe to the south. Here the road from the Via Quintana passed out on solid ground, the ditches stopping on either side of it, while the road from the Via Principalis was carried over ditches which had been filled up for the purpose with river stones. It was thus apparent

that after the abandonment of the Agricolan fort there came a second occupation, during which the Via Principalis ran on the line of the later Via Quintana.

As we have seen, the ground plan of a Roman fort was laid out on certain well-recognised lines. In every rectangular fort of the type of Newstead there were at least four gates, one on each side. The position of these gates governed the position of the buildings in the interior. The Principia was placed as near as possible to the centre. It stood midway between the two end gates, facing one of them. The road traversing the fort between the two remaining gates passed in front of it.¹ Now if we apply this rule to the second occupation at Newstead, the line then taken by the road traversing the fort from north to south makes it practically certain that the Principia, if it occupied the usual position, must have faced the west, following no doubt in this the position of the corresponding building of the Agricolan occupation.

The strong buttressed building, lying immediately to the south of the Principia, showed evidence that it had faced the west. It was a well-built structure, exhibiting no marks of reconstruction. Its loading platform was placed at the west end. The level of the roads at either end seemed to have risen against it, indicating that it belonged to an early period. It cannot, however, have been associated with the oldest occupation of all, as a pit lay underneath the foundations of the east wall, while the walls of a large building were found to pass below it. These walls correspond in alignment and in method of construction with the early walls lying at the east end of the Principia. The latter enclosed a space projecting from the east end of the Principia into the Via Principalis, and they had been cut through in laying the cobble foundations of the Principia wall. The conclusion suggested was that they belonged to the first occupation of the fort, the Principia of which faced west; that the south buttressed building belonged to the second, or possibly third, occupation, and, with the contemporary Principia, had faced west, but that in the two latest occupations the Principia had been turned round, probably without any alteration of the foundations of its main walls.

1 A seeming exception to this rule occurs in the fort at South Shields, but there is reason to suppose that there the peculiar position of the Principia is the result of an enlargement of the fort, in which the gates had been altered and the building left in its old position. Bosanquet, 'The Roman Camp at Housesteads,' *Archaeologia Aeliana*, vol. xxv. p. 244.

Nothing had as yet emerged to furnish an explanation of the changes in the ground plan that have just been indicated. The reason, however, became clear when in 1907, in tracing the walls of the barrack blocks in the Retentura, there came to light the foundations of the heavy wall, six feet in width, crossing the fort from north to south parallel to, and about seventy feet from the west side of; the Via Quintana, which has already been referred to as the reducing wall. It had a gateway flanked by guard chambers at the point where it crossed the main road that ran from east to west. The new wall had evidently been erected in order to reduce the size of the fort.

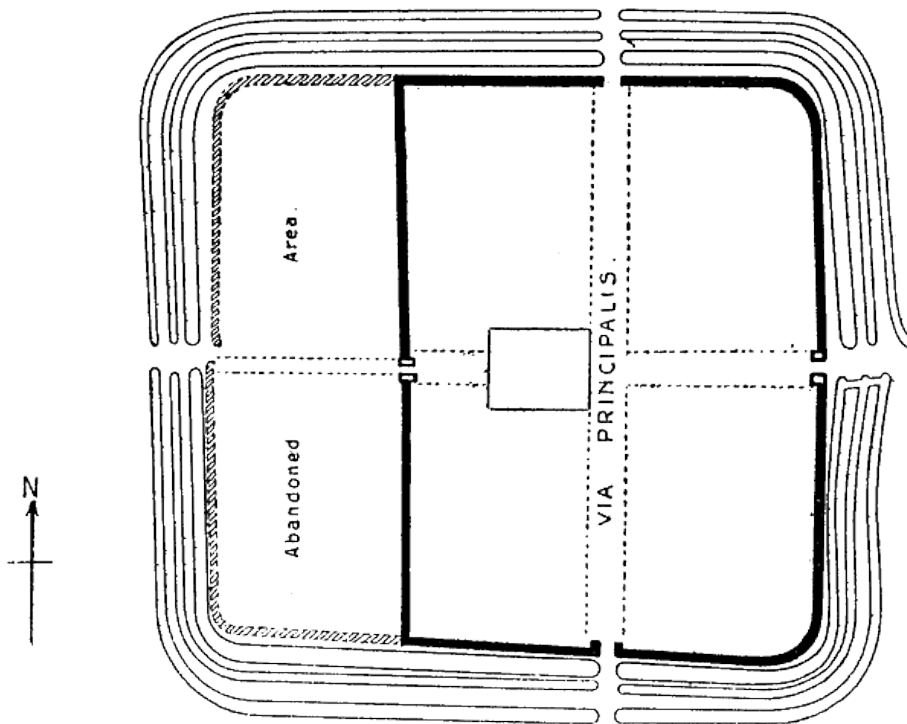


FIG. 4. PLAN OF THE REDUCED FORT

The Reduction in Size

The area cut off comprises the lowest and wettest portion, and the black, peaty matter, which lies over it, would suggest that at one time it had been flooded. In extent it measures about one-third of the whole space originally enclosed, and its abandonment would appear to indicate a definite period of occupation. With the reduction in the size of the fort the existing lines of road ceased to be in accordance with the recognised plan. The street which served as the earlier Via Principalis no longer formed the central artery of communication, and the Principia, if left facing the west,

would have had its entrance close to the new western gate, and would not have been in its proper central position. The north and south gates, and with them the line of the Via Principalis, were accordingly moved further towards the east, and we may safely infer that with this change of gates the Principia underwent alteration and was turned round. In its reduced form, the interior plan of the fort, with its comparatively small Retentura, must have resembled that of Wiesbaden.

As already noted, the alterations within the Principia had convinced us that the building had faced the east during two separate occupations. The facts ascertained regarding the wall reducing the size of the fort gave further confirmation to this opinion, because clearly the period of the construction of the reducing wall, which must have necessitated the turning round of the Principia, was followed by a period in which the wall was removed. Not only were its gate towers buried beneath the gravel road of the final occupation, but the wall itself had been utilised for the foundation of the front wall of Block XX, while buildings and drains of later construction lay in the area which had formerly been abandoned. In fact, the change in the direction of the Principia, at first adopted through pressure of necessity to suit the altered size of the fort, was continued when the fort was again enlarged. This was probably due to a natural desire to simplify building operations, for the method of foundation employed in the later occupation lent itself readily to reconstruction on the old lines. The trench carried down to the subsoil, with its large river stones laid in puddled clay, formed a base indestructible by fire or weather, and so long as the outline and size of the building remained the same, the foundation might be used for several successive rebuildings.

Unfortunately at Newstead the demolition had been so complete that with a single exception doorways were entirely obliterated, and with them many details which would have rendered it more easy to follow the various reconstructions. But certain points were clear. The north buttressed building showed evidence of rebuilding on an old foundation. Heavy blocks of river stone embedded in clay served to support inferior masonry in which were a broken quern stone of Niedermendig lava, bricks, and other old material. It was interesting to compare this with the remains of the south buttressed building in which, although the foundations were the same, the superstructure was of well-built hammer-dressed sandstone. No doubt the size and number of those storehouse buildings were always proportionate to the extent of the garrison. Consequently, with the abandonment of the original Praetentura one

would suffice. It is probable that both were erected in the second, or possibly third, occupation, but that with the restriction of area marked by the erection of the reducing wall, the northern building was dismantled, to be again rebuilt when the size of the fort was once more increased. It is easy to understand why the south building should have been selected for retention. It would lie nearer to cultivated ground, and to the highway that linked the garrison to civilisation and to Rome.

Abandonment of the Clavicula-shaped Ditches

In dealing with the excavation of a large area, particularly under pressure of a consciousness that ploughing or sowing await the filling in of long open trenches, it is only too easy to pass over slight indications which may lead to the discovery of valuable pieces of information; and thus two important traces of change were only discovered towards the end of the digging. At the west gate of the fort an arm of the great ditch, in outline resembling an everted clavicula, had been, as already mentioned, thrown across so as to cover it. It was apparent that before the final abandonment of the fort this arm had been filled in, for the strong cobble foundations of a road were found to be carried across it. The pottery which it yielded was all of an early type. It thus looks as if the second period of the occupation of Newstead had taken place at a relatively early date, one not far removed from the invasion of Agricola, while the entire absence of later pottery suggests that the overlapping ditch had not been open for any great length of time. No similar ditch was found in front of the east gate, but then the gateway was covered by the prolongation of the outer ditches overlapping one another. It had also the further defence of the looping together of the ditches on the south side of the road and the diagonal palisade drawn across the entrance. The same form of defence observed on the west was, however, found in front both of the north gate and of the south gate, and here also it had been filled up, and was crossed by the road entering at the south end of the later Via Quintana, the original Via Principalis. The earlier gate of the south annex was similarly protected. We have thus evidence that before the reduction in the size of the fort the fortifications of the second period underwent an important alteration inasmuch as the overlapping ditches in front of the north, south, and west gates were filled up. The traces of the road in front of the east gate were too slight to make it possible to prove that at the same time the ends of the ditches overlapping the gate were filled up and the palisade across the roadway abandoned, but it is probable

that such was the case. While it is possible that this only means that some strengthening of the defences had rendered these ditches unnecessary, it is more probable that it indicates yet another distinct occupation. Generally speaking, such devices of fortification as the *titulus* and the *clavicula* appear to be characteristic of the forts with earthen ramparts. In the stone-walled forts with stronger gateways they must have ceased to be employed, and the natural inference is that the abandonment of these *clavicula*-shaped ditches, which took place at a comparatively early period, coincided with the erection of the surrounding wall. This is the more likely as we find that in the reduction of the size of the fort in the succeeding period the new defence on the west consisted of a wall. It is improbable that this wall would have been erected had the rest of the defences consisted simply of earthworks.

The second sign of change discovered towards the close of the operations was as follows. The barrack blocks in the *Praetentura* were traced out in the winter of 1906–7, and in the succeeding autumn two trenches were cut across the area from north to south, in the hope of finding earlier foundations. But it was not till the spring of 1968 that, during the investigation of the ditch of the early fort, the heavy foundations of a large building were discovered at the south-east angle of the fort, lying beneath the later barrack blocks. They could not have belonged to the first period, as they were carried over the ditch of the early fort, and it is therefore probable that they must be assigned to the second period.

The Phases of Occupation

It will be convenient to summarise the several phases of occupation thus indicated. *First*, there was erected a fort of somewhat irregular form with an earthen rampart, and having its gateways at right angles to the line of its ramparts. *Second*, this was succeeded by a fort more regular in form and somewhat larger in area, defended by a rampart and triple ditches, *clavicula*-shaped or overlapping ditches, being cut in front of at least three of the gates. *Third*, we have the same fort, but with these overlapping ditches filled up. It is probable that this phase of the occupation was accompanied by the building of the wall. *Fourth*, there came an occupation marked by a reduction in the size of the fort, and by the construction of the wall parallel to the *Via Quintana*. And *Fifth*, we find a return to the area of the second and third occupations.

CHAPTER VI

The Annexes of the Fort and their Buildings

IN a number of the Roman forts excavated in Scotland—at Castlecary, Rough Castle, Lyne, and perhaps Camelon—we find attached to the main work a subsidiary area, not necessarily, and indeed seldom, rectangular, but fortified to some extent with rampart and ditches. To this area the term 'annexe' has usually been applied. At Newstead we have three such annexes, all somewhat irregular in shape. They lie on the east, south, and west sides of the fort respectively. Each annexe is unconnected with either of the others. The straight line of the defences of the fort forms its boundary on one side. The rest of its perimeter has the shape of a curve.

The west annexe probably enclosed an area of about seven acres, although its exact boundary on the north could not be determined, any more than the precise position of its gates. At its largest extent it certainly dated from the Agricolan period. It had been strongly protected by a line of ditches, varying from two to four in number. Behind these was some trace of a rampart lying on cobble stones. A considerable portion of the ditches was cleared out. From the pottery they contained, it seemed probable that they belonged to the earliest period, and the correctness of this surmise was proved by the discovery that the two inner ditches had passed under the line of the wall of the later fort, and had been linked up with the ditches of the earliest fort. The outer ditch, on the other hand, was connected with the later system. At a subsequent period, when the fort was reduced in size, the size of the annexe appears to have been reduced also, a double ditch being cut in a westerly direction from a point north of the west gate of the fort. One arm had seemingly been carried into the line of the earlier annexe ditches. The other, after running some distance towards the west, was turned sharply round to the north and passed through the sole block of buildings found within the annexe, a block to be described presently. A

PLATE XII. THE VALLEY OF THE TWEED FROM THE FORT

The view is taken looking westward from a point near the Baths and indicates the strength of the position on the north.



gate was placed about the centre of the outer of the two ditches. Both were cleared out for some length, and produced fragments of pottery which appeared to belong entirely to the later period. The south annexe measured about fourteen and a half acres. It was defended by a single ditch which did not seem to be connected with the ditches of the early fort. No part of it was cleared out. This annexe had two gates—an early gate which had been covered by an overlapping branch of the ditch, and a later gate further to the east where this means of defence was not employed. The east annexe measured about 20.7 acres. It, too, was surrounded by a single ditch, and three gateways were noted, one on the north, another on the east, and a third—a small postern gate—on the south-east.

The Use of the Annexes

To understand the use of the annexes we must turn again to the larger legionary strongholds. A legion stationed in such a fortress as Novaesium or Lambaesis was settled there for a number of years, so that there grew up outside of the line of the main defences small settlements which might ultimately develop into towns, as did Cologne and York. In these settlements were to be found the time-expired soldiers and the traders who followed in the wake of the army. Nor was it only for the legionary fortresses that such annexes were required. In Arrian's description of the fort at the mouth of the Phasis on the Black Sea, from which we have already quoted, we have a reference to one of these settlements: 'And since it was desirable to render the harbour secure for the ships and to protect the settlement outside the fort, which was occupied by time-expired soldiers and others who were traders, I decided to cut a ditch from the double ditch which surrounds the fort and to carry it as far as the river. This ditch will include the naval station and the houses outside the wall.'

In the small permanent forts dotted along the German Limes we find many traces of these civil settlements and of houses beyond the wall. At Pfünz, at the Saalburg and at Heddernheim, for instance, there were a variety of buildings lying outside the limits of the camp. At Heddernheim the fort proper occupied one end of a large enclosure bounded by a wall with fortified gateways.¹ At Pfünz a number of buildings, *canabae*, probably small wine shops, as well as dwellings and one or two temples, were scattered along the margin of the highway.² At the Saalburg, where possibly this

1 *Mitteilungen über Römische Funde in Heddernheim*, Heft ii. Taf. iv.

2 *Der Obergermanisch-Raetische Limes*, Lief. 14, Kastell Pfünz.

feature of the life of a Roman fort has been more thoroughly investigated than anywhere else, we have numerous buildings. Along the side of the road leading southward there are lines of *canabae*, each with a cellar behind it and a well. Further out are the temples dedicated to Mithras and to Cybele, and further out still, dotted along the highway, as in every ancient city, are the graves, keeping ever present to the wayfarers on the road the memory of the dead. '*Ave viator vale viator*' is the salutation ending the inscription of a centurion's tombstone at Arlon. Other buildings which lay on the confines of the Saalburg were a bazaar, a temple of Jupiter Dolichenus, some houses, and a larger structure with several apsed rooms, which at first was styled a villa, but which is now recognised as a bath.

The bath was a feature in the life of the permanent fort no less than of the city. It was a recognised institution, probably under the charge of a specially appointed officer. In the smaller Limes forts it almost invariably lay outside. Many examples have been excavated and planned by the experts of the Limes-Commission.

Civil Settlements in Britain

In Britain little has yet been done in the way of excavating these civil settlements beside the forts, and consequently little has as yet been revealed to us regarding the buildings they contained. At Housesteads a shrine of Mithras was discovered beyond the walls. [1] At Chesters a large bathing establishment lies between the fort and the River Tyne, [2] while there is a smaller one outside the fort of Aesica. [3] In Scotland we have in the south camp at Camelton a detached building which is probably a bath. [4] Roy's plan of 'a villa,' discovered at Castlecary in 1769, undoubtedly shows the baths of that station. [5] But by far the most typical of all hitherto discovered in the north is the so-called villa on the outskirts of the fort at Inchtuthil. [6]

At Newstead no buildings whatever were found in the south annexe, although at one or two spots along the side of the earlier road leading southwards patches of cobbles were observed. Here also were many pits and some small wells which probably belonged to the wooden houses which fringed the route. In the annexe on the west, one great block of buildings was discovered, and in these we must recognise the baths of the fort. Unfortunately quarrying had removed almost every stone of value. The walls had been reduced

1 *Archaeologia Aeliana*, Vol. xxv. p. 255 ff. 2 *Ibid.* vol. xii. p. 124 ff. 3 *Ibid.* vol. xxiv. p. 46.

4 *Proceedings of the Society of Antiquaries of Scotland*, vol. xxxv. plate V.

5 *Ibid.* vol. xxxvii. p. 13, fig. 5.

6 *Ibid.* vol. xxxvi. p. 214ff.

to their footings, some had entirely disappeared. In addition to all this, the study of the building was complicated by the effect of recent drainage operations, and still more by the fact that here also we had to deal with the work of several different periods.

The Rooms of the Bath

The plans of Roman baths vary very much. There is not merely the *balneum*, a series of rooms on a small scale intended solely for the purpose of bathing, but also the *thermae*, or great establishments such as those of which we find the ruins in Rome and at Pompeii. These latter comprised halls for games, waiting-rooms, bazaars, and restaurants, the bath being in fact but one of many attractions. Most of the buildings which we find on the outskirts of the forts have only the rooms which we are accustomed to associate with the actual process of the Roman bath. At the same time the plans differ widely, and not infrequently we meet with larger and more important structures. The Newstead bath began on a comparatively small scale, but was afterwards enlarged. We shall probably be able to understand it better by examining one or two typical plans from other sites, for it has to be borne in mind that the general scheme of a Roman public bath was the same, whether it was placed in Italy or away on the frontiers of the Empire.

However large and complex the building became, there were three chambers of different temperature to be found in all. To begin with, there was the *frigidarium*, or cold room, at one end of which was a cold bath. Then there was the *tepidarium*, a fairly warm room, from which the bather entered the third chamber, or *caldarium*, a hotter apartment, calculated to induce perspiration, and having at one end a bath of warm water, and at the other a great vase or basin filled with cold water, with which to douche the bather before he passed out again. In the larger baths this nucleus had various additions attached to it, such as an outer courtyard, an *apodyterium*, or dressing-room, which was frequently combined with the *frigidarium*, and a store for oils and substances used in anointing the bathers. The *tepidarium* had sometimes added to it a *laconicum* or *sudatorium*, that is, a small chamber, usually circular in form and heated to a high temperature, but having no bath. All the buildings, whether great or small, were of course provided with furnaces for supplying the hot air to the warm rooms, and with arrangements for heating water.

Bath in Lipari

A brief glance at one or two definite examples will be of assistance in interpreting the Newstead plan. We may take first a small bath-house

from the island of Lipari.¹ It is a long narrow building, 133 feet by 32 feet. The first room is the *frigidarium*, which also served as the *apodyterium*. In the apse at one side, into which one descended by steps, was the cold bath. The small chambers at the side of the apse were probably used for anointing, and for the storage of oil, etc., for many glass vials and small terra-cotta vases were found in the ruins. From the *apodyterium* one passed into the *tepidarium*. The floors of this chamber and of the *caldarium* are supported on pillars of brick, leaving open spaces between, so that the rooms resemble a box with a double bottom, into which the hot air

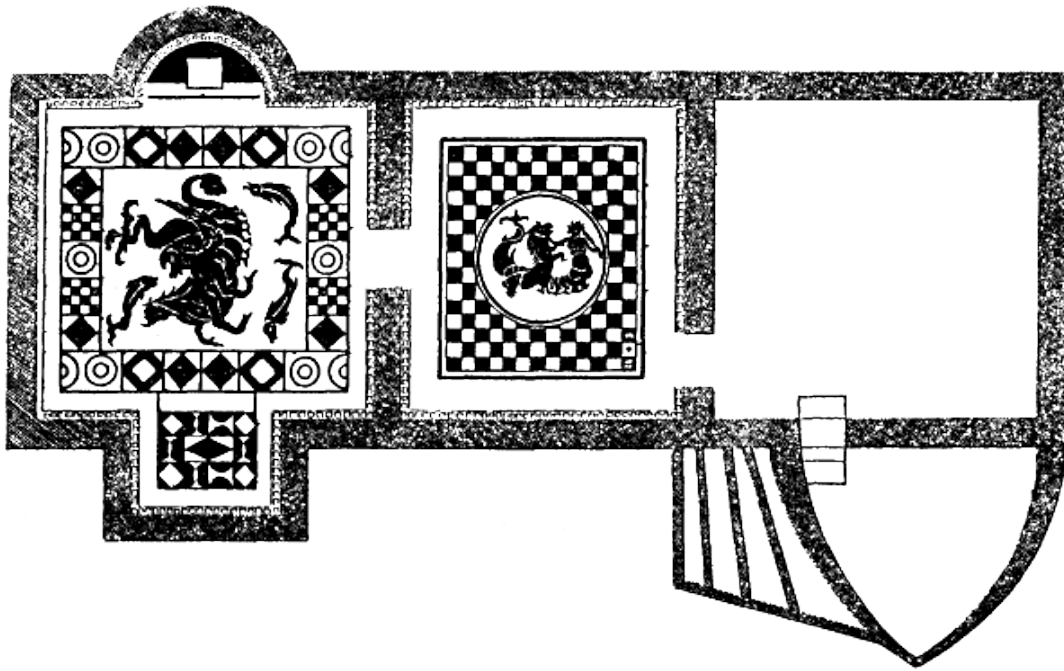


FIG 5. PLAN OF THE BATH BUILDING IN LIPARI

came from the furnace, thus raising the temperature of the apartments above. All round the walls were lines of vertical clay tubes communicating with the hypocaust below. These carried the hot air up the sides of the rooms. The actual floors were covered with a coarse mosaic pavement representing sea monsters, and just at the entrance to the *tepidarium* was a representation of a pair of slippers—as a reminder either that boots were forbidden or that the floor was too hot for bare feet. The niche at one side in the *caldarium* no doubt held the bath, and the apsed projection was probably for the *labrum* or cold water basin.

1 *Archaeologia*, vol. xxiii. I, p. 98.

Inchtuthil

From this little bath-house in the South we may turn to the most northerly example that has yet been found—that which stood outside the great camp at Inchtuthil. This is of particular interest, inasmuch as it is not improbable that it belongs to the earliest period of the Roman advance into Scotland. The association of a stone bath-house with an earthen fort that contained no traces of substantial buildings is not strange. The danger of fire from the heating arrangements was probably too great to permit of the erection of such structures in wood. It can be paralleled by

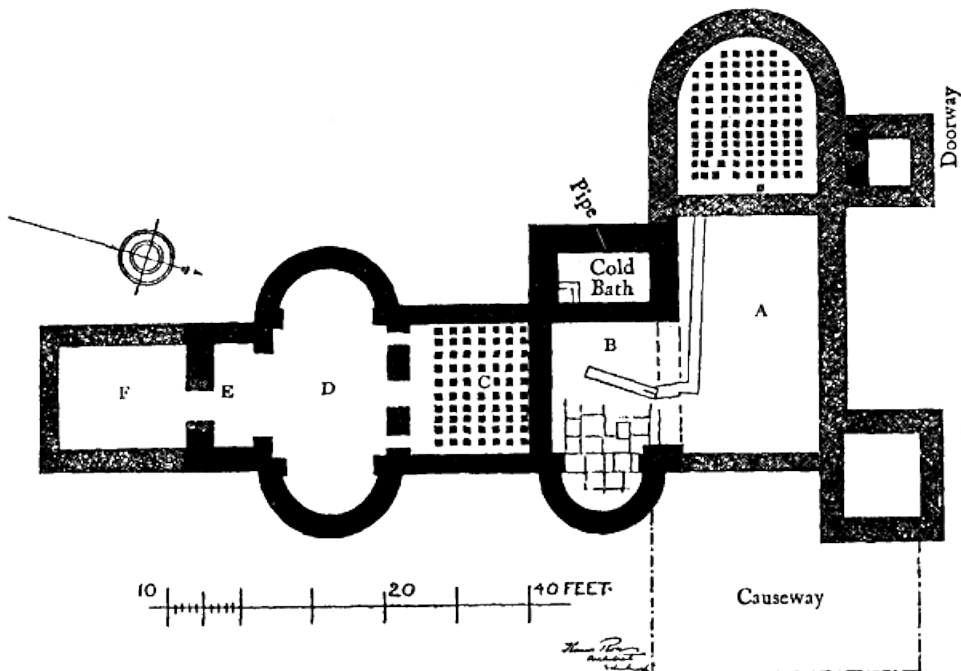


FIG. 6. PLAN OF BATH AT INCHTUTHIL

more than one instance from Germany, where the same conditions are to be noted at Marienfels,¹ Seckmauern,² Würzburg,³ and Schlossau.⁴ The Inchtuthil bath-house⁵ is smaller than the bath in Lipari, but it is somewhat more complex in its arrangements. The large entrance hall (A), part of which was heated, was no doubt the *apodyterium*. From this the bathers passed into the *frigidarium* (B), with its cold bath at one end. The next room (C) is the

1 *Der Obergermanisch-Raetische Limes*, Lief. 5 a, Kastell Marienfels.

2 *Ibid.* Lief. 46 b, Kastell Seckmauern. 3 *Ibid.* Lief. 49, Kastell Würzburg.

4 *Ibid.* Lief. 51, Kastell Schlossau.

5 *Proceedings of the Society of Antiquaries of Scotland*, vol. xxxvi. p. 215, fig. 11.

tepidarium, from which access was obtained to the double-apsed chamber (D) which served as the *caldarium*. The recess opposite to the door of this apartment (E) was probably occupied by the cisterns of cold, tepid, and hot water, such heat as was required being supplied from a furnace placed in the projecting apartment (F) beyond.

Welzheim East Fort

A last example may be cited, this time from the east fort at Welzheim on the German Limes.¹ Here, within the fort itself, we find a little bath-house. The room at the east end is the *apodyterium*, with the cold bath in the apse. The central room doubtless formed the *tepidarium*, while the double-apsed chamber at the west end was the *caldarium*. Beyond the last named, at the point where the greatest heat would be required, was the *praefurnium* or stoke-room. The buildings we have described probably represent the minimum of accommodation required for a public bath. Most of those found on the outskirts of the Limes forts are much larger and contain a considerable number of additional rooms.

The Baths at Newstead

Turning to the buildings in the west annexe at Newstead, we may note that the whole forms an irregular block, more or less rectangular in form, and some 310 feet in length. This block was roughly divided into two halves by a ditch, one of the inner or later series of ditches round the annexe having been cut through it in a northerly direction. The half which lay to the west contained the foundations of a large rectangular structure, which lay near the surface. Very little of it remained beyond the cobble foundation of the walls. There was no trace of hypocausts. The relics it yielded were few in number—one or two small fragments of early Terra Sigillata, a first brass coin and a denarius of Domitian. The condition of matters in the eastern half of the block was entirely different. On this side the foundations were covered with debris, showing abundant signs of occupation. In the blackened soil from the hypocausts lay bricks, pieces of roofing-tiles, fragments of plaster, and portions of the cement of the floors, with here and there fragments of pottery, while the walls themselves bore abundant signs of alteration. Gradually, as the surface debris was removed, it became evident that in the centre of the area were the foundations of a comparatively small bath building which, from its position and the method employed in laying its foundation, had evidently formed the nucleus round which the later building had gathered. The walls were not lying upon river cobbles, but upon a concrete foundation

1 *Der Obergermanisch-Raetische Limes*, Lief. 21, Kastell Welzheim, plate iv. fig. 4.

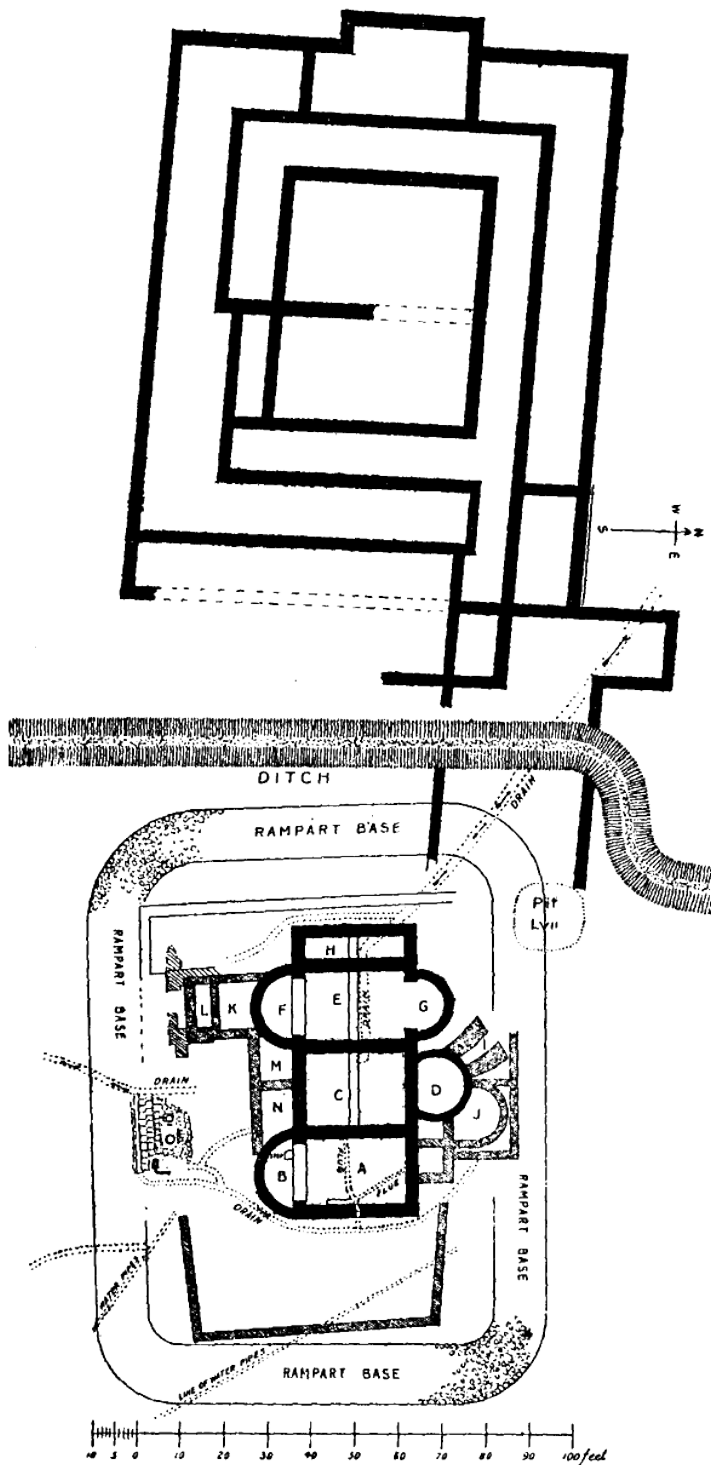


FIG. 7. PLAN OF BATH AND ADJOINING BUILDINGS AT NEWSTEAD

composed of broken pieces of sandstone and blue river-stones mixed with lime. In this respect they closely resembled the early walls at the east end of the Principia and those lying beneath the south buttressed building.

The whole block measured sixty-seven feet in length by twenty-nine feet in breadth. It had been divided into three main sections, of which the central chamber and the large apsed room to the west had been heated by hypocausts. It was thus very like the baths in Lipari and those within the East Fort at Welzheim. Indeed, it had not a little in common with the 'villa' at Inchtuthil. The accommodation was simply that of the typical Roman bath. The entrance must have been at the east end, though little remained to make the position of the doorway certain. Possibly it had been covered by a portico; but, if so, the many alterations had obliterated all trace of it.

The first room (A), which must have served as *apodyterium* and *frigidarium*, measured twenty-three feet by fifteen feet. The apse at its south end contained the cold bath (B). This occupied the whole of the apse, being fifteen and a half feet in length by seven and a half feet wide at its widest part. It remained quite perfect to a depth of fourteen inches. The floor and sides were covered with a thick coat of cement plaster mixed with brick. At the bottom of the walls was a rounded beading of the same material projecting five inches on to the floor, to prevent leakage—a feature common in such structures. Near the west end was the step into the bath. It consisted of a single freestone block, one foot eleven inches square and six inches high, also covered with cement and having the same moulding round its edge. In the side of the apse opposite was the outlet for the water. Probably this had held a leaden pipe which had been taken out during subsequent alterations, for a second floor lay fourteen inches above the floor of the bath we have been describing. In Plate XIII., Fig. 1, the Bath is shown with a small portion of this second floor still in position at one end.

From the *frigidarium* the bather would pass into the tepidarium (C), an apartment twenty-three feet long by seventeen feet wide, heated by a hypocaust. The masonry at the north-east corner of this was still standing in excellent preservation for five courses. Plate XIII., Fig. 2. None of the supports of the hypocaust remained in position, but one or two roughly-shaped sandstone pillars, two and a half feet high, which lay among the debris, one of which is shown in the illustration, had no doubt belonged to it. On the north side was a small chamber (D) almost circular and thirteen feet in diameter. The

width of the doorway could not be ascertained; the jambs had disappeared. This probably served as a *laconicum* or *sudatorium*, in which the temperature was raised to a height sufficient to produce a profuse perspiration. Such an adjunct to the bath did not occur in any of the plans already discussed. But a chamber of the kind probably formed part of the baths

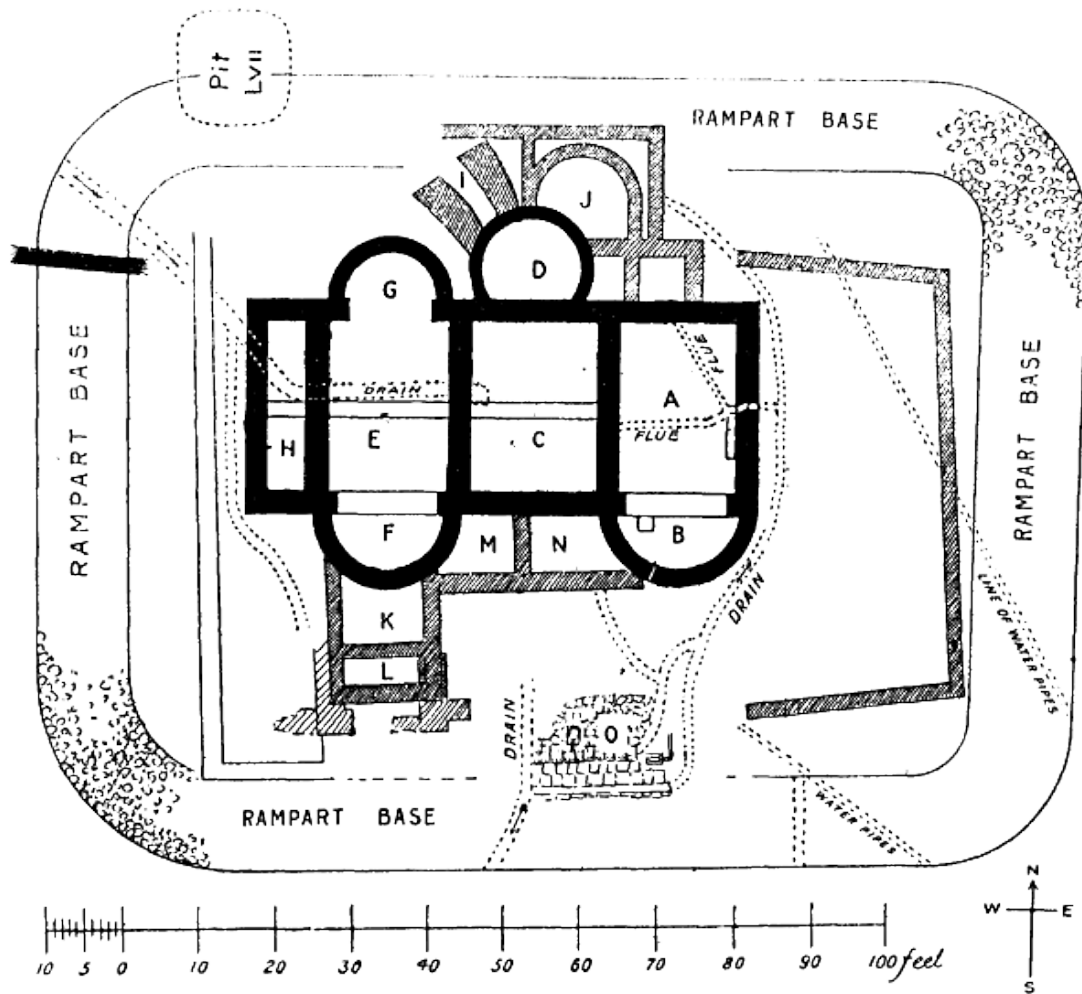


FIG. 8. PLAN OF BATH AT NEWSTEAD

at Castlecary, and it may be seen in several of those that have been excavated in Germany. Both at the Saalburg and at Rückingen, for instance, it appears as a square chamber attached to the *tepidarium*, and having in each case a separate *prae-furnium* behind it.¹ Separate heating arrangements

¹ Von Rössler, 'Die Bäder der Grenzcastelle,' *Westdeutsche Zeitschrift*, vol. ix. taf. 11.

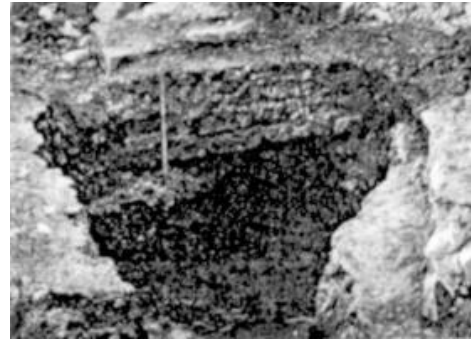
were necessary, as the temperature had to be much higher than that of the *tepidarium*, with which it was usually directly connected. According to the specification of Vitruvius the *laconicum* was circular at its base and roofed with a hemispherical dome, in which was an opening which could be closed at will by raising a disc of bronze which hung beneath it.¹ The hot air from the furnace was, no doubt, carried up the walls in tubular bricks. Of the furnace itself we have probably the remains in the two heavy stone walls, four and a half feet wide, which attach themselves externally to this part of building. The space between them (I), three feet wide, was doubtless utilised for the fire. The curve towards the west seems designed to prevent the proximity of the outer wall on the north interfering with the stoking arrangements.

Beyond the *tepidarium* lay the *caldarium* (E), a room twenty-three feet long by sixteen feet broad with an apse at either end. Here also we can but conjecture the nature of the internal arrangements. The wider apse on the south (F) had, no doubt, contained the warm bath corresponding in its position to the cold bath in the *frigidarium*, while the smaller space in the apse at the opposite end of the room (G) would be occupied by the *labrum* containing cold water to throw over the bather. The narrow chamber or recess (H), twenty-three feet by five feet, immediately adjoining this room and terminating the building on the west, was no doubt designed to hold the water cisterns of copper, three in number—for hot, for tepid, and for cold water respectively. These were usually circular in form as may be seen in the new baths at Pompeii, or at the Saalburg, at Rückingen, and at Feldberg. They were generally placed somewhere close to the *caldarium*, and beneath them was the principal furnace of the establishment. At Newstead the exact position of the furnace is somewhat doubtful. No trace of it was discovered projecting from the west end, its usual place in the plans of baths, being the situation where it could be best employed to heat the water of the cisterns which was afterwards conveyed in pipes to the *caldarium*. It is possible that the walls projecting from the south of the *caldarium* (L) represent a *praefurnium*. We find one at Silchester similar in plan and occupying the same position relatively to one of the *caldaria* of the baths. At Newstead, however, these walls did not appear to belong to the earliest period, although they were in part overlying two blocks of heavier masonry which may have been the remains of the earlier

1 Vitruvius, v. 10 (11) 5; also Marquardt, *La Vie Privée des Romains*, vol. i. 340.



1. Cold bath showing two levels



2. Masonry of tepidarium 3. Drain under west wall of caldarium



Masonry at south-west angle of the building
PLATE XIII. THE BATHS

prae-furnium. Some of the stonework of this portion of the building is shown in Plate XIII., Fig. 4.

Alterations on the Bath Buildings

In the small building of which we have been speaking there is preserved a remarkably simple plan of a military bath-house. It is evident that later additions were made to it until probably its original outlines were entirely lost in the extensions. Doubtless the recovery of its plan is due solely to the debris of later constructions which overlaid it. These will be discussed in more detail later. The result of their investigation was on the whole unsatisfactory as the outer walls had well nigh completely disappeared, and even the foundation trenches could not be traced satisfactorily, owing to the damage done by recent draining. It was quite evident, however, that the baths reflected in some degree the successive alterations which had taken place in the fort itself. The most striking feature of these changes was the construction of the ditch which divided the whole block of buildings into two parts. It ran from south to north, and curved slightly towards the east as it passed through the block, as though to cover the bath more completely. It then resumed its northward course, and was probably joined to a second ditch which passed along the north side of the annexe, but which is now concealed underneath the public road. The dividing ditch was about ten feet wide and eight feet deep. From its position one might very naturally infer that it had been constructed during the earliest period of the baths. But it was clearly later. A denarius of Hadrian was found among the material taken from the bottom, while a 'second brass' of Faustina the Elder lay in the filling near the surface. The pottery, too, appeared to be entirely of the later period, among it being fragments of bowls bearing the characteristic stamps of CINNAMUS and DIVIXTUS.

The Building adjoining the Baths

Coincidentally with the cutting of the ditch, the eastern portion of the block—that is, the one which the ditch was intended to protect—seems to have been enclosed by a platform or a defensive rampart. All round the block there lay a foundation of river cobbles twelve feet broad, enclosing an area 113 feet long by 78 feet wide, with rounded corners. The cobbles were embedded in clay, but the superimposed material had almost entirely disappeared except at the east end, which was still covered with yellow puddled clay to a depth of one and a half or two feet. The whole structure conveys the impression that it was intended to serve as a protection for the building. It is difficult, if not impossible, to cite any parallel instance of a rampart surrounding a bath-house. In the excavation of the block it formed an

important guide, as it marked a definite stratum helping to define the different changes that had taken place. The small bath-house, from its method of foundation and the evidences of subsequent alteration, was clearly earlier. The large block of building to the west must also have been in existence prior to the making of these defences, and it was presumably abandoned at that time. Two of its walls had been cut through by the ditch, while the end of one of them was detected passing beneath the foundation of the rampart. These walls, like the rest of the building of which they form part, but unlike the early bath-house, lie on river cobbles.

Both the early bath-house and the western block, then, seem to have been older than the ditch and rampart. What was their relation to one another? Did they belong to the same period? It was unfortunate that a complete plan of the western block could not be obtained. The walls lay at no great depth, and at the west end their scanty remains could be traced without much difficulty. But as they came near the ditch, portions had disappeared entirely, and to the east of it, with the exception of the two walls in question, no part of the building could be traced at all. In such bath buildings as those at Silchester, the rooms properly belonging to the bath are approached by a spacious peristyle and a large apodyterium. An entrance courtyard is also to be seen in the plans of more than one of the military bath-houses in Germany. In this case, however, the block, although at first sight it seemed to suggest a courtyard entering from the west, proved to be marked by none of the peculiar features of the bath. There were no signs of hypocausts or of the debris of tiles and plaster work, and no remains of arched apartments. Moreover, the building lies in a different alignment from the baths themselves. No prolongation of its incomplete walls indicates that the two were ever joined together. The block to the west, in fact, appears to have been built for some separate purpose. It is possible that the walls cut through by the ditch formed part of a corridor, by which access was obtained to the bath buildings. Of these walls, the one lying to the north was traced for what appeared to be its full length. It terminated on the edge of a large pit or well (LVII) which lay partially beneath the cobbling. It was built of sandstone, three or four courses of which remained at the end. There was no sign of any return.

Although it was very evident that the bath buildings had undergone considerable alterations at various periods, the exact nature of these changes

could not be traced satisfactorily. Most of the stone-work of the outer walls had entirely disappeared, so that the outlines could only be traced from the foundation trenches. It was plain that before the construction of the ditch some enlargement had taken place. Walls of later construction than the building itself (M, N) lay to the south of the *tepidarium*, occupying the space between the apses on either side. These walls rested on river cobbles.

The Latrine

Somewhat further south was a latrine (O). This adjunct to the building had unfortunately been damaged in the draining operations of 1904, when a drain had been cut in a westerly direction through the floor, removing one or more troughs and some water channelling. It is possible that the latrine may have been open to the sky. Certainly no walls enclosing it could be made out, except the back wall on the south, which had formed the south wall of the latrine pit. At the east end, this wall was one foot nine inches in height. The pit, which ran east and west, was sixteen inches wide and twenty inches deep. At the west end it discharged into the main drain, which ran in a south-westerly direction. The floor of the latrine was paved with large slabs of stone. Round three sides of the floor—the east, south, and west—ran a stone water channel of no great depth, with stone troughs at intervals upon it. Two of the latter remained *in situ*. A third, which was taken from the building during the draining operations, no doubt belonged to the same series. In the illustration given in Plate XIV., Fig. 1, the latrine is viewed from the east end. On the left the cobble base of the rampart may be seen. The latrine pit and the remains of the water channeling may be noted. The water had probably been led in by clay tiles with neatly made faucet joints. A line of these was found running from the neighbourhood of the west gate of the fort to the baths, but the actual source of the water supply was not ascertained. Having passed along the open channel cut in the flag stones and through the troughs, the water was discharged into the drain running to the south. This type of latrine, with its water channel in the floor, was also in use at Housesteads. There the stone troughs were no longer *in situ* at the time of the excavation, but two of them, which were found in the paved gangway of the building, had, without doubt, fulfilled the same purpose as the corresponding objects at Newstead. The second of these,¹ with its outlet at one corner, is exactly like the trough in the Newstead water

1 Bosanquet, *Excavations at Housesteads*, p. 252, fig. 25.

channel at the point of discharge into the drain. It is worth adding that a latrine with the same water channel running round the four sides of the floor, occurs at Timgad,¹ and that a similar arrangement is to be found at Pompeii.

The latrine appeared to have been in use subsequent to the construction of the rampart. Indeed its south wall had every sign of being nothing more than a retaining wall built against it. On the exterior next the rampart the surface was very rough, with yellow clay adhering in the interstices of the stone-work. That the building was comparatively late was shown by the discovery of a lower level beneath it. On removing the flags of the latrine floor, a second floor, covered with flags, was found fifteen inches beneath it. The appearance of this second floor is shown in Plate XIV., Fig. 2. The south wall of this apartment, two and a half feet in thickness, had been utilised as the inner wall of the latrine pit above. What function the room itself had originally served could not be ascertained, but the wall on the south had probably formed the exterior wall of an early enlargement of the bath-house. Apparently it had connected with the wall shown on the plan, bounding the west and south-west angle. This last, however, was traced only from its foundation trench.

The two levels noted at the latrine had their parallel in the main block of the bath building. The floor of the *caldarium* had been raised by placing upon it a double stratum of freestone blocks, arranged in rough herring-bone fashion, with a line of clay between the layers and a clay floor above. This covering of the lower floor was about twelve to fourteen inches in depth, and extended into the small recess or apartment on the west, covering the surface of the wall dividing it from the *caldarium*. Evidently, then, at the time the floor level was raised, this wall had been already reduced to the level of the soil. It is probably to the same period that one may assign the construction of a deep drain, running from near the middle of the *tepidarium* through the *caldarium*, and then in a north-westerly direction towards the Tweed. Where it passed beneath the main wall of the bath building at the point of exit, it appeared to have merely been tunnelled through. Plate XIII., Fig. 3. There was no trace of any arch or lintel to support the wall above. To the same period also probably belonged a wall, running from east to west, dividing the *caldarium* and *tepidarium* into two portions.

1 Boeswillwald, etc., *Timgad*, p. 14, fig. 7.



1. Foundation of rampart and upper level of latrine



2. Latrine after removal of upper floor
PLATE XIV. THE LATRINE

At the other end of the building the cold bath showed two distinct levels. The floor of the bath belonging to the lowest level has been mentioned above. It consisted of a bed of concrete, six inches thick, lying on broken red sandstone and river stones, with the step down and the moulding, already described, round the bottom. Over this floor lay a filling of clean dry river gravel, ten inches deep, and on this rested a second floor, three to four inches thick, of lime cement mixed with a little powdered brick, showing the same moulding round the edge as has been noted in the lower bath. The original floor of the *frigidarium* was about two feet above the lowest level of the bath in the apse, and even one foot above the raised level.

To the north of the *frigidarium* was another addition. Here an apsed room (J) had evidently stood; the floor of *opus signinum* remained lying on layers of debris with intervening lines of cobble stones, two feet nine inches in height. One of these lines of cobbles, twenty inches below the later floor, probably marked an earlier level: it was found projecting under the cobbles of the rampart eight inches beneath them. To the east was a wall running north and south, but returning at each end towards the west. This also seemed to be a late addition. It was founded upon two layers of river cobbles, bedded on seventeen inches of yellow clay, at which level, at the south-east corner six inches to the east, lay the rampart foundation.

Finds in the course of the Excavation

While the general destruction that has taken place renders it impossible to disentangle satisfactorily the different phases through which the bath buildings have passed in course of time, it seems clear that the enlargement and alteration of the original bath building had begun before the making of the rampart, and that further alteration took place afterwards. It is probable then, that we have here traces of the different phases which the baths underwent at four different periods, corresponding to the main alterations of the fort. The early building in all likelihood dated from the advance of Agricola. Its early extension and the large building on the west would belong to the first or second period of the later fort. The ditch and rampart would be constructed when the fort was reduced in area. Finally came the last occupation of all. Of the relics found in the baths, the pottery, though not large in quantity, was representative of the early, as well as of the later, period. The coins covered the same space of time as those found within the fort itself. The earliest was a consular denarius of C. Aburius Geminus (*circa* 129 B.C.), and

the latest was a denarius of Marcus Aurelius. The proportion of 'first brass' coins recovered seemed larger here than elsewhere. Possibly such coins represented the charge for entrance.¹ A group of four pieces—two 'first brass' of Trajan, a 'first brass' of Hadrian, and a 'second brass,' perhaps of one or other of these emperors—were found adhering together, though corroded, in the *frigidarium*. From this room, too, came several bone pins and pieces for the games which were no doubt played in the baths. One or two fibulae were picked up. A finely enamelled pair of these, as also a single brooch of the S-shaped type, came from beneath the rampart cobbles on the north. Remains of roofing tiles and flue tiles were abundant.

The water pipes were of two kinds—the larger fifteen and a half inches in length, with a diameter of three inches, neatly made with faucet joints having a diameter of



FIG. 9. WATER PIPE

one inch and three-quarters, the smaller without faucets, and with a diameter of one inch. The latter probably served as branch pipes. A small uninscribed altar was unearthed to the south of the *caldarium*, and a gutter stone, recalling

similar stones from the forum of Timgad,² came from the *frigidarium*. The ditch which intersected the bath buildings contained two stones which had probably formed part of the arches at the entrance to the apsed recesses. These are square at one end and slightly rounded at the other, and they are furnished with projecting flanges on either side. Similar stones have been found at Chesters (in the baths), and they occur in large numbers at Corbridge. It has been suggested that the projecting flanges were employed as a base for the plaster mouldings on the arch. This seems highly probable. There was plaster still adhering to some of the stones found at Corbridge. Architectural fragments were very scarce. But pieces of plaster work, showing both a red and a yellow colour, were frequent around the late apse on the north side. Towards the north-east corner of the block of buildings was a considerable deposit of oyster shells.

1 An inscribed tablet found at Aljustrel in Spain, gives the regulations for the management of a Bath attached to a mine, which include the prices for admission. The *semis* or 'third brass' was the charge for men; for women, on the other hand, the charge was the *as* or 'second brass.' CONDVECTOR A VIRIS SING[V LIS] AERIS SEMISSES ET A MV LIERIBVS SINGV LIS AERIS ASSES EXIGITO. *C.I.L.* ii. Supplement, 5181. 23. Cf. *Bar Hill* p. 46.

2 *Timgad*, p. 80, fig. 36.

The Pit and its Relics

The most important discovery connected with the excavation of the baths was, however, the great pit (LVII) already referred to, which lay on the north side underneath the base of the rampart. Here the cobbles towards the north had subsided—a sure indication that something was to be looked for below them. The subsidence had perhaps been expected by the builders of the rampart, for at this point the layer of cobbles was two feet thick, and was placed upon a bed of yellow clay eighteen inches thick, such as was frequently used in filling disused holes. The pit was more or less square, measuring seventeen feet by eighteen feet at the mouth. In the upper levels were a number of bricks which had doubtless been used for lining the walls of the baths. These were scored for plaster. There were also one or two fragments of *tegulae mammatae*—tiles with points projecting so as to leave an open space for hot air between them and the wall. At twelve feet was a human skull. A little lower came a fragment of a dish of Terra Sigillata with the maker's name IVLLINI, a little lower again a charred piece of oak, a bronze camp kettle, a small tankard handle, a strigil, a short sword with a bronze mounting, a fragment of a larger sword, a sword bent double with part of its hilt of bone, five iron hub rings, a hippo-sandal, several much rusted pieces of iron, and a small cube of bone bearing marks which showed it to be a die. At fifteen feet there were recovered a bronze helmet mask, a lamp of iron, the pieces of a coarse earthenware bowl, and yet another sword—this time the typical heavy blade of the legionary. Towards the bottom, which was reached at twenty feet, were two bronze pots, a rake, and a very fine bronze oenochoe.

The whole find is of the highest interest. The bronze jug with its lotus decoration, the strigil, and the die bring back to us the more luxurious side of life at Newstead. With them we must class the enamelled fibulae, the playing 'men' of bone, and the gem with a figure of Helios found on the ruined floors above. But what interpretation are we to put on the broken and twisted sword blades, the heavy *gladius*, the charred oak beam, the dead man's skull, and the beautiful crushed visor-mask? For a moment we seem to peep behind the curtain which hides from us some tragedy. Perhaps the earliest occupation ended in disaster. At the west end of the oldest part of the bath building were the remains of a second skull. Possibly after some abandonment the weapons lay on the surface beside the ruins and were thrown into the pit when it was filled up.

CHAPTER VII

Pits and Wells, and their Contents



LEAVING the baths, we must glance briefly at other evidences of occupation furnished by the annexes to the south-east and west of the fort. As already noted, these enclosures probably served to protect the civil population which followed in the wake of the army. Probably, in a permanent fort, they also afforded shelter in troublous times to the herds of the garrison, for in posts lying out on the edge of the world like Newstead, the soldiers had no doubt to provide in a large measure their own supplies. Pasturage had to be found for the horses, the cattle, and the sheep. In the legionary camps inscriptions speak of the *territorium legionis* and the *prata legionis*.¹ We have also the record of soldiers who served as *pecuarii*² which suggests that they looked after the regimental flocks and herds. Again, the names of *venatores* or hunters occur on monuments, as on the altar dedicated to the god Silvanus by the hunters (*venatores*) of Banna, now preserved in the Priory of Lanercost.³

At Newstead, if we except one or two small fragmentary patches of cobbles by the sides of the roads running southwards, and a somewhat fragmentary foundation of a small building lying between the ditches on the north, no trace of dwelling-houses has survived in any of the annexes. On the other hand, scattered over them, and more particularly over the large annexe to the south, were numbers of pits or wells, a few lying within the area of the fort itself. No feature of the excavations gave more valuable results than the clearing out of these. They produced a collection of objects interesting no less for their variety than for their wonderful state of preservation.

1 TER[MINVS] AVGVST[ALIS] DIVIDIT PRAT[VM] LEG[IONIS] IV ET AGRVM IVLIOBRIG [ENSEM]. *C.I.L.* ii. 2916 (a).

2 DECCIVS L. F. PAPIRIA TICINI MILES LEG XX PEQVARIVS ANN(ORVM) XXXV STIPENDIORV (M) H. S. E. *C.I.L.* xiii. 8287. The function of the pecuarius was probably that of veterinary Surgeon. See Von Domaszewski, 'Die Rangordnung des römischen Heeres,' *Bonner Jahrbücher*, 117. I, p. 45.

3 DEO SANCTO SILVANO VENATORES BANN[A]E · S. *C.I.L.* vii 830; also *Ephem. Epigr.* iv. p. 531.

Pits as a Feature of Roman Sites

Hitherto excavations in Scotland have almost without exception been confined to the limits of the forts dealt with. The annexes which lie around them have not, as a rule, been systematically explored. This applies to the forts on the wall of Hadrian no less than to those in Scotland. Consequently the examination of the pits was somewhat of a novel feature. The work done at Bar Hill showed for the first time the possibilities offered by a proper investigation of these underground deposits. It is probable that in previous excavations pits within the forts were often passed over unrecognised. With a filling of clay above them, such as was found at Newstead, quite experienced workmen might easily be misled. Even where they were actually hit upon, as at Ardoch, it has not always been considered that they would repay the difficulty and expense of clearing them out. But we have evidence both in England and in Scotland which suggests that this feature is to be looked for normally on Roman sites. An early notice of such pits will be found in the notes to *The Muses' Threnodie*, published at Perth in 1774.¹ The writer records the discovery of urns and other objects of Roman origin on the north side of the river Almond, near its junction with the Tay, when the erosion of the bank had brought to light six 'semicircular pillars of earth,' about eighteen feet in height, from the surface of the ground to the bed of the river. The earth of which they were formed was of a dark hazel colour, quite distinct from the reddish colour of the surrounding clay. 'It was evident that round pits had been dug out, the urns deposited at the bottom, and filled up with a mixture of glutinous earth rammed down.' Similarly the formation of a railway cutting near Grahamston in 1850 appears to have brought to light some of the pits belonging to the Fort at Camelon. A number of these were noted eight to ten feet in diameter and twelve feet in depth.²

In England we have notices of pits of the same sort discovered in 1847 at Ewell in Surrey,³ and of the investigation of a remarkable series of pits at Great Chesterford in Essex⁴ in 1854 by the Hon. R. C. Neville. In the latter case forty pits were examined varying in depth from four feet to twenty-four feet. They were scattered all over the site. The bottoms were usually dry; only twice was water touched. Groups of three and

1 *The Muses' Threnodie*, by Mr. H. Adamson. New edition, with notes, by James Cant.

2 Stuart, *Caledonia Romana*, p. 357.

3 *Archaeologia*, vol. xxxii p. 451.

4 *The Archaeological Journal*, vol. xii. p. 109; vol. xiii. p. 1.

four were not uncommon, and at one part as many as fifteen were excavated in less than half an acre of ground. Many pieces of Roman pottery and other objects were recovered in the course of the search, and from one of the pits came a very remarkable series of ninety-six objects of iron which may be compared with the find from Pit XVI at Newstead. Nothing was found to indicate the possibility of the pits having been used for the purpose of burial.

In France a very notable group of a somewhat analogous kind was excavated in La Vendée by the Abbé Ferdinand Baudry in 1873.¹ The depth of the twenty-one pits which he describes, varied from ten and a half feet to forty-two feet. They were carefully constructed, and were frequently closed with masonry, while layers of stone divided them horizontally. The vessels of pottery they contained, many of which were unbroken, were protected by tiles and blocks of stone. From a review of the whole circumstances, the Abbé Baudry came to the conclusion that the pits had been constructed for sepulture. They yielded a curious collection of objects bearing a close resemblance to many of the things found at Newstead, and showing that both sets of pits belong to the same period. With this contemporaneity, however, the analogy ends. In Germany similar pits and wells have been frequently met with. At the Saalburg, for instance, the number examined must approach one hundred. From these there has been extracted a large and varied collection of objects, but in none of them have human bones been discovered. Besides, the cemetery of the fort is well known, so that their purpose can hardly have been sepulchral. It is true that at Hedderheim the remains of two human skeletons were taken out of a pit ten feet deep.² Dr. Quilling, however, who writes the account of this find, sees in it, not an ordinary burial, but the result of some sudden tumult in which men had lost their lives.

The hypothesis that the Newstead pits were burial places was put forward by Dr. J. A. Smith, who was inclined to consider those discovered in 1846 'to have been the sepulchres of the Roman town.' Although the cemetery has not so far been located, the further evidence now available enables us to dismiss this conclusion. Had they been intended and generally used for burial by inhumation, human remains would certainly have been found in a greater number of them, for in the black deposit, which was

1 *Puits funéraires gallo-romains du Bernard* (Vendée).

2 *Mittheilungen über römische Funde in Hedderheim*, i. p. 8.

common to the great majority, bones seemed to suffer little or no decay. Had they, on the other hand, been intended to be used for burials after cremation, it is beyond doubt that urns or other vessels deposited to hold the ashes would have been more frequent. As a matter of fact, only in a very small proportion were complete vessels discovered, and none of these appeared to have been employed as receptacles of the kind. The total number of pits or wells dug out was one hundred and seven, and to these may be added upwards of twenty others discovered, as Dr. Smith has recorded, in the railway cutting in 1846. Even so, the whole area was not exhausted, and it seems more than likely that pits remain untouched within the fort itself, and possibly in the annexes. In the south annexe the ground was closely trenched, and very few in that area can have escaped notice. The pits that were found were widely distributed. There were thirteen in the fort, three between the ditches to the south of the Retentura, seventy-nine in the south annexe, one in the baths, and eleven on the river bank to the north. As a rule, they showed no signs of having been laid down on a definite plan. They were sometimes set down singly, sometimes in groups.

There was much variation in size and in construction. The deepest were those close to the ramparts; on the south, Pit XVII had a depth of thirty-one feet nine inches, and on the north, Pit LXI went thirty-six feet down. None of those to the south of the railway was more than thirteen feet six inches deep. Comparatively few showed any indications of masonry. But fourteen, all of which lay in the south annexe, had remains of building, and had evidently served as wells. One of the wells (XCI) was found in remarkably perfect preservation. At the surface its diameter was nine feet. At a depth of three feet a stratum or floor of yellow clay was reached, having a thickness of eighteen inches. The clay itself rested on branches eight to ten inches in thickness laid over the well. In the middle of the floor was a small aperture, two feet square, the sides of which were lined with stones, which gave access to the well. Below the covering the well was carefully built, going down to a further depth of twelve feet. Another pit (LXXXI) had set into it a timbered framework, measuring three feet six inches by three feet, round the edge of the framework at the mouth was a thick layer of fine yellow clay, while lower down it was surrounded by stones through which water would percolate. A third (XLVII) had been sunk in soft ground. In this last case about a dozen wooden posts had been driven in vertically against the sides, while bunches of heather

stems had been twisted behind these to hold the sides in position. Two pits (XCIV and XCVI) were lined with barrels. In the first of these a barrel six feet six inches high had been inserted, while below it lay a half barrel three feet three inches high. In Pit XCVI the order was reversed, the half barrel lay uppermost. In most of the deeper pits there were noted, below the black deposit, which constituted the filling in almost every instance, two to three feet of wet yellow sludge, suggesting that the hole had stood open for some time before anything was thrown in, for the clay seemed to have been washed down from the sides through the percolation of water. All the pits when cleared out held water. At the bottom of more than one was a bucket, confirming the idea that many of them had been wells.

Characteristics of the Deposit in the Pits

Whatever may have been their original purpose, the pits and wells were finally utilised for the deposit of rubbish. From all of them, but more especially from those of considerable depth, there came a great mass of black earthy matter, having a curious well-marked smell. The same dark-coloured deposit was present at the bottom of the deeper ditches, especially those of the early fort on the west front. Vegetable fibres and animal bones entered largely into its composition. Branches, often with the bark undamaged, stems of heather, leaves of trees, fronds of bracken, reeds, and water plants were plainly recognisable. Bones of animals were almost invariably present, blue vivianite crystals gathering on them when they



FIG. 10. BASKETWORK

were exposed to the air. The soft damp mass, from which all air was excluded, had had a remarkable preservative power. Terra Sigillata preserved its brilliant glaze and brass its golden yellow, while iron tools and weapons, covered with a black oxide, seemed little the worse for their long immersion. Pieces of cloth, rope, and leather were recovered almost undamaged. Some fragments of fine basketwork were found in Pit XXVIII (Fig. 10), while an object which appears to be an unfinished basket woven from the hair moss (Plate XV.) was found at the bottom of the ditch of the early fort, the delicate strands of the moss having lost little of their elasticity.

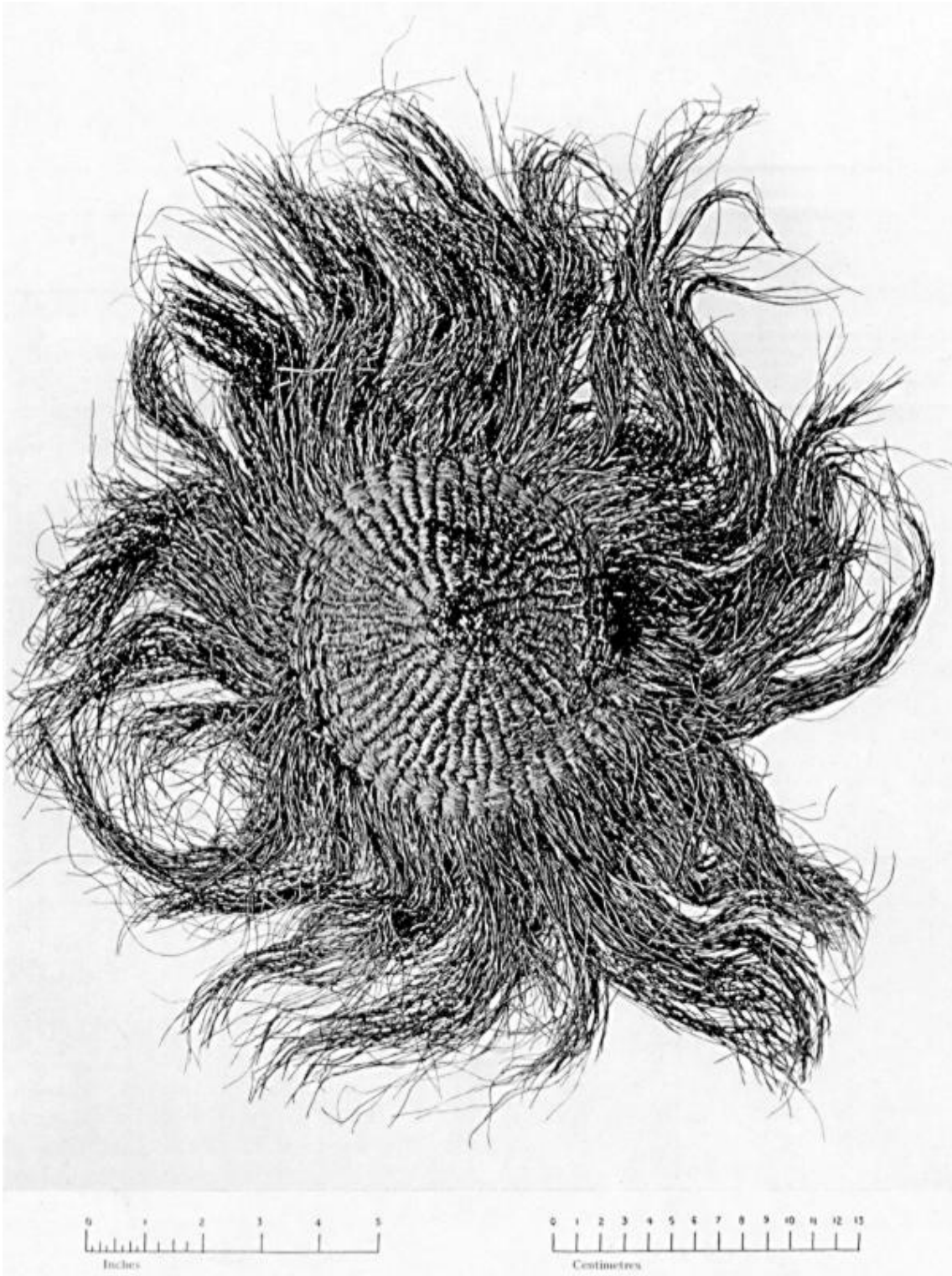


PLATE XV. UNFINISHED BASKET OF HAIR MOSS.
Ditch of Early Fort

A considerable quantity of the animal and vegetable remains taken from the pits has been submitted to experts. The human bones have been examined by Professor T. H. Bryce. Professor Ewart has made an exhaustive study of those belonging to horses and other animals. Mr. Linton has paid special attention to the canine skulls, while the plant remains have been dealt with by Mr. H. F. Tagg. The detailed reports of these gentlemen will be found printed as an appendix to this volume. It will be sufficient here to bring together some of their results, from which it will be seen that the pits have preserved for us a vivid impression of the character of the country on which the garrison looked down.

Vegetable Remains

The natural features of the landscape have probably changed but little in the centuries that have passed since the Romans were at Newstead, but in their time the country must have been clothed with wood. From every pit came pieces of birch and hazel, often with the bark bright and silvery. Birch leaves and hazel nuts were common, and once a hazel catkin was observed. It was clear that the birch, the hazel, the mountain ash, and the oak must have been the trees which grew on the slopes of the hills, while the willow and the alder flourished in the marshy ground lower down. Then, as now, the rushes and the dock fringed the forest pools, and heather, bracken, and mosses were abundant. In the woods grew the crowberry, the bramble, and the wild strawberry. For flowers there were the stitchwort and woody nightshade. The seeds of the ranunculus, the wild mustard, the potentilla, the white campion, the wild mignonette, forget-me-not, cow parsnip, and others must have come from plants that grew in the clearings or sprang up on the earth mounds of the defences. Husks of wheat and barley were found in many of the pits. The grain, then, had been cleaned and dressed close at hand, and so we may be sure that it was grown there. Mixed with the chaff were seeds of the corn-cockle, showing that it had been in the second century, as it is to-day, a weed that grows among the corn. Apparently the corn had often been ground beside the wells, because querns whole or broken in pieces frequently lay at the bottom. One or two negative pieces of evidence may be noted. The pine which is so familiar in our landscape was perhaps wanting in the forests. Pine-wood was only found in manufactured articles such as writing tablets and the bottoms of buckets. Again, there was no trace of beech, and although the ash shafts of several tools survived, there is no certainty that the ash tree then grew in the neighbourhood.

Animal Remains

As for the fauna, it was plain that, as in Ettrick forest long centuries later, there must have been 'of a' wilde beastis great plentie.' The antlers of the modern red deer of a Scotch forest are poor specimens beside the great horns from Newstead. The red deer throve in its natural habitat in the forest, whence it had not yet been driven by advancing cultivation to the comparative confinement on the northern moorland. The elk, too, must still have wandered about the banks of the Tweed. Probably he was a scarcer animal than the deer, for only twice portions of his immense antlers were met with. The roe, of course, ran wild, as it did long centuries afterwards in the district. The great wild boar, so often depicted upon earthenware bowls, must have been plentiful at Newstead, judging by his tusks. We may be sure that his hunting furnished sport for the officers. Finally there was the fox, the badger, and the hare.

Among domestic animals the most notable was the horse. Professor Ewart has ascertained that one species is allied to, if not identical with, the *Equus swalensis* of the Lower Himalayas, the oldest true horse known to science. It measured about fifteen hands. A second skull, which probably belonged to a British pony about twelve hands high, is finer than the finest Arab skull Professor Ewart has seen. He has given it the name of *Equus agilis*. A third skull probably belonged to a horse of the Forest type. Several of the other skulls closely resemble those of the wild horse still to be found in Mongolia, the Prejvalsky horse. The oxen were of the Celtic short-horn variety, but some of them showed some signs of being crossed with continental breeds. The one goat whose skull was found was probably domesticated. The sheep seemed to be of a native variety, akin to the St. Kilda or Soay sheep. The dogs were of several types, large-jawed hounds as well as small terriers. The duck and the domestic fowl were both present. A leg-bone, with a well-developed spur, had perhaps belonged to a fighting cock. Birds, however, have not left many traces, although the raven was identified, as well as the common crane, which must have nested in the swampy ground where the Tweed, unconfined by embankments, streamed across the Melrose valley.

Human Remains

Of the people themselves, the pits and ditches held strange relics. Human remains were found sixteen times in all. With some two or three exceptions they could not possibly have been deposited at any period later than the Roman occupation. Many of the fragments were too small to permit of much information being derived

from them. In nine cases, however, they were subjected to a careful examination by Professor Bryce, with interesting results. The skull of a very young infant was taken out of the ditch of the early fort. A child's skull was discovered at the mouth of the large drain on the west side, where it enters the large ditch. From the ditch of the early fort came the jaw of a young person whose wisdom teeth had not yet erupted. Four skulls belonged to adult males, and one probably to a female. One of the male skulls was of a coarse and rugged type—the face bones heavy, the cheek bones prominent—the whole appearance indicating that the individual was not of Mediterranean race, but rather a native of Northern Europe. What perhaps makes the find more suggestive is that the frontal bone shows on the right side a clean incised fracture, three inches long, which has in all probability been caused by a wound during life. Indeed, it has all the appearance of being a death-blow from some sharp and heavy weapon. In falling, the implement had evidently turned as it cleft the skull, because, while one margin of the cut in the bone is clear and sharp, the other is irregular, and the outer table of the bone is chipped away. Further, the line along which the surface of the bone is shaved away is broader in the middle and runs out at either end of the wound, suggesting that the instrument had a convex edge like an axe. But the most curious of all these human relics was the nearly complete skeleton of a dwarf, found in one of the pits. Professor Bryce estimates the age at from twenty-two to twenty-three years, and yet the height cannot have exceeded four feet six inches. Though the creature must have been a dwarf, the bones show no signs of rickets or other bone disease, being well formed but slight and slender to a remarkable degree. How it came to lie in the pit beneath the bones of nine horses is a problem of which no solution can be hoped for.

The Pits of two Periods

Interesting questions arise in connection with the dating of the pits. They group themselves into two clearly different periods. But there are very few of them which it is possible to assign quite definitely to one or other of the various occupations of the fort. The coins found among their contents were few in number, a 'first brass of Hadrian' and a 'second brass' of Vespasian or Titus in Pit I (the well of the Principia), an imperfect coin of a Flavian Emperor in Pit LVIII, denarii of Galba and of the Gens Cordia in Pit LXV, a 'second brass' of Domitian in Pit LXXIX, and a 'first brass' of Trajan

in Pit XCV. At the same time, a considerable number, including these in which the most remarkable finds were made, produced pottery resembling that recovered from the ditch of the early fort, which is approximately of the first century. The pits are, however, not all necessarily of the first occupation, as the same types of pottery were found in the filled up ditches overlapping the gates and also at the bottom of the great ditch of the second period.

In dealing with pottery, the smallest fragments may give a chronological indication; and it may be that had work been begun at Newstead with the knowledge gained in the course of the subsequent operations, it would have been possible to ascribe more of the pits to the early or the later period with some approach to confidence. But it was only after the excavation of the ditch of the early fort, which was chiefly carried out in the summer and autumn of 1907, that a series of characteristic types was obtained. The most, then, that can be said is that the following pits all gave indications of early date, either from their contents or from their position: Nos. II, VII, IX, X, XII, XIV, XV, XVI, XVII, XIX, XX, XXI, XXII, XLI, LIV, LV, LVI, LVII, LVIII, LIX, LX, LXI, LXII, LXIII, LXIV, LXV, LXVI, LXVII, LXIX, LXXIII, LXXV, LXXVI, LXXVII, LXXVIII, LXXIX.¹

Among these, Pit LIX was of peculiar interest, for the reason that, while it contained early pottery in its lower levels, fragments belonging to the later periods were encountered higher up. The pit was of considerable depth (twenty-eight feet nine inches), but it was only at twenty feet that the usual black deposit was reached. At twelve feet from the surface some pieces of bowls, which must belong to the second century, occurred (page 225, Figs. 1, 2, 3 and 6). One of these pieces (Fig. 6) appears to be of Rhenizabern manufacture; the others are Lezoux ware. The few fragments yielded by the black deposit were all typically early. Two of them at least belong to carinated bowls (Type, Dragendorff 29). Another was the bottom of a small globular pot (Type, Déchelette 67), and there was also part of a very fine beaker urn of black polished material. It seems probable that at this spot the original surface of the ground has been covered to a considerable depth by the overthrow of the rampart. Even so, however, at twelve feet the Antonine pottery must

¹ Particulars of the contents of all the Pits and Wells excavated up to 15th July, 1910, will be found in the Appendix to this chapter.

have been far below the ancient surface level, a circumstance which suggests that the pit was not completely filled up until the period of the second century occupations and thus illustrates the distinction between the early and the late pottery.

As against this comparatively long list, the pits which could be confidently classed as belonging to the later periods—approximately to the middle and second half of the second century—were somewhat less numerous. The following may, however, be mentioned: Nos. I, XXIII, XXIV, XL, XLV, XLVIII, XLIX, LXX, LXXII, LXXIV, LXXX, LXXXII, LXXXIII, LXXXV, LXXXVI, LXXXVII, LXXXVIII, LXXXIX, XC, XCI, XCIII, XCV, XCVI, XCVII, XCVIII and XCIX, all of which contained the pottery associated with the same later period. Generally speaking, it may be said that late pottery was common on the surface to the south of the railway, and that most of the pits in that area probably belonged to the later periods. In none of the wells lined with wood or built with stone was there any trace of early pottery. Where they contained pottery, it belonged invariably to the later period, to which probably all of them must be assigned.¹

Indications of Disaster

It is a curious fact that, with the exception of Pits I, XXIII and XCV, comparatively little was obtained from the later pits. Nearly every pit in the fort in which finds of importance were made can be classed with tolerable certainty as early. Was there some great disaster at the end of the first period to account for the presence in its pits and wells of so many things that can hardly have been thrown away as valueless? It is easy to understand how many worn-out objects might find their way along with the broken dishes into what were naturally receptacles for rubbish. Odds and ends of value might have now and then dropped in accidentally. But there are circumstances that rather point to deliberate concealment. Among the objects which could hardly have found their way into the pits by chance are the querns. Fragments of these were of course among the rubbish. But in each of the Pits X, XIX, XXII and LXI there was a complete quern, lying with one stone above the other and having the iron spindles still in position. All four are of the volcanic stone from Niedermendig near Andernach on the Rhine. Such things could not have been thrown away as worthless.

1 Herr Heinrich Jacobi has made the same observation with regard to the built wells at the Saalburg.

Still less likely is it that their presence in the pits was the result of an accident. It looks much more as if they had been hidden on the eve of a sudden retreat.

But the querns do not stand alone as evidence, Pit XXII which contained one of them held also these wonderful helmets and the trappings that still bear the names of *DOMETIUS ATTICUS* and of *SENECIO*. Again, in Pit XIV tools, an unbroken vessel of Terra Sigillata, a sword, and a cooking pot with the name of *LUCANUS* were found. Lastly, Pit XVI held what can only be described as the contents of a camp smithy—weapons and tools, hub rims for wheels, spears with blunted points, pioneers' axes with worn edges, implements to be sharpened, old metal ready to be forged and welded into something new. It is hardly possible to apply any explanation other than concealment to this curious deposit. And what of signs of struggle? They too can be detected, though not in the early pits alone. Human remains were found in Pits I, XVI, XVII, XXIII and LVII. In Pit I, portions of two skulls were found at the bottom, while remains of a skeleton lay crushed among the debris of building material in the upper levels. In Pit XVI, a portion of a skull was got among the smith's stock. In Pit XVII, the skeleton of a dwarf was buried underneath the bones and skulls of horses. In Pit XXIII, a skull cleft as with the blow of some sharp weapon was lying beside the well buckets, with heavy wheels and long birch branches above it. In Pit LVII (the well at the Baths) the skull, a charred oak beam, and a lamp were associated with a battered helmet mask, and four swords, three of which were bent and broken, while in Pit LVIII was another sword with the hilt doubled down on the blade.

The signs of some great disaster then seem plain enough. The exact time of its occurrence is less plain. Did it take place at the close of the first occupation? Or was there any connection between it and the abandonment of the enlarged fort of the second occupation. The pottery gives no help in distinguishing these epochs. As far as it can be satisfactorily interpreted, its evidence goes to show that in the second occupation the same types of dishes were in use as in the first. The early (first century) forms had not yet given place to the somewhat coarser pottery of the Antonine period. A word of caution is, however, necessary. The extent of the ditches of the second occupation cleared out was, after all, not large; and, while there is little doubt that our investigations give a clear indication of

the *terminus a quo*, it is more hazardous to express any opinion as to the *terminus ad quem*. On the whole it seems probable that the deposit of these numerous objects took place at the close of the second period, in the withdrawal from Caledonia, prior to the establishment of the frontier line of Hadrian (*i.e.* circa 120 A.D.) from the Solway to the Tyne.

In the first place, such evidence as we possess suggests that no long period elapsed between the first and the second periods. Had the retirement been of a temporary nature, the articles that were hidden away would have been recovered. On the other hand, if the fort was abandoned in the early years of the second century and not reoccupied for more than a generation later—that is, till the advance of Lollius Urbicus—it is natural enough to suppose that all recollection of objects concealed may have passed away. Again, it will be noted that in none of the pits did fragments of Antonine pottery occur at the bottom in definite association with first century deposits. In the few cases when later pottery was met with, it was lying, as in Pit LIX, in the clay filling of the upper levels. Once more, the well at the Baths (Pit LVII) which is just one of those whose contents were such as to suggest that they had been thrown in on the occasion of some disaster, showed signs of having been left open at the abandonment to be filled up at the beginning of the succeeding period. A portion of the rim of a decorated bowl (Type Dragendorff 37), thick and with a heavy moulding suggestive of second century ware, was found at twelve feet, while on the surface the cobble foundation had been laid of double thickness and yet had subsided, as if; when it was placed there, the ground below it had been still soft from recent filling.

The relics from the well in the Principia (Pit I) must date from a subsequent abandonment. The very position of the well, standing as it did in its normal place in the outer courtyard of the last form that the Principia assumed, is of itself an indication that it belongs to a later period, and this is confirmed by the presence of a coin of Hadrian among the débris thrown into it. The strange medley it contained—the skulls, the broken armour, the ruins of demolished buildings, the buried altar—has its closest parallel in the spoil from the wells at Birrens and at Bar Hill.

PITS AND WELLS

I. Pits or Wells within the Fort

Field No. 605, Ordnance Survey Plan, 25-inch scale. Second Edition. 1898.
Roxburghshire, Sheet VIII. 2, Parish of Melrose.

PIT I. Diameter at surface 20 feet; at bottom 6½ feet. Depth 25½ feet. The pit lay in the north-east angle of the outer Courtyard of the Principia. From the upper levels came many cartloads of building stone, while among them, and interspersed among the filling down to the bottom, lay a number of larger blocks. The stones placed together measured 41 square yards 3 square feet.

Finds. Near the surface a fragment of an inscribed tablet (Plate XVIII., Fig. 4). At 5 feet, a piece of twisted silver wire, part of a penannular brooch, two bronze rings, and twelve links of a small bronze chain (Plate LXXXI., Fig. 16). At 8 feet, a human skeleton, near it a bronze penannular brooch (Plate LXXXVIII., Fig. 7), as well as two pieces of bronze, perhaps part of a second brooch. At 12 feet, an altar dedicated to Jupiter (Plate XVI.), and below it a 'first brass' coin of Hadrian. From 14 feet downwards, bones of animals; the skulls of oxen (*Bos Longifrons*), and of horses were frequent; also soles of shoes, fragments of leather garments, and deer horns. At 18 feet, fragments of stone moulding, pieces of amphorae, and small bits of undecorated Terra Sigillata; also two pieces of deer horn fitted together like a rude pick. At 21 feet, an iron bar. At 22 feet, a human skull complete and part of another skull near it, remains of scale armour of brass, also the necks of five large amphorae, and the bottom of a cup of Terra Sigillata (Type Drag. 33), with the stamp **PROBVS·F**. At 25 feet, the upper stone of a quern, an iron knife with a hone handle (Plate LX., Fig. 3), an iron knife (Plate LX., Fig. I), a linch pin (Plate LXX., Fig. I), a bar of iron, a sickle (Plate LXI., Fig. 2); portions of an iron corselet mounted with brass (Plate XXII. and Fig. 11, page 157); the staves and bottom of an oak bucket, 7 inches high, 8 inches in diameter; the iron rim of a large bucket; a large block of sandstone having a rudely-sculptured figure of a boar on one side; a small fragment of stone, with a figure of a boar in relief; five arrowheads of iron (Plate XXXVIII., Figs. 2 to 6); pieces of chain armour (Plate XXXVIII., Fig. 10); the iron umbo of a shield (Plate XXXIV., Fig. 3) and

fragments of brass) perhaps belonging to its decoration; a brass coin of Vespasian or Titus; a stirrup-like holdfast of iron (Plate LXVI., Fig. 4); a fragment of wall plaster, necks and sides of several amphorae (Plate LII., Fig. 2). Cleared out 23 September, 1905.

PIT II. Diameter at surface 6 feet; at bottom 2 feet 10 inches. Depth 14 feet. Barrack Block XII. Praetentura. The walls dividing the two last huts at the east end of the row are built over the pit.

Finds. Below the hut wall lay a bronze buckle (Plate LXXVI., Fig. I). At 10 feet, portion of a quern of Niedermendig lava. At 13 feet, a large bronze oenochoe with one handle (Plate LV.). At the bottom, a mass of corroded iron and bronze, probably originally in part a large hammer; part of a wooden shaft or handle still adhering to it. Fragments of burnt bone. Cleared out 22 February, 1906.

PIT III. Diameter at surface 5 feet by 3 feet 8 inches; at bottom 3 feet 9 inches by 2 feet 6 inches. Depth 7 feet 6 inches. Barrack Block XI. Praetentura.

Finds. Some pieces of rusted iron and bronze and a small bronze bell (Plate LIV., Fig. 1). Cleared out January) 1906.

PIT IV. Diameter at surface 6 feet 6 inches; at bottom 3 feet. Depth 7 feet. Barrack Block VII. Praetentura. No black deposit.

Finds. A much corroded bronze coin and some fragments of Terra Sigillata. Cleared out January, 1906.

PIT V. Diameter at surface 5 feet 4 inches; at bottom 3 feet 4 inches. Depth 6 feet. Barrack Block VIII. Praetentura close to the Via Principalis.

Finds. A spear-head and a melon-shaped blue glass bead. Cleared out January, 1906.

PIT VI. Rectangular in shape. Diameter 6 feet 6 inches by 3 feet 5 inches at surface; at bottom 4 feet by 2 feet 8 inches. Depth 11 feet. In Barrack Block VII. Praetentura. For a depth of 2 feet at the bottom there was the usual black deposit with many twigs.

Finds. Some fragments of fine white iridescent glass, probably part of a perfume bottle; the skull of a pig and other bones. Cleared out January, 1906.

PIT VII. Diameter at surface 8 feet 8 inches; at bottom 3 feet 10 inches. Depth 17 feet. This pit was discovered a little to the north of the east gate. At 7 feet

deep, the black deposit began and continued to the bottom. The pit was very full of twigs.

Finds. Portion of a dish of Terra Sigillata, with the incomplete stamp VITVS FEC. A small dish (Type, Dragendorff 22), (Plate XLI., Fig. 10). Necks of two amphorae, fragments of bluish white glass and portion of a pillar moulded-cup of amber-coloured glass. A spear-head, the head of a ballista bolt, an iron loop. Animal bones, skulls of horses, the leg bone of a crane, shells of oysters and mussels. Cleared out October, 1905.

PIT VIII. Diameter at surface 5 feet by 3 feet 8 inches; at bottom 2 feet. Depth 11 feet 6 inches. Barrack Block V. Praetentura.

Finds. A blue paste button or counter and a corroded bronze object) probably a ring fibula.

PIT IX. Rectangular in shape. Length 17 feet. Width 6 feet. Depth 9 feet. This pit lay partly beneath the east wall of the Storehouse, Block XIV. It was completely filled with rough gravel, stones, and clay, with a small quantity of black deposit at the bottom.

Finds. A well-preserved leaf of the bracken, and a beaker urn of coarse orange-red ware (Plate XLIX. (A), Fig. 4). Cleared out 18 June, 1906.

PIT X. Diameter at surface 8 feet; at bottom 4 feet. Depth 19 feet. On east side of the Via Quintana, north of the Storehouse, Block XVI. The pit filled with water very rapidly.

Finds. A number of fragments of wooden boarding and pieces of hazel. At 14 feet, three pieces of a quern of Niedermendig lava, two small spear heads, a large copper kettle inscribed)SA, with portions of its iron handle (Plate LIII., Fig. 4). A mortarium (Plate XLIX. (A), Fig. 6), and a complete quern of Niedermendig lava, with its iron spindle (Plate XVII., Fig. 10). Pieces of an amphora (Plate LII., Fig. I). Cleared out 6 August, 1906.

PIT XI. A small pit, 4 feet deep from present surface, or 3 feet from level of last occupation. Just outside the east wall of the Hall in front of the Principia. At the bottom the earth was very black and contained fragments of bone.

Finds. A cooking pot of reddish-brown ware (Plate XLIX. (A), Fig. 5), and a saucer, or flat platter, externally of a greyish yellow but coloured red inside (Plate L. (B), Fig. 8). Cleared out 1 October, 1906.

PIT XII. Diameter at surface 4 feet. Depth 4 feet. Under the Via Quintana, on a line with south wall of Block XVI.

Finds. At 3 feet, a beaker urn with pinched-in sides, roughened externally (Plate XLIX. (B), Fig. 6), and a large dark blue translucent glass bead. Cleared out October, 1906.

PIT XIII. Under the floor of one of the rooms of Block XIII. This pit was of no great depth.

Finds. A few fragments of coarse pottery and an iron pick (Plate LVIII., Fig. 4).

II. PITS WITHIN THE AREA OF THE SOUTH ANNEXE

Field No. 607, Ordnance Survey Plan, 25-inch scale. Second Edition. 1898.
Roxburghshire, Sheet VIII. 2, Parish of Melrose.

PIT XIV. Diameter at surface 5 feet; at bottom 2 feet. Depth 16 feet.

Finds. At 3 feet 6 inches, a small piece of Castor ware was found. At 15 feet, a sword standing upright (Plate XXXIV., Fig. 6). A small globular vase of Terra Sigillata (Type, Déchelette 67), (Plate XLI, Fig. 3). A bronze cooking-pot with the name *LVCANI* inscribed upon it (Plate LIII., Fig. 6). Two chisels (Plate LIX., Figs. 7 and 8), one with a haft of deer horn. A hoe (Plate LXI., Fig. 9). Four hub rings for wheels. Three iron hoops, one of smaller size with ring attached. Two nails with large flat heads. A hold-fast for a scythe. An anchor-shaped mounting of iron (Plate XXXIV., Fig. 2). A heavy mounting, perhaps for the pole of a waggon (Plate LXV., Fig. 4). Portion of a grid-iron. A wrench (Plate LIX., Fig. 17). Pieces of mortaria (Fig. 34, page 264, No. 1). Parts of two wooden bowls. Cleared out 3 March, 1906.

PIT XV. Diameter at surface 7 feet; at bottom 4 feet. Depth 7 feet. Burnt bones were intermingled with the earth and traces of grain at the bottom.

Finds. A bowl of Terra Sigillata (Type, Dragendorff 37), (Plate XLIII.). The fragments of a large blue glass jar with reeded handles (Fig. 36, page 272), and a fragment of a vessel of coarse earthenware. Cleared out October, 1905.

PIT XVI. Diameter at surface 7 feet; at bottom 2 feet. Depth 22 feet. At a depth of 2 feet, a line of gravel marked the level where the road used during the last two occupations passed over the pit. The black deposit began at 8 feet.

Finds. At 6 feet, two pieces of a pillar-moulded bowl of claret-coloured glass.

At 10 feet, three square bricks, the bones of a horse) and some bones of oxen. At 13 feet, a saddle quern. At 17 feet, part of an amphora; bones of deer; fragments of a quern of Niedermendig lava; fragment of a large tile 21 inches long and about 1 foot wide; a brick 7 inches square. At 20 feet, a sword blade (Plate XXXIV, Fig. 7); the rib of a shield (Fig. 1); five spear heads (Plate XXXVI, Figs. 1,2, 5-7); four pioneers' axes (Plate LVII, Figs. 2, 3, 4, and 5); a stirrup-like object (Plate, LVIII, Fig. 10); a shod (Fig. 11); five hammers (Plate LXIII, Figs. 1, 3, 5, 6, and 11); two pairs of tongs (Figs. 2 and 4); a smith's 'drift' (Fig. 7); a small anvil (Fig. 10); three staple mandrels (Figs. 8, 9, and 12); two chisels (Plate LIX, Figs. 4 and 10) ; two gouges (Figs. 13 and 14) ; an axe (Plate LXI, Fig. 4); a mowers anvil (Plate LXII, Fig. 1); four scythes (Figs. 3, 4, 5, and 6); five pieces from the framework of a seat (Plate LXIV, Figs. 1, 2, 4, and 5); a triple link with three chains attached (Fig. 3); three mountings, possibly door fittings (Figs. 6, 7, and 8); two mountings, probably for military saddles (Figs. 10 and 11); a piece of harness (Plate LXX, Fig. 4); a linch pin (Fig. 8); twenty-four nave bands for wheels (Fig. 5); two portions of similar rings; three hub linings (Fig. 9); twenty pieces of wrought iron (Plate LXV, Figs. 1, 2, 3, 5, 6, and 7; Plate LXVI, Fig. 5; Plate LVIII, Figs. 1, 2, 9, and 13); three objects of brass (Plate LIV, Figs. 2, 3); in all, ninety-four pieces of metal. An oak plank 4 feet 5 inches by 9 by 2½ with three mortices. Portion of a human cranium and jaw; some leather and shoes, one with very fine open-work (Plate XX, Fig. 6); and a large urn of black earthenware (Plate XLIX. (A), Fig. 1). Cleared out 19 April, 1906.

PIT XVII. Diameter at surface 6 feet 6 inches; at bottom 4 feet 10 inches. Depth 31 feet 9 inches. A coating of thick clay seemed to have sealed the pit. Below this it was filled with a very dark coloured deposit.

Finds. Near the surface, a small piece of Castor ware. In the first 18 feet, the bones of nine horses. At 18 feet 9 inches, a skeleton of a dwarf lying across the pit. Below the skeleton, the skull of a dog, many oyster and mussel shells, the skull of an ox, fragments of leather, among it many small circular pieces. Fragments of Terra Sigillata, among them pieces of a decorated bowl (Type, Dragendorff 30) with cruciform pattern (page 211, Fig 1), and of a platter (Type, Dragendorff 18) with the incomplete stamp OFV (VITALIS?). Bricks, portions of flue tiles, a large iron hammer (Plate LVII, Fig. 6). A small saw with deer horn handle (Plate LXVIII, Fig. 6), an iron stylus and a finger ring, shells of oysters and mussels, and many hazel nuts. Cleared out 29 November, 1905.

PIT XVIII. Diameter at surface 5 feet; at bottom 3 feet 8 inches. Depth 11 feet 4 inches. Black deposit from a depth of 6 feet to 10 feet.

Finds. A pickaxe and a number of iron fragments, including a hippo-sandal, half a quern stone, pieces of a large urn of yellow ware (Plate L. (A), Fig. 3), and

a quantity of bones The iron was not so well preserved as in the other pits, and after exposure to the air became covered with vivianite. Cleared out 17 April, 1906.

PIT XIX. Diameter at surface 3 feet 6 inches; at bottom 2 feet 6 inches. Depth 14 feet 9 inches. The black deposit began at 7 feet, ended at 12 feet.

Finds. Many pieces of wood, including portions of oak planks, a few bones) fragments of Terra Sigillata, of mortaria and amphorae, the handle of one of the latter having the stamp C·MARI·SILVANI. At 13 feet, a quern of Niedermendig lava, both stones complete, with its iron spindle and mounting in position (Plate XXII., Fig. 7). Cleared out April, 1906.

PIT XX. Diameter at surface 4 feet 6 inches; at bottom 3 feet 6 inches. Depth 11 feet 6 inches. From a depth of 6 feet to within 9 inches of the bottom was the black deposit.

Finds. The handle of a bronze patella, shells of oysters and mussels. Some fragments of glass, the handle of an amphora stamped C·ANTON Qv. Cleared out April, 1906.

PIT XXI. Diameter at surface 4 feet; at bottom 3 feet 6 inches. Depth 9 feet 6 inches. Contained a black deposit of about 4 feet in depth.

Finds. A wooden yoke (Plate LXIX., Fig. 1), part of a decorated bowl of Terra Sigillata (Type, Dragendorff 29), (page 211, Fig. 2), some bones and leather. Cleared out April, 1906.

PIT XXII. Diameter at surface 3 feet 6 inches; at bottom 10 feet. Depth 23 feet. At a depth of 8 feet, the usual black deposit began. It ceased at 19 feet. The bottom was filled with the usual wet sticky yellow clay. The deposit contained many twigs, among them a small piece of hazel, bright and silvery as if freshly cut with a sharp tool. Towards the bottom a considerable quantity of chaff.

Finds. At 8 feet, small fragment of bowl of Terra Sigillata (Type, Dragendorff 37) of large size, with figure of a hare. At 10 feet, the skull of a horse. At 14 feet, an iron sickle (Plate LXI., Fig. 5), also an iron armet rudely made. The skull of a dog, antlers of red deer and portions of amphorae. At 17 feet, a well preserved quern of Niedermendig lava, complete with its iron spindle and mountings. Between 18 feet and 20 feet, two bridle-bits of iron (Plate LXXI., Figs. 1 and 2); an iron helmet with visor, in the form of a human face (Plate XXIX.); nine bronze discs, eight circular, one kidney shaped, with rivets for attachment to leather, each having the name DOMETI ATTICI scratched upon them (Plate XXXI.); four objects of bronze, each inscribed with the name SENECONIS (Plate XXXII., Figs. 1-4); large circular plate of bronze embossed in the centre (Plate LIV., Fig. 5); a brass helmet embossed

and highly decorated (Plates XXVI., Fig. 3, and XXVII. and XXVIII.); an iron helmet without decoration (Plate XXVI., Fig. 1) ; the ear-piece of another helmet (Plate XXXV., Fig. 10); some shaped pieces of leather; part of a bowl of Terra Sigillata (Type, Dragendorff 37), (Plate XLIII., Fig. 1). Fragments of a decorated bowl (page 211, Fig. 4). Cleared out 31 March, 1906.

PIT XXIII. Diameter at surface 8 feet; at bottom 10 feet. Depth 30 feet. Three feet of soil lay on the surface, below it for a depth of four feet, yellow clay. Below this to a depth of 24 feet, the deposit was of a bluish grey, having remains of wood and moss in it. The remainder to the bottom was yellow sludge, apparently washed down from the sides while the pit lay open.

Finds. At 18 feet, a pair of red deer antlers, and a piece of a bowl of Terra Sigillata (Type, Dragendorff 37) with medallion decoration showing figures of Pan Apollo (page 223, Fig. 2); part of a quern stone. Standing upright in the pit a branch of birch 9 feet in length. At 20 feet, the skulls of two horses. At 21 feet, two more portions of querns, one of Niedermendig lava and one of granite, and a large square brick. At 20 feet, some pieces of oak. At 22 feet, lay two wooden wheels (Plate LXIX., Fig. 2) in a horizontal position, one on the top of the other. A little to the south of these on the same level lay a human skull with a cut in it, as if from a sharp weapon. A little lower a pair of shoe soles with tackets, and a portion of the antler of an elk. At 23 feet 9 inches, an oak bucket with its iron hoop and mountings (Plate LXIX., Fig. 4). A horse skull, the skulls of five dogs, and a number of antlers of red deer. In filling in, an axe head (Plate LXI., Fig. 1), and fragments of cloth and rope. Cleared out 12 March, 1906.

PIT XXIV. Diameter at surface To feet; at bottom 3 feet. Depth 14 feet 6 inches. The black deposit lay from a depth of 8 feet to 12 feet.

Finds. Some fragments of Terra Sigillata and black ware, a hoot, the skull of a dog. A dish of Terra Sigillata (Type, Dragendorff 31), with potter's stamp MBI-M. (Plate XLI., Fig. 5). The beak of a raven. The leg bone of a cock. Cleared out 15 April, 1906.

PIT XXV. Diameter at surface 7 feet 6 inches; at bottom 3 feet 6 inches. Depth 14 feet 9 inches. From a depth of 8 feet to the bottom it was full of black deposit.

Finds. Several pairs of shoes, one (Plate XX., Fig. 5) very perfect, the nails in the sole arranged in a decorative pattern, also some bones and fragments of amphorae. Cleared out 18 April, 1906.

PIT XXVI. Diameter at top 4 feet 6 inches; at bottom 3 feet 6 inches. Depth 12 feet 6 inches. Full of very black deposit.

Finds. A small hemispherical cup of bright brass with a circular hole in the bottom (Plate LXXXIV., Fig. 9); a number of hazel nut shells adhering to it. A few fragments of Terra Sigillata and animal bones. Shells of oysters and mussels. Cleared out 5 January, 1905.

Field No. 554, Ordnance Survey Plan, 25-inch scale. Second Edition. 1898.
Roxburghshire, Sheet VIII. 2, Parish of Melrose.

Pits Nos. XXVII to LIII lie to the south of the North British Railway.

PIT XXVII. Diameter at surface 6 feet 6 inches; at bottom 3 feet. Depth 10 feet 6 inches.

Finds. At about 6 feet, skull of an ox and part of a whetstone, also fragments of thin wooden sarking. At 9 feet 6 inches, four bronze objects suggestive of armour (Plate XXXII., Figs. 5 to 8), and a set of belt mountings, ornamented with silver and over a hundred studs of different sizes and patterns (Plate XXV., Figs. 1 to 44). Fragments of bottoms of two vessels of Terra Sigillata, skulls of two dogs and portions of deer horn. Cleared out 22 January, 1907.

PIT XXVIII. Diameter at surface 4 feet 2 inches; at bottom 4 feet 2 inches. Depth 12 feet 9 inches. For a depth of 6 feet at the bottom the pit was carefully built with flat red sandstones.

Finds. Bones of oxen, oyster shells, deer horns. At a depth of 9 feet, portion of a well-dressed plank showing a mortice hole, and some fragments of very fine basket work (Fig. 1a, page 108); a bowl of fine black ware (Plate L. (A), Fig. 1), portions of three vessels of black ware with lattice-work decoration, fragments of a quern of Niedermendig lava, and a number of blocks of peat. Cleared out 25 January, 1907.

PIT XXIX. Diameter at top 4 feet 6 inches; at bottom 4 feet 6 inches. Depth 8 feet. No finds. Cleared out January, 1907.

PIT XXX. Diameter at surface 4 feet; at bottom 3 feet 6 inches. Depth 5 feet. No finds. Cleared out January, 1907.

PIT XXXI. Diameter at surface 4 feet 6 inches; at bottom 3 feet 6 inches. Depth 10 feet. For a depth of 2 feet 6 inches at bottom the sides of the pit were built with river stones. The building was 16 inches thick. No finds. Cleared out January, 1907.

PIT XXXII. Diameter at surface 3 feet 6 inches; at bottom 3 feet 6 inches. Depth 10 feet. This pit has been built. The lining of river stones 2 feet in thickness remained for a depth of 6 feet 6 inches from the bottom. No finds. Cleared out February, 1907.

PIT XXXIII. Diameter at surface 6 feet 6 inches; at bottom 3 feet. Depth 8 feet 6 inches. A considerable amount of the usual black deposit, but no finds. Cleared out February, 1907.

PIT XXXIV. Diameter at surface 6 feet; at bottom 4 feet 6 inches. Depth 13 feet 6 inches.

Finds. A small piece of a dish of Terra Sigillata (Type, Drag. 18). Two pieces of quern of Niedermendig lava. Animal bones and a quantity of leather, also a piece of oak fashioned for some purpose with a hole bored in it. Cleared out February, 1907.

PIT XXXV. Diameter at surface 2 feet 8 inches; at a depth of 6 feet, 4 feet at bottom 3 feet. Depth 11 feet 9 inches. The sides had been built with red sandstones. The masonry for about 10 feet from bottom remained.

Finds. Some animal bones, oyster shells, soles of shoes and a fragment of Terra Sigillata. Cleared out February, 1907.

PIT XXXVI. Diameter at surface 7 feet; at bottom 4 feet. Depth 11 feet 6 inches. Finds. At 6 feet down were some shoes and leather, also a small fragment of Terra Sigillata and some pieces of black ware. Cleared out February, 1907.

PIT XXXVII. Diameter at top 8 feet; at bottom 3 feet 6 inches. Depth 12 feet. This pit was very full of the black deposit containing many twigs and much moss.

Finds. Small pieces of black ware with diamond pattern, and fragments of a cup of Terra Sigillata (Type, Drag. 33). At the bottom, a well-preserved weaving comb of horn (Plate LXVIII., Fig. 1). Shells of mussels and oysters. Cleared out 27 February, 1907.

PIT XXXVIII. Diameter at surface 10 feet; at bottom 4 feet. Depth 13 feet 6 inches.

Finds. A small piece of black pottery and a bronze stud. Cleared out February, 1907.

PIT XXXIX. Diameter at surface 6 feet; at bottom 4 feet. Depth 7 feet.

Finds. At about 5 feet deep in the black deposit, a cup of Terra Sigillata (Type, Dragendorff 33), (Plate XLI., Fig. 13), and a shallow bowl of black ware (Plate L. (A), Fig. 5). Somewhat lower, the fragments of a shallow dish of black ware with lattice-work pattern (Plate L. (B), Fig. 6). Cleared out 1 March, 1907.

PIT XL. Diameter at surface 4 feet; at bottom 4 feet by 3½. Depth 11 feet. The sides had been built, and the lining of river stones remained for a depth of 9 feet from bottom.

Finds. An iron knife (Plate LX., Fig. 5). A small wooden box (Plate LXIX., Fig. 3). The fragments of a bowl of Terra Sigillata (Type, Dragendorff 37), (Plate XLV., Fig. 1). Pieces of a headstall of iron. A bronze ring and an object of deer horn (Plate LXXXIV., Fig. 1). Cleared out 4 March, 1907.

PIT XLI. Diameter at surface 10 feet; at bottom 6 feet. Depth 10 feet 6 inches.

Finds. Some shoes. The mouth of a large jar, a small fragment of decorated Terra Sigillata, a piece of the mouth of a thin hard-baked yellow vessel. The bottom of a jar which had probably been used for playing a game. Cleared out 5 March, 1907.

PIT XLII. Diameter at surface 7 feet; at bottom 3 feet 6 inches. Depth 8 feet 9 inches.

Finds. At about 5 feet, entering on the black deposit, pieces of a small cup (Type, Drag. 33), with the stamp SAMILLI-M (Plate XLI., Fig. 9), and a sandal. Cleared out March, 1907.

PIT XLIII. Diameter at surface 9 feet; at bottom 3 feet 6 inches, Depth 11 feet.

Finds. Two amphora handles, portion of a boot. Cleared out March, 1907.

PIT XLIV. Diameter at surface 9 feet; at bottom 6 feet. Depth 11 feet.

Find. An iron awl (Plate LIX., Fig. 16). Cleared out March, 1907.

PIT XLV. Diameter at surface 6 feet; at bottom 3 feet 6 inches. Depth 13 feet 6 inches.

Finds. Many fragments of cooking pots and other black vessels (Plate XLVIII., Types 48 and 49). Two pieces of yellow ware with diamond decoration. Bottom of a bowl of whitish ware. Portions of four bowls of Terra Sigillata, showing late wreath decoration (page 223, Figs. 4 and 5). Fragments of a cup (Type, Dragendorff 33). A bronze stud, some leather) an iron object (Plate LXVI., Fig. 1). No vessels could be restored from the fragments. Cleared out 19 March, 1907.

PIT XLVI. Diameter at surface 7 feet; at bottom 3 feet 6 inches. Depth 7 feet. was not so black as usual.

Finds. The deposit A well-preserved sandal and shoe, and about half of a mortarium with stamp MF. Cleared out 20 March, 1907.

PIT XLVII. Diameter at surface 7 feet; at bottom 3 feet. Depth 9 feet. This pit had been cut in soft sandy soil, and about a dozen wooden posts had been placed at intervals round the sides; behind these, heather and twigs had been packed to keep the sides from slipping.

Finds. A number of fragments of black pottery, and a small fragment of the bottom of a vessel of Terra Sigillata, with the stamp MARCELL... Cleared out 21 March, 1907.

PIT XLVIII. Diameter at surface 3 feet; at bottom 2 feet. Depth 12 feet 6 inches. For a depth of 10 feet from the bottom the sides were built.

Finds. A number of fragments of black ware, and a small piece of the lip of a bowl of Terra Sigillata (Type, Dragendorff 37). Cleared out March, 1907.

Field No. 553, Ordnance Survey Plan, 25-inch scale. Second Edition. 1898. Roxburghshire, Sheet VIII. 2, Parish of Melrose.

PIT XLIX. Diameter at surface 3 feet; at bottom 1 foot 6 inches. Depth 13 feet 7 inches. This was a built well. For a depth of 11 feet from the bottom it was lined with cobbles, intermixed with a few sandstones. It was full of black deposit.

Finds. A number of fragments of pottery, among them several pieces of Terra Sigillata bowls of later types. The following potters' stamps occurred: on a platter (Type, Dragendorff 31), AVITVS; oil bottom of a cup (Type, Dragendorff 33),

REGINI·M; on bottom of a cup (Type, Dragendorff 27) RVFFI·MA; on fragment of a bowl (Dragendorff, 37), part of the stamp CINNAMi impressed retrograde (page 223, Fig. 3). Cleared out January, 1908.

PIT L. Diameter at surface 7 feet; at bottom 4 feet 6 inches. Depth 12 feet 9 inches.

No finds. Cleared out January, 1908.

PITS LI. to LIII. Were all shallow. About 6 feet in diameter at top, 4 feet at bottom. Depth 6 feet.

No finds except in the last of these, in which a rudely-carved pillar of red sandstone was found.

III. PITS LYING BETWEEN THE DITCHES OF THE LATER FORT.

Field No. 608, Ordnance Survey Plan, 25-inch scale. Second Edition. 1898.
Roxburghshire, Sheet VIII. 2, Parish of Melrose.

PIT LIV. Diameter at surface 4 feet 6 inches; at bottom 4 feet. Depth 22 feet 6 inches. The pit contained a considerable amount of black deposit.

Finds. The pieces of a quern of Niedermendig lava, leather, animal bones, handles of amphorae, and a large number of fragments of broken pottery. The following potters' stamps occur: on bottom of a cup (Type, Dragendorff 27), found at a depth of 10 feet, the stamp DAGO; on a fragment of bottom, OF·COTTO; on bottom of cup (Type, Dragendorff 27), OF·IVCVN. A fragment of a bowl of Terra Sigillata with transition decoration, other pieces of which were found near the surface (page 211, Fig. 5). Leather, including a number of circular patches, was common. An iron stylus, a small brass hinge (Plate LXXVII., Fig. 12); an iron spear-head (Plate XXXVI., Fig. 3); a key (Plate LXXVIII., Fig. 2); a small knife (Plate LX., Fig. 7); two hooks, a looped object of brass (Plate XXXV., Fig. 14); an oak mallet (Plate LXXXIII., Fig. 3); a wooden bobbin, and the end of a wooden pipe with a stopper (Fig. 45, page 311); the bottom of a bucket and four wooden objects resembling spokes of a wheel. Cleared out 18 April, 1908.

PIT LV. Diameter at surface 6 feet; at bottom 3 feet. Depth 16 feet. There was a deposit of black matter from a depth of 9 feet to the bottom.

Finds. A spear-head with broken point, showing cuts on the edges (Plate XXXVII., Fig. 7). One or two small fragments of pottery, among them the rim of a platter (Plate XXXIX., Type 2). A hollow rim of amber glass. Two strap ends of brass, silver-plated, and four brass loops; six brass loops of a different pattern one rectangular plate of brass with two circular bosses; another somewhat smaller, showing silver plating and copper inlaying; a large circular phalera for harness, of brass, with three loops on the back and embossed in front, showing silver plating and ornamentation with stamped copper (Plate LXXII., Figs. 1–16). Part of a small knife with brass decoration (Plate LX., Fig. 12). A number of iron objects of uncertain use. Three arrow-heads (Plate XXXVII., Figs. 8, 9 and 11), and one terminal socket (Plate XXXVIII., Fig. 15). Cleared out 15 April, 1908.

PIT LVI. Diameter at surface 5 feet; at bottom 4 feet. Depth 16 feet. The black deposit went from 5 feet to the bottom, and was very full of vegetable matter.

Finds. Two skulls of dogs, a skull of an ox, a skull of a horse, and other bones. Bottom of a platter (Type, Dragendorff 18) with the stamp OF·VITA, neck of a yellow jar; two rings of iron joined with a swivel (Plate LXXI., Fig. 6); a wooden spindle 6 inches long (Plate LXVIII., Fig. 7); small fragment of decorated bowl (Type, Dragendorff 29); a bone pin terminating in a human bust (Plate XCIII., Fig. 16). Cleared out 20 April, 1908.

IV. PIT WITHIN THE AREA OF THE WEST ANNEXE

Field No. 614, Ordnance Survey Plan, 25-inch scale. Second Edition. 1898.

Roxburghshire, Sheet VIII. 2, Parish of Melrose.

PIT LVII. THE PIT IN THE BATHS. Diameter at top 17 feet by 18 feet; at bottom 5 feet 6 inches by 8 feet. Depth 21 feet. The pit lay under the cobble foundation surrounding the bath building. The cobble layer over the pit was about 2 feet thick, evidently to allow for the softer ground below. Beneath the cobbles a clay filling of about 18 inches. The pit contained no very black deposit. Water began to gather at 9 feet.

Finds. At 8 feet, a number of hypocaust pillar bricks, 8 inches square 3 inches thick, coarsely baked, and fragments of wall bricks keyed for plaster. At 12 feet, a piece of the rim of a bowl (Type, Dragendorff 37) and a human skull. At 13 feet, bottom of a platter (Type, Dragendorff 18) with the stamp *IVLLINI*. A piece of a charred oak beam, a bronze pot (Plate LIII., Fig. 1), and the bronze handle of a tankard (Plate LIV., Fig. 7). Between this and 16 feet were found an iron strigil (Plate LXVI., Fig. 22); a sword, with a bone hilt, bent double (Plate XXXIV., Fig. 13); a small sword (imperfect) with a bronze mounting (Plate XXXIV., Fig. 10). Fragment of blade with tang of another sword; a hippo sandal; five iron hub rims and other iron fragments; a piece of dice (Plate XCIII., Fig. 3). At 15 feet, a bronze helmet mask (Plate XXX.); an iron lamp (Plate LXXIX., Fig. 6); a sword (Plate XXXIV., Fig. 11); a hub ring. At 19 feet 6 inches) two bronze pots (Plate LIII., Figs. 3 and 5). At 20 feet, a bronze ewer (Plate LVI.). In washing out the silt the pieces of a coarse earthenware bowl (Plate L. (A), Fig. 6). Animal bones were scarce. Cleared out 7 August, 1907.

V. PITS LYING TO THE NORTH OF THE FORT

Field No. 610, Ordnance Survey Plan, 25-inch scale. Second Edition. 1898.

Roxburghshire, Sheet VIII. 2, Parish of Melrose.

PIT LVIII. Diameter at surface 7 feet; at bottom 3 feet 6 inches. Depth 19 feet 6 inches. Black deposit from 12 feet 6 inches to bottom. The deposit was much more full of clay than usual, and iron objects, of which there were several, were recovered in a corroded condition, with stones adhering to them.

Finds. An iron sword, the upper part bent over the blade; the brass mounting of the hilt remains (Plate XXXIV., Fig. 8). A second hilt mounting, with portion of blade adhering (Plate XXXV., Fig. 11). Piece of brass, with embossed Late Celtic design (Plate LXXV., Fig. 5). Semicircular object of bone, perhaps from a sword hilt (Plate LXXXIV., Fig. 4). Portion of another of the same (Fig. 10). Heavy object in brass of the same shape, with iron tang (Fig. 13). Head of a linch pin (Fig. 2). Brass objects of uncertain use (Plate LXXXIV., Figs. 3, 6, 7, 8, 11). A bronze terret ring for harness (Plate LXXV., Fig. 12). A small cup of lead (or white bronze), with graffito on the bottom *MAXIMI* (Plate LIV., Fig. 9). Portion of a decorated bowl (Type, Dragendorff 37), with cruciform ornament and small medallion with figure of an eagle (Type, Déchelette 982), (page 213, Fig. 1).

Portions of a frilled tazza of brown ware. The upper part of a beaker urn of 'rustic ware.' In the upper levels part of a much corroded brass coin of a Flavian Emperor. Cleared out 14 September, 1908.

PIT LIX. Diameter at surface 7 feet 6 inches; at bottom 5 feet. Depth 28 feet 9 inches. For a depth of 20 feet from the surface, the filling was yellow clay, like the natural subsoil, with occasional patches of darker material.

Finds. At 12 feet, five fragments of decorated bowls of probably part of the filling in of the Antonine period. One of these certainly German, the rest probably Lezoux (page 225, Figs. 1, 2, 3 and 6). At 20 feet, the usual black material began and continued to the bottom. From 20 to 23 feet, bottom of a cup (Type, Dragendorff 27); three or four portions of Terra Sigillata bowls (Type, Dragendorff 29), (page 213, Figs. 2, 3 and 4); a piece of 'rustic ware'; several pieces of a small beaker urn of very fine black ware, with decorated rim (Plate LI, Fig. 5); fragment of rim of a mortarium; a section of the base of a deer horn carved with a phallus (Plate LXXXIV, Fig. 14); a weaving comb (Plate LXVIII, Fig. 4); bronze object with settings for enamel (Plate LXXV, Fig. 11). A small brass hook, a short gouge-like tool of iron; a piece of iron 14 feet long, recalling the neck of a pilum; an edging of brass (Plate XXXV, Fig. 1). Cleared out 8 October, 1909.

PIT LX. Diameter at surface 5 feet; at bottom 4 feet. Depth 18 feet. The black deposit began at 12 feet and continued to the bottom.

Finds. An iron stylus. The handle of an amphora resembling Type, Haltern, Band ii. Fig. 26. The side of an early flat-rimmed shallow bowl. In washing out the silt, a circular belt or harness mounting of bronze, with silver plating (Plate LXXIV, Fig. 2); also a number of small studs of brass employed for the decoration of leather. Cleared out 21 October, 1908.

PIT LXI. Diameter at surface 7 feet 6 inches; at bottom 3 feet. Depth 36 feet. The black deposit began at 12 feet 6 inches and continued to the bottom.

Finds. At 20 feet, a very long fine whetstone (Plate LXII, Fig. 2); pieces of decorated bowls (Type, Dragendorff 37), (page 213, Figs. 5 and 6), one with the stamp. CRVCVRO; a piece of a bowl (Type, Dragendorff 30). At 21 feet, the pieces of an iron gridiron (Plate LIII, Fig. 2). Between 23 feet and 28 feet, two skulls of horses, an ox skull and some bones; also one or two pieces of leather. At 32 feet, lying beneath a large stone, a quern of Niedermendig lava, complete with its iron spindle; a dolabra with the maker's stamp (Plate LVII, Fig. 1); two long pick-like objects without eyes for the shafts (Plate LVIII, Figs. 7 and 8); the

lead weight of a steelyard (Plate LXXXIII., Fig. 9). At 33 feet, bottom of a dish (Type, Dragendorff 18), with the stamp OF·VITAL. Many wood chips, hazel stems and nuts, stems of heather, bracken, and moss. Cleared out 18 November, 1908.

PIT LXII. Diameter at surface 6 feet 6 inches; at bottom 3 feet. Depth 22 feet. Black deposit began at 12 feet 6 inches.

Finds. A few pieces of bone, scraps of leather, branches of birch, a small piece of a bowl (Type, Dragendorff 37) showing arrow-point decoration, and a portion of a dish of smooth grey ware. Cleared out 12 November, 1908.

PIT LXIII. Diameter at surface 6 feet 6 inches; at bottom 3 feet 8 inches. Depth 14 feet 6 inches. Black deposit began at 9 feet.

Finds. Fragments from two beaker urns of 'rustic ware.' Part of bowl (Type, Dragendorff 37) transition foliage, and portions of three others, one showing mend with lead clamps (page 213, Figs. 7–11). Part of the handle of a bronze patella. Two pieces of slag. Part of a cup and of a shallow bowl (Types, Dragendorff 27 and 35) with lotus decoration on rim. Cleared out 1 December, 1908.

PIT LXIV. Diameter at surface 6 feet 6 inches; at bottom 3 feet. Depth 9 feet.

Finds. A few fragments of pottery. Part of cup (Type, Dragendorff 27). Part of small decorated pot (Déchelette Type 67), and of bowls (Type, Dragendorff 29 and 37). Cleared out 30 November, 1908.

PIT LXV. Rectangular in shape. Size at surface 6 feet by 7 feet 6 inches. At bottom 3 feet 6 inches by 4 feet 3 inches. Depth 17 feet. Black deposit began at 9 feet.

Finds. At 8 feet, a denarius of Galba. In the black deposit a button-like object of horn (Plate LXXVII., Fig. 16); the spring of a fibula (Plate LXXXV., Fig. 10), a hinge, a loop, a surgeon's probe (Plate XCIII., Fig. 13), all of brass; two ribbed melon-shaped beads. At the bottom a hanging lamp of iron (Plate LXXIX., Fig. 7); a denarius of the Republican period, Gens Cordia, B.C. 46; fragments of a black beaker urn (Plate XLIX. (A), Fig. 7) and of a cup (Type, Dragendorff 27), and of several flat-rimmed pans, and other coarse vessels. A short neatly turned piece of wood resembling a spoke for a small wheel. In one corner of the pit a steering oar of oak 5 feet 5 inches long stood upright (Plate LXIX., Fig. 5). Cleared out 5 December, 1908.

PIT LXVI. Diameter at surface 10 feet; at bottom 3 feet. Depth from surface 32 feet. This pit differed completely from the preceding. It had no black deposit. It was wet and filled with coarse gravel. The upper part to a depth of about 5 feet appeared to have fallen in.

Finds. Near the surface, a denarius and half of a denarius, both of Vespasian. In the lower levels a number of animal bones, skulls of eight horses and thirteen oxen, and one or two antlers of deer. Pieces of amphorae, one piece of a cup (Type, Dragendorff 27), a whetstone, and two quern stones. One of the latter is of the bee-hive type (Plate XVII., Fig. 12). Cleared out 11 December, 1908.

PIT LXVII. This pit was rectangular, 7 feet by 8 feet at surface. The dimensions were the same at bottom. Depth 8 feet.

Finds. Two feet from the surface a lamp holder of lead and a 'second brass' coin of Domitian. At the bottom, for a depth of 3 feet, a deposit of blackish colour containing a piece of the rim of a bowl (Type, Dragendorff 29) and some leather. Cleared out 19 December, 1908.

PIT LXVIII. Diameter at surface 7 feet; at bottom 3 feet. Depth 14 feet 9 inches. The black deposit began at 9 feet.

Finds. Near the surface a 'second brass' coin of Sabina. In the black deposit a large portion of an amphora and some leather. Cleared out 28 December 1908.

VI. PITS WITHIN THE AREA OF THE SOUTH ANNEXE— Continued

Field No. 607, Ordnance Survey Plan, 25-inch scale. Second Edition. 1898.
Roxburghshire, Sheet VIII. 2, Parish of Melrose.

PIT LXIX. Diameter at surface 5 feet; at bottom 4 feet 6 inches. Depth 10 feet.

Finds. Fragment of a decorated bowl (probably Type Déchelette 78); fragments of other early vessels of Terra Sigillata. Cleared out 8 January, 1910.

PIT LXX. Diameter at surface 5 feet; at bottom 3 feet 6 inches. Depth 13 feet 6 inches.

Finds. Fragments of late Terra Sigillata with large wreath decoration and of coarse ware. A small bronze lunette ornament for suspension. A waggon wheel of wood. Cleared out 17 January, 1910.

PIT LXXI. Diameter at surface 6 feet 6 inches; at bottom 3 feet 6 inches. Depth 10 feet 6 inches. Finds. Many burnt bones. Cleared out 21 January, 1910.

PIT LXXII. Diameter at surface 9 feet; at bottom 3 feet 3 inches. Depth 14 feet 6 inches.

Finds. At 6 feet, a 'second brass' coin of Trajan, also fragment of Terra Sigillata with the stamp CRACVNA·F. In the black deposit a considerable number of fragments of decorated Terra Sigillata, all of the later period. Fragments of undecorated dishes with the stamps RVFFI·M and SVOBNI·F. A bowl of fine black ware (Plate XLIX. (B), Fig. 8). Fragment of rim of a mortarium with stamp GAD (Fig. 35, page 266, No.4). In filling in, the bottom of a cup (Type, Dragendorff 33) with the stamp SEVERV·S. Cleared out 1 February, 1910.

PIT LXXIII. Diameter at surface 9 feet 6 inches; at bottom 4 feet. Depth 30 feet. This pit lay under the cobbling of the road running from the earlier second occupation gateway on the south. For a depth of 8 feet from the surface it was filled with cobble stones.

Finds. A few pieces of early decorated Terra Sigillata. Some leather and rope. A small comb, and a bronze stylus. Cleared out 11 February, 1910.

PIT LXXIV. Diameter at surface 5 feet 6 inches; at bottom 4 feet. Depth 6 feet.

Finds. Bottom of a platter (Type, Dragendorff 31) with stamp MARCELLI·M. A number of fragments of coarse pottery chiefly of the late black cooking pot (Plate XLVIII., Type 48). One piece of a frilled tazza. Cleared out 15 February, 1910.

PIT LXXV. Diameter at surface 5 feet 6 inches; at bottom 3 feet. Depth 9 feet.

Finds. At 6 feet, small dish of coarse grey ware (Plate XLIX. (B), Fig. 9); fragment of bowl (Type, Dragendorff 29); also of cup (Type 27) with incomplete stamp, IX, probably 'Felix.' Pieces of a yellow mortarium of the early type (Plate XLV., Type 24). Cleared out 17 February, 1910.

PIT LXXVI. Diameter at surface 9 feet; at bottom 3 Feet. Depth 15 feet.

Finds. At 9 feet, a number of fragments of early pottery and broken Niedermendig quern stones. At 11 feet, four unbroken dishes. Platter (Plate XXXIX., Type 2), with stamp SABINVS F. Platters (of Type, Dragendorff 18) with stamp OF·MSCVLI and of Type, Dragendorff 36 (Plate XXXIX., Fig. 5), and an urn of grey ware (Plate XLIX. (B), Fig. 5). A pair of iron hinges (Plate LXXXIII., Figs. 8 and 12). Fragment of Terra Sigillata with stamp O·FIRMON. Part of neck and handle of an amphora with stamp O·MARI SILVANI; also neck of a jar with painted inscription APRILIS·HEL . . . (Plate LII., Fig. 21). Small fragment of rim of a bowl of grey ware with red colouring on the interior (Plate XLVIII., Type 39). A large jug with a single handle (Plate XLIX. (B), Fig. 3). Cleared out 21 February, 1910.

PIT LXXVII. Diameter at surface 5 feet; at bottom 3 feet. Depth 9 feet.

Finds. A small quantity of fragments of coarse pottery of early type, including the broad-rimmed mortarium. Cleared out 24 February, 1910.

PIT LXXVIII. Diameter at surface 6 feet; at bottom 3 feet. Depth 12 feet.

Finds. At 11 feet, three cups of Type, Dragendorff 27, and two of Type, Dragendorff 35, undamaged. In a more or less complete state were eight other vessels of Terra Sigillata (Types, Dragendorff 18,—with stamp O SEVERI,—27, 35, and 36). On bottom of a cup (Type, Dragendorff 33) the stamp CRISPI·M; fragments of a decorated bowl (Type, Dragendorff 37) with transition decoration. Three mortaria of whitish grey ware. Three jugs (Plate XLIX. (B), Figs. 2 and 4) and a number of necks and other portions of such vessels. Fragments of a bowl of thick hard grey ware (Plate XLVI., Type 26). Fragments of three shallow bowl-like vessels of hard grey ware with a red colouring in the interior. Another vessel of the same type with white colouring (Plate XLVIII., Type 39). A large two-handled jar with painted inscription ATTI · SECVNDI · T · LAGVNVM (Plate XLIX. (B), Fig. 1). An object of leather with decorative pattern formed by the insertion of small brass studs (Plate XXI.). Five harness mountings of bronze silver-plated (Plate LXXIII., Figs. 1–5). A wooden writing tablet. A brass pin. Cleared out 8 March, 1910.

PIT LXXIX. Diameter at surface 7 feet; at bottom 3 feet 6 inches. Depth 15 feet 6 inches.

Finds. Some small fragments of early pottery, among them one of a decorated bowl of Terra Sigillata (Type, Dragendorff 37) with transition decoration; part of a mortarium with the stamp MARINVS; and some leather. A 'second brass' coin of

Domitian (Type, *Fortunae Augusti*), struck during the eleventh consulship of the Emperor, A.D 85. Cleared out 14 March, 1910.

PIT LXXX. Diameter at surface 3 feet; at bottom 3 feet. Depth 12 feet. This was a built well. The lining of cobble stones with occasional pieces of red sandstone remained in good condition for a depth of 10 feet. The bottom was paved with red sandstone.

Finds. Several red deer antlers; an iron ring; a fragment of the bottom of a cup (Type, Dragendorff 33) with stamp *BELINICI·M.* impressed retrograde. An urn of bluish grey ware (Plate XLIX. (B), Fig. 7); a small ring fibula of brass. Cleared out 19 March, 1910.

PIT LXXXI. Diameter at surface 9 feet. Into this pit had been inserted a framework of timber measuring 3 feet 6 inches by 3 feet, and 9 feet in depth. For a depth of 3 feet from the surface the woodwork was surrounded by finely puddled yellow clay; below it lay cobble stones.

Finds. Some fragments of pottery in which the late black cooking pot predominated (Plate XLVIII., Type 48); a small piece of a late bowl (Type, Dragendorff 37); a fragment of a mortarium rim with a double palm branch stamped upon it. Cleared out 23 March, 1910.

PIT LXXXII. Diameter at surface 3 feet; at bottom 2 feet. Depth 15 feet. This was a built well. The lining of cobbles remained for a depth of 11 feet. There was no paving in the bottom.

Finds. Some late black pottery; a fragment of *Terra Sigillata* with 'free figure' design. The neck of a small jug (Fig. 33, page 262, No.13); the spoke of a wheel, and a number of soles of shoes. Cleared out 24 March, 1910.

PIT LXXXIII. Diameter at surface 8 feet; at bottom 4 feet. Depth 17 feet.

Finds. At 6 feet, in the black deposit lay an altar dedicated to Apollo (Plate XVII., Fig. 2); near it, its base. On a level with the altar were found two fragments of *Terra Sigillata* (Type, Dragendorff 37), one of which belongs to a bowl decorated with a 'free figure' design; also a piece of an urn of grey ware resembling in quality one found in Pit LXXX. Beneath the altar the black deposit was very full of brushwood. At the bottom some fragments of an iron shield-boss and nails. Cleared out 25 March, 1910.

PIT LXXXIV. Diameter at surface 7 feet; at bottom 3 feet. Depth 13 feet. No finds. Cleared out 31 March, 1910.

PIT LXXXV. Diameter at surface 9 feet; at bottom 3 feet. Depth 18 feet 6 inches.

Finds. Near the surface above the pit fragments of a small yellow bowl (Plate XLVIII., Type 44). At 8 feet, some pieces of the common black cooking-pot (Plate XLVIII., Fig. 48). A small mortarium nearly perfect. Fragments of a platter (Type, Dragendorff 31) with stamp BITVNVS. A number of shoes, the workmanship clumsy, recalling those of the Inner Ditch, East Annexe. At 7 feet, some large branches of alder and birch. At 14 feet, a small bronze spoon (Plate LXXIII., Fig. 6). Cleared out 6 April, 1910.

PIT LXXXVI. Diameter at surface 10 feet; at bottom 3 feet 6 inches. Depth 18 feet.

Finds. At no great distance from the surface, but in the black deposit, fragments of platters (Type, Dragendorff 31). Bottom of a cup (Type, Dragendorff 27), somewhat coarse, with stamp · · IALI·M. Large portion of a mortarium with stamp (Fig. 35, page 266, No. 24). An iron knife with bone handle 9 inches in length. A round flat disc of brass with a tang 'for attachment. The lower portion of a coarse urn-like vessel with stamp QGA impressed twice on the side. Cleared out 12 April, 1910.

PIT LXXXVII. Diameter at surface 5 feet; at bottom 3 feet. Depth 8 feet.

Find. A fragment of a mortarium of late type. Cleared out 8 April, 1910.

PIT LXXXVIII. Diameter at surface 3 feet by 3 feet 6 inches; at bottom 3 feet. Depth 12 feet 6 inches. This was a built well. The masonry of poor quality remained for a depth of eleven feet.

Finds. Bones of horse, sheep, pig, bos longifrons. Antlers of red deer. A fragment of a bowl of Terra Sigillata (Type, Dragendorff 37) of late pattern. A fork-shaped object of iron 8¾ inches in length. At the bottom some shoes and the pieces of an oak bucket with part of its iron mounting. Cleared out 11 April, 1910.

PIT LXXXIX. Diameter at surface 9 feet; at bottom 3 feet 6 inches. Depth 16 feet.

Finds. The neck of an amphora with the letters C S A incised upon it. Fragment of bottom of a platter (Type, Dragendorff 31) having the name MERCATOR scratched upon it. A well-made whetstone 4¼ by 2 inches. A small circular disc of red sandstone. An iron hoe. A number of shoes, and small pocket of leather. Bones of oxen, horses. A well-preserved and very complete skull of a dog. Cleared out 18 April, 1910.

PIT XC. Diameter at surface 9 feet. Depth 8 feet 6 inches.

At 2 feet 6 inches from the surface the sides of the pit were found to be packed with red clay, while, across the middle, running from east to west, was a trench about 20 inches in width, widening out at the end. The sides of this trench were supported on the south side by a row of wooden stakes; smaller branches seem to have been laced against the north side. The trench was filled with the usual black deposit, among which was some pieces of late pottery. Cleared out 27 April, 1910.

PIT XCI. Diameter at surface 9 feet. At 3 feet from the surface, a floor of yellow clay eighteen inches in depth was reached. The clay was found to be resting on logs six to eight inches thick laid across the opening of a built well. In the centre of the clay floor an aperture 2 feet square had been built with stones. Beneath the floor the well was 4 feet 6 inches in diameter, gradually sloping inward until at about half its depth it reached a diameter of 3 feet, at which it continued to the bottom. The total depth of the well from the modern surface was 17 feet 6 inches. The built portion lying beneath the floor was 12 feet in depth. Notwithstanding the small aperture, it had been filled up with a black matter somewhat more friable than the usual deposit met with in pits.

Finds. Many animal bones, chiefly of oxen, and shells of oysters and mussels were present, also some fragments of pottery; these belonged to the later period. Portions of a bowl (Type, Dragendorff 37) with large wreath decoration; also of a bowl of the same pattern as Fig. 2, page 225. The shallow bowl (Type 47) was present) as also the grey metallic-looking ware of the urn found in Pit LXXX. Cleared out 23 April, 1910.

PIT XCII. Diameter at surface 5 feet; at bottom 2 feet. Depth 8 feet 6 inches. The pit contained very little black matter. Its filling was a yellow sticky clay, in which were great quantities of animal bones, chiefly those of oxen, split up to extract the marrow.

Finds. At 6 feet 6 inches, a figure of a horse in fine white Terra Cotta on a stand (Plate LXXIII. (B)). A circular disc of bronze $9\frac{7}{8}$ inches in diameter with loops on the back for attachment (Plate XXXIII.). The pit contained no pottery. Cleared out 26 April, 1910.

PIT XCIII. Diameter at surface 7 feet; at bottom 5 feet. Depth 8 feet 6 inches.

Finds. A circular mortar of stone 1 foot in diameter, 6 inches high, with two handles. A number of stones showing tooling, one of these has evidently formed part of a curved block adapted to some secondary use. A number of fragments of late Terra Sigillata and vessels of coarse ware. Cleared out 27 April, 1910.

PIT XCIV. At a depth of 6 feet 9 inches, a barrel was found employed to line the well; it stood 6 feet 6 inches high. Diameter at top 2 feet 8 inches; in the middle 3 feet 3 inches; at bottom 2 feet 9 inches. The bottom had been removed. It was made of pine, having seventeen staves 6 to 7 inches in breadth, 1 inch thick. Below it lay a half barrel, 3 feet 3 inches high. Diameter 2 feet 8 inches at top; at bottom 3 feet 2 inches. The barrel was also of pine, with the same number and size of staves as the one which lay above it. The total depth of the well was 17 feet.

Finds. A long iron shovel. Pieces of amphorae. Many broad laths of split oak, about ½ inch thick. Skull of a goat. Some bones of oxen. Cleared out 17 May, 1910.

PIT XCV. Diameter at surface 9 feet; at bottom 4 feet. Depth 17 feet.

Finds. In the upper levels a piece of a decorated bowl (Type, Dragendorff 37) with large medallions. From 8 to 10 feet, a number of logs of wood. Skull of *Bos Longifrons*. Several antlers of the red deer, one shaped as though to form a pick. At the bottom were found the hub of a wheel with portions of spokes. Four hanging ornaments of brass with iron ring; one small brass tongue attached to a brass ring; a circular disc of brass—all belonging to harness. Two buckles of iron. An iron key in fine preservation. A large mounting of hammered iron. An object resembling a linch pin. A cup (Type, Dragendorff 33) with stamp GEMINI M. A small two-handled cup (Plate XL., Type 17). Two fragments of late decorated bowls. A shallow bowl of black ware (Plate XLVIII., Type 41), and fragments of Types 48 and 49. Two small pots of brown ware (Plate XLVIII., Type 47). A well worn 'first brass' coin of Trajan. Cleared out 27 May, 1910.

PIT XCVI. Diameter at surface 9 feet. At 7 feet lay a half barrel, 4 feet high. Diameter at top 2 feet 8 inches. Beneath it a whole barrel, 6 feet 6 inches high. The size and material were the same as that of the barrel found in Pit XCIV. Total depth 22 feet.

Finds. A long iron mounting broken in two pieces, probably a shield rib. Many fragments of amphorae. Cleared out 1 June, 1910.

PIT XCVII. Diameter at surface 7 feet; at bottom 2 feet 6 inches. Depth 14 feet.

Finds. The pit contained a very considerable quantity of black deposit. Some red deer antlers. A small knife or dagger. Fragment of a bowl with large wreath decoration, and of cup (Types, Dragendorff 37 and 33). A few pieces of coarse late pottery. Cleared out 2 June, 1910.

PIT XCVIII. Diameter at surface 6 feet 9 inches; at bottom 4 feet. Depth 16 feet 8 inches.

Finds. Pieces of a dish (Type, Dragendorff 31) with stamp BANOLUCCI. Pieces of a cup (Dragendorff, Type 33) with stamp FEGINI·M. Some oyster shells and antlers of red deer. Cleared out 13 June, 1910.

PIT XCIX. Diameter at surface 6 feet 6 inches; at bottom 4 feet. Depth 18 feet.

Finds. Near the surface, fragments of a yellow urn resembling Plate L. (A), Fig. 3. At 10 feet, some fragments of decorated bowls of Type, Dragendorff 37, all probably late. At bottom, a bronze cooking-pot with an iron handle inscribed TVRMA · CRISPI · NIGRI. Cleared out 15 June, 1910.

PITS C to CVII. These pits discovered and cleared out while this volume was passing through the press produced few objects of importance. Three of them, Nos. C, CIII and CVII, were built wells. Pit CII, which contained remains of decorated leather, was the only one which produced early pottery.

CHAPTER VIII

Objects of Stone Including Inscriptions

The Inscribed Stones

IT has already been noted that the comparative absence of inscribed stones was a disappointing feature of the excavations. Apart from four tantalising fragments, the number of new inscriptions recovered was three. All of them were upon altars. A fourth altar had originally borne a dedication, but the surface had so far decayed as to render the letters wholly illegible. All four altars were found lying in positions which suggested that they had been concealed when the fort was finally abandoned. A detailed account of the discovery, in the well in the Principia, of the one dedicated to Jupiter Optimus Maximus has been given above; its associations showed that it had been deposited there in post-Hadrianic times. Another, dedicated to Apollo, found in Pit LXXXIII, was only six feet from the surface, although the total depth of the pit was seventeen feet; it lay among the black deposit, while on the same level were picked up fragments of decorated Terra Sigillata characteristic of the second century. This second altar had clearly been thrust into an already existing rubbish pit. The two others were taken from the ditch of the East Annexe. In the following descriptions it will be convenient to include the two altars which were discovered many years ago upon the site.

Altar to the Campestres

1. An altar dedicated to the Campestres was found by Thomas Vair, weaver in Newstead, while ploughing in the field next the Red Abbeystead park, and about 200 yards east from it, in the year 1783. This altar, which is now in the National Museum of Antiquities, Edinburgh, is of red sandstone, and is two feet three inches in height and one foot broad. It shows little decoration. On the top are remains of the usual volutes with a circular focus between them. The base projects slightly and the inscribed panel is separated from the top by bands of moulding. For a number of years it was deposited in the Advocates' Library, from whence it

passed to the Museum of Antiquities. The circumstances of its discovery had been entirely forgotten until they were brought to light again through the instrumentality of Dr. John Alexander Smith.¹ From the illustration in Plate XVII., Fig. 1, it will be seen that the dedication reads:

CAMPESTR(IVS) · SACRVM · AEL(IVS) · MARCVS · DEC(VRIO) · ALAE · AVG(VSTAE) ·
VOCONTIO(RVM) · V(OTVM) · S(OLVIT) · L(IBENS) · L(VBENS) · M(ERITO).

Sacred to the Campestres. Aelius Marcus, Decurion of the Ala Augusta of the Vocontii, willingly gladly deservedly has performed his vow.

Altar to Silvanus

2. According to Dr. Smith's report² a second altar—dedicated to Silvanus—was found on 15th January, 1830, in digging a drain, about three feet below the surface, in a field immediately to the south of the Red Abbeystead. The exact spot is indicated in a diary of the late Mr. George Burnet, now in the possession of his son, Mr. F. Burnet, Leaderfoot, as having been sixty yards south-east of the south-east corner of the Red Abbeystead field. This would point to very much the same place as that in which the altars Nos. 4 and 5 were discovered. This altar was for many years preserved at Drygrange. It is now at Ross Priory, Dumbartonshire, in the possession of Sir Alexander Leith Buchanan, Bart. Its height 'is 43 inches, breadth 18 inches, and thickness 12 inches. It is formed of a block of yellowish sandstone with an ogee moulding round its base. The moulding is continued round three of its sides, leaving the altar as usual plain on the back.³ Dr. Smith renders the name of the dedicator as CARRIUS DOMITIANUS. Obviously, however, it should be read G. ARRIUS DOMITIANUS. The inscription runs thus:

DEO · SILVA ·
NO · PRO · SA
LVTE · SVA · ET
SVORVM · G · AR
RIVS · DOMITI
ANVS > LEG · XX
V · V · V · S · L · L · M

DEO · SILVANO · PRO · SALVTE · SVA · ET · SVORVM · G
(AIVS) · ARRIVB · DOMITIANVS · C(ENTVRIO) · LEG(IONIS) ·
XX · V(ALERIAE) · V(ICTRICIS) · V(OTVM) · S(OLVIT) · L
(IBENS) · L(VBENS) · M(ERITO).

To the God Silvanus. For his safety and that of his household Gaius Arrius Domitianus Centurion of the Twentieth Legion Valeria Victrix willingly gladly deservedly has performed his vow.

3. The altar dedicated to Jupiter, found on 14th September, 1905, at a depth of twelve feet below the surface in Pit No. I—the well of the

1 *Proceedings of the Society of Antiquaries of Scotland*, vol. i p. 30.

2 *Ibid.* p. 29.

3 *Ibid.* vol. i. p. 28. An illustration is given in plate i, of the volume.

Principia—is now in the possession of T. J. S. Roberts, Esq., at Drygrange. It has been cut from a block of yellow sandstone and stands four feet high, being seventeen inches wide and fifteen inches thick. On either side of the top are volutes sculptured with rosettes, and between the volutes is a circular focus. The panel containing the inscription is hounded by broad bands of moulding. The illustration in Plate XVI. shows that it is to be read thus:

I(OVI) · O(PTI MO) · M(AXI MO) · G(AIVS) · ARRIVS · DOMITIANVS · C(ENTVRIO) ·
 LEG(IONIS) · XX · V(ALERIAE) · V(ICTRICIS) · V(OTVM) · S(OLVIT) · L(IBENS) ·
 L(VBENS) · M(ERITO).

To Jupiter the Best and Greatest. Gaius Arrius Domitianus Centurion of the Twentieth Legion Valeria Victrix willingly gladly deservedly has performed his vow.

4. The fourth altar, which is now in the National Museum of Antiquities, Edinburgh (Plate XVIII., Fig. 1), was found on 6th March, 1909, in the ditch of the East Annexe of the fort (Field No. 555 O.S. Plan of the Parish of Melrose). It lay at no great depth from the surface. The yellow sandstone of which it is composed was much disintegrated, and flaked off as it was lifted. The dimensions are as follows: height, three feet eleven inches; breadth, eighteen inches; thickness, eleven and a half inches. It has been more highly decorated than any of the preceding. There are on the top the usual volutes, and between them a circular focus. Beneath the volutes runs a band of ornament resembling pointed leaves, and below this again are bands of moulding. On the sides are sculptured the vessels used in the sacrifice—the jug (*urceus*) and the patera. The inscription has disappeared.

5. The fifth altar, dedicated to Diana, was found on 8th March, 1909, close to No. 4, in the ditch of the East Annexe (Field No. 555 O.S. Plan). It is now in the National Museum of Antiquities, Edinburgh, and stands forty-eight inches high. At the upper and lower extremities its width is twenty-one and a half inches, while across the inscribed panel it measures twenty inches. It is only seven inches deep. It is very plain, showing no signs of either volutes or focus. Like No. 4, it lay at no great depth from the surface. Like it, too, it was of yellow sandstone, and was in a very brittle condition. Pieces of the inscribed face had flaked off, and some unavoidable damage was done in raising it and transporting it to Edinburgh. The following letters are, however, still legible; the others are uncertain:



PLATE XVI. ALTAR FOUND IN PRINCIPIA

DIANAE · REGI	
NAE OS	DIANAE · REGINAE G · ARRIVS · DOMITIANVS · C
VS	(ENTVRIO) · LEG(IONIS) · XX · V(ALERIAE) · V(ICTRICIS) · V
G · ARRIVS	(OTVM) · S(OLVIT) · L(IBENS) · L(VBENS) · M(ERITO).
DOMITIANVS	To Diana the Queen Gaius Arrius Domitianus Centurion
> LEG · XX · V ·	of the Twentieth Legion Valeria Victrix willingly gladly
V	deservedly has performed his vow.
V · S · L · L · M ·	

Altar to Apollo

6. The sixth altar, dedicated to Apollo, was taken out of Pit LXXXIII on 25th March, 1910. It was found at a depth of six feet from the surface, together with a separate stone which had formed its base. It is now in the National Museum of Antiquities, Edinburgh. The height, inclusive of the base, is three feet nine inches, and the width of the inscribed panel is twelve inches. The depth is fourteen and a half inches. Altar and base are both of red sandstone. It has the usual volutes on the capital, and between them a circular focus which shows signs either of being defaced or of unfinished work. The inscribed panel is enclosed within a complete framework of mouldings. A bow, the familiar attribute of Apollo, is carved in relief on the right side. On the left side is a much defaced representation of what may have been a bow-case or a quiver. As will be seen by reference to the illustration (Plate XVII., Fig. 2), the inscription reads:

DEO · APOLLINI · L · MAXIMIVS · GAETVLICVS · C(ENTVRIO) · LEG(ION IS).

To the God Apollo. L. Maximius Gaetulicus Centurion of the Legion.

The number of the legion, like the conventional termination V · S · L · L · M, is omitted, obviously from want of space. Fortunately an inscription from Aesica enables us to supply it. An altar found in the fort there is dedicated to Jupiter Dolichenus by LUCIUS MAXIMIUS GAETULICUS, Centurion of the Twentieth Legion Valeria Victrix. Professor Haverfield, who has dealt with the Aesica altar elsewhere, is of opinion that from its character and find-spot it should not be placed earlier than the reign of Hadrian, while from its associations it cannot be later than Severus.¹

Inscribed Fragments

The fragments of inscribed stones are few in number, and are too incomplete to admit of any satisfactory interpretation. The largest of them (Plate XVIII., Fig. 4) came from the upper levels of the pit in the Principia (No. I). It is part of a sandstone slab. Portions of three lines of an inscription still remain. The second

¹ *Archaeologia Aeliana*, vol. xix. p. 271.

of these consists of the word LEG (*legio*) followed by a number X. It is evident that it has contained a reference to the Twentieth Legion. Beyond that it does not seem possible to go. The second fragment (Plate XVIII., Fig. 2) is but a small one. It bears the letters V R well cut, and was taken out of the ditch in front of the south gate. Probably it is part of a tablet. A portion of a third tablet (Plate XVIII., Fig. 5) was found in excavating the early building lying between Blocks XVII and XVIII. It shows parts of two lines, and the letters have evidently been well cut. The last of the inscribed fragments is a thin slab of red sandstone from Block XIII (Plate XVIII., Fig. 3). It has the letters RINO very rudely cut upon it.

Passing from the inscribed stones, we may mention the following. A block of stone (Plate XVIII., Fig. 6), thirteen inches long, seven and a half inches thick, seven and three-quarter inches high, has the figure of a boar carved on it in relief. This was found in the Well Meadow about the year 1825.

A small fragment of sandstone from Pit I, the well of the Principia, is five and a half inches long and seven and a quarter inches high, and bears in relief a figure of a boar running to the left. It had probably formed part of a tablet. There is a somewhat similar figure on an incomplete tablet of the Twentieth Legion found at Cappuck. A heavy block of sandstone, one foot four inches high by one foot seven inches broad (Pit I), has on the top a lewis hole, six inches long by seventh-eighths of an inch broad by two inches deep, to be used for lifting the stone into position. One end shows fine diamond dressing, while on the side is a very rudely cut figure of a boar in somewhat low relief. One or two of the larger blocks from the Principia (Pit I), which are finely tooled, have been deposited in the National Museum.

On the whole, the distinctively architectural fragments were few and unimportant. The best was perhaps the portion of a column found in front of Block XV, and illustrated in Plate XI., Fig. 1. A rudely executed sandstone baluster eighteen inches in height was found in Pit LIII, while a curious block, perhaps a finial, came from the Baths. The latter has a rectangular base, fourteen inches long by six inches high. Above this base it is fashioned into a cone-like shape, the whole standing one foot eight inches high. The back is flat, as though it had been affixed to a gable end or a stone wall. Mention may also be made of four or five roughly hewn hypocaust pillars of stone two feet six inches high, and from nine to six



Height 2 feet 3 inches



Height 3 feet 9 inches



PLATE XVII. ALTARS AND QUERNS

inches in diameter, found in the Baths. Then there were the stone troughs of the latrine, a portion of a pierced drain cover, and several arch stones. These last consisted of blocks one foot high, four and a half inches thick, and ten inches wide. They are rounded at one end and flat at the other, and have on each side a projecting flange two inches in length. Some of them came from the reducing ditch, others from the neighbourhood of Block XVII, and others again from the débris of the Baths.

Querns

Among smaller stone objects, querns were by far the most richly represented. The broken fragments were very frequently found at the bottom of the rubbish pits. On the whole those of Niedermendig basalt lava appeared to be the most numerous. That these had been imported from the Rhine seems certain. Through the kindness of Herr Heinrich Jacobi, of the Saalburg Museum, a portion of one of the Newstead examples was submitted to Herr Michels, Director of the Company now working the Niedermendig quarries. Herr Michels, who has a wide expert knowledge of such material, had no hesitation in saying positively that the specimen laid before him must have come either from Niedermendig or, less probably, from Mayen in the Eifel. The quarries, as is proved by the inscriptions to Hercules Saxanus in the Brohlthal,¹ have been worked at least from Roman times, and the export of which we find the evidences at Newstead continues to the present day. The number of such querns found in the fort throws an interesting sidelight on the then existing facilities for transport.

As has been noted elsewhere, four of the specimens found were complete. Two of these are shown in Plate XVII. The larger, on the left, came from Pit X; the smaller from Pit XIX. Both appear to date from the first century occupation. In all four cases the iron spindle was preserved. It measured about seven and a half inches in length; the lower end was pointed and was probably inserted in a wooden peg fixed in the hole in the lower stone, while the upper end, which was rounded, was passed through a hole in a thin plate of iron, placed across the opening in the upper stone and having its ends driven into the stone and fixed with lead. In the sides of the upper stones may be noted the loops for the handles by which the necessary rotary motion was given to the quern. A fragment of an ash handle was taken from one of these.

Among the other querns figured in the group are specimens made of granite and of millstone grit. None of these call for special notice, with the

1 *C.I.L.* xii. 7693 *et seq.*

exception of the small quern on the extreme right, which belongs to a class entirely distinct from querns like those from Niedermendig. This came from Pit LXVI. It is made of a hard grit and belongs to the beehive type, which was rare in the fort. Professor Boyd Dawkins, dealing with Melandra Castle, has illustrated¹ a group of similar querns found there, and has attributed them to the Prehistoric Iron Age. He finds them to be identical with the querns found at Danebury, near Northampton, and at the Lake Village at Glastonbury, both dating from the period in question, but to differ from those introduced by the Romans inasmuch as the latter are thinner and wider. The Roman querns are also disc-shaped, and frequently have grooves cut in their grinding surfaces, a characteristic specially noticeable in the Niedermendig stones.

A stone mortar in very good preservation was found in Pit XCIII. Its height is six and a half inches and its diameter twelve inches. It is of the red sandstone so common on the site. On either side projects a handle two and a half inches in length. Among still smaller objects may be noted a few ballista balls from ditches and surface finds. Whetstones occurred in large numbers. They were usually made from river stones, but among them were a few which were clearly manufactured articles. The finest of these is figured in Plate LXII., and is dealt with elsewhere. One or two flat circular discs of stone should be noted. The smallest of these, one and five-eighths inches in diameter, is made of sandstone and came from Pit LXXXIX. Another is illustrated in Plate LXXXIII., Fig. 5, where there is also shown a small stone celt (Fig. 1) which was lying on the inner margin of the outer ditch system of the West Annexe. This and a flint scraper, from the ditch of the early fort, were the only prehistoric implements of stone met with in the course of the digging.

1 *Melandra Castle*, edited by R. S. Conway, p. 7, fig. 1.



1 Height of altar 3 feet 11 inches



4 5



6

PLATE XVIII. ALTAR AND INSCRIBED AND SCULPTURED FRAGMENTS

CHAPTER IX

Dress and Armour

As we gather together the relics brought to light from the abandoned wells and rubbish-pits at Newstead, the figure of the Roman soldier inevitably rises before us. It is a figure rendered familiar by the great monuments which commemorate Imperial triumphs, and by the portrait-reliefs which once stood above the graves of centurions, cavalry soldiers, or standard-bearers recalling to the passers-by the likeness of the dead. It is to such memorials, and to the scanty finds of weapons and armour which have been preserved to our time, that we owe most of the knowledge we possess regarding the arms and equipment of the army of the Empire. The columns and the triumphal arches furnish us with a series of pictures of the soldier in action. The victories of Trajan over the Dacians are sculptured on the column which he had set up in Rome in A.D. 104. The triumphs of Marcus Aurelius over the Marcomanni are unfolded in the reliefs decorating the huge pillar that gives its name to the Piazza Colonna. We follow each stage in the campaigns, the army making roads, building bridges, constructing forts, attacking and attacked. Many details are given which help us to realise vividly the scenes commemorated. No doubt in such sculptures, executed, as they were, in Rome, the artists drew their inspiration to some extent from older Hellenic models, and there thus enters into the treatment a somewhat conventional element. The grave stones of the legionaries or auxiliaries, on the other hand, are probably more exact in details. The personages they represented were familiar both to the hands that carved the monuments, and to the eyes that looked upon them; and the minutiae of dress and arms would naturally be more accurately produced. As works of art these sculptures are often rude, while many of them are sorely defaced and in worn condition. Still, their value as guides can hardly be overestimated.

Three types of design are common on the grave-reliefs. In one the soldier stands in his armour facing the passing throng. In a second he is mounted and riding over a prostrate enemy. In a third we see him with his horse before him, starting on his long journey to the shades. Such monuments occur most frequently on the frontiers. The great legionary camps on the Rhine—Xanten, Bonn, Mainz—have furnished the best examples. But other well known specimens are preserved at Cologne, Wiesbaden, Creuznach, Worms, and Verona. In England the Museum of Colchester possesses an interesting tombstone of a centurion of the Twentieth Legion, while further north, besides several examples at Chester,^[1] there is the grave slab of the standard-bearer Flavinus, probably from Corbridge on Tyne, now set up in the Abbey Church of Hexham. As a whole, the reliefs that have come to us from the forts along the wall of Hadrian are rude in execution and add little to our knowledge of the subject.

The collections of weapons and arms are very poor. Graves yield little that can help. The ashes of the Roman soldier were laid to rest with vessels of glass and earthenware; it was only the barbarian warriors who had their arms placed beside them. The few objects we do possess have been gathered from marshes, from wells, from rivers. A considerable proportion of them have been dredged from the bed of the Rhine. Speaking generally, we may say that more has been obtained by chance finds of this sort than by systematic search. Iron objects recovered near the surface in the course of excavations have too often been reduced to shapelessness by corrosion, or have been allowed to become disintegrated through lack of knowledge how to preserve them. The exploration of the legionary fortress of Carnuntum in and after 1899, however, incidentally resulted in the gathering of a collection that is of high importance for the study of Roman armour. The objects, which are more than one thousand in number, and which consist of portions of weapons and armour, most of them in a fragmentary condition, were found on the floor of what appears to have been a storehouse. The only body of material obtained by excavation, which can at all compare with that from Carnuntum, is the collection which has been obtained at Newstead. Unfortunately we are not yet within sight of any proper classification of Roman armour and weapons such as would enable us to approach this question satisfactorily. Over the wide extent of the Empire, with its many races, there must without doubt have existed local usages and fashions

1 Haverfield, *Catalogue of the Roman Inscribed and Sculptured Stones in the Grosvenor Museum, Chester*.

in dress and weapons which changed and altered from time to time. But we know too little of these—and, it may be added, of the garrison at Newstead, legionary or auxiliary—to deduce from our finds the race or even the rank of the wearers.

Leather

The soldier of the Empire was clad in leather. Under his armour he wore a coat or jerkin, which is sometimes represented as cut quite short below the waist, the serrated edges appearing beneath the armour, and sometimes as being prolonged into a kilt-like skirt reaching almost to the knees. Not infrequently he wears short tight-fitting breeches ending at the calf of the leg, while over the shoulders hangs a cape or a long military cloak (*sagum*) which could be wrapped round the body.

Although no single complete garment could be put together, many pieces of this leather clothing occurred among the find. Three of the larger and more perfect of these may be specially noted. They measure respectively twenty-three inches by seventeen inches, twenty-six and a half inches by fifteen inches, and twenty-three and a half inches by eighteen and a half inches. All had their margins carefully stitched, and seemed to have originally belonged to tunics. In addition to having their margins stitched, many of the pieces show near the edging lines of needle holes, usually circular but sometimes square, indicating where a patch had been applied. Two more or less triangular fragments, twelve inches by seven inches and eleven inches by six inches, stitched as usual along their margin, have a square patch at the apex. These would seem to have formed the lappets of a cloak. Another piece, approximately semi-circular in shape and measuring twenty inches by twelve inches, shows at the edge a series of needle-holes in the form of a star. Numerous examples of the patches themselves came from the pits. They are of varying shapes and sizes, the needle-holes being always visible round the margin (Plate XIX., Figs. 1, 3, 6, 7, 8, 10, 13, and 14). Some of them had no doubt been inserted in order to mend cuts or tears in the leather, but others, especially those of more or less circular form, must have been intended to secure and strengthen the loops by which the garments to which they belonged were fastened. Many of these circular patches had in the middle two small holes placed opposite each other with a narrow band of leather between. The edge of the leather between the holes invariably showed signs of having been pulled outwards, a feature which was ultimately explained by the discovery of a patch still retaining the remains of a loop formed by a leather thong which was knotted behind it (Plate XIX., Fig. 13). One of

these loops may be seen in Plate XIX., Fig. 16. The loops may have been brought together by leather laces, but it is also possible that they may have been fastened, like a modern frogged coat, by a button attached to a thong.

Several objects which seemed designed for the purpose just indicated were among the miscellaneous finds. One of these came from Pit LXV. It is made of horn and is shaped like a double button (Plate LXXVII., Fig. 16). The narrow neck between the two portions is exactly such as would be convenient for the attachment of a cord. It measures one and a quarter inches in length, and is quite flat on the back. Analogous objects in bronze are illustrated in Plate LXXXII., Figs. 6 and 8. A specimen in bone, which resembles Fig. 8, is preserved in the Blackgate Museum, Newcastle-on-Tyne. It appears to have been found with Romano-British antiquities, while another specimen considerably ruder in execution was recently discovered in a cave near Dirleton, in the County of Haddington.¹ A different type of button is probably represented by two articles in bronze which are shown on Plate LXXVII., Figs. 2 and 3. In these there is a hole perforated through the middle for the attachment of the cord. Buttons of the ordinary modern type may also have been to some extent in use. A number were found, but in no case did they come from pits. In Block XIV, however, a well-made specimen occurred at a depth of three feet in association with a denarius of Trajan. It should be added that one piece of leather showed the serrated edging which may be noted on the coats of soldiers on the Trajan column, and that straps and thongs occurred as well as some neatly stitched pockets (Plate XIX., Figs. 2 and 4).

Of all the leather objects, however, the most complete were the specimens of footgear. There were heavy boots for men and women, and tiny shoes for children. The skill of the leather workers as displayed in the variety of their patterns was as striking at Newstead as at Bar Hill. Some of the best preserved specimens are illustrated in Plate XX.

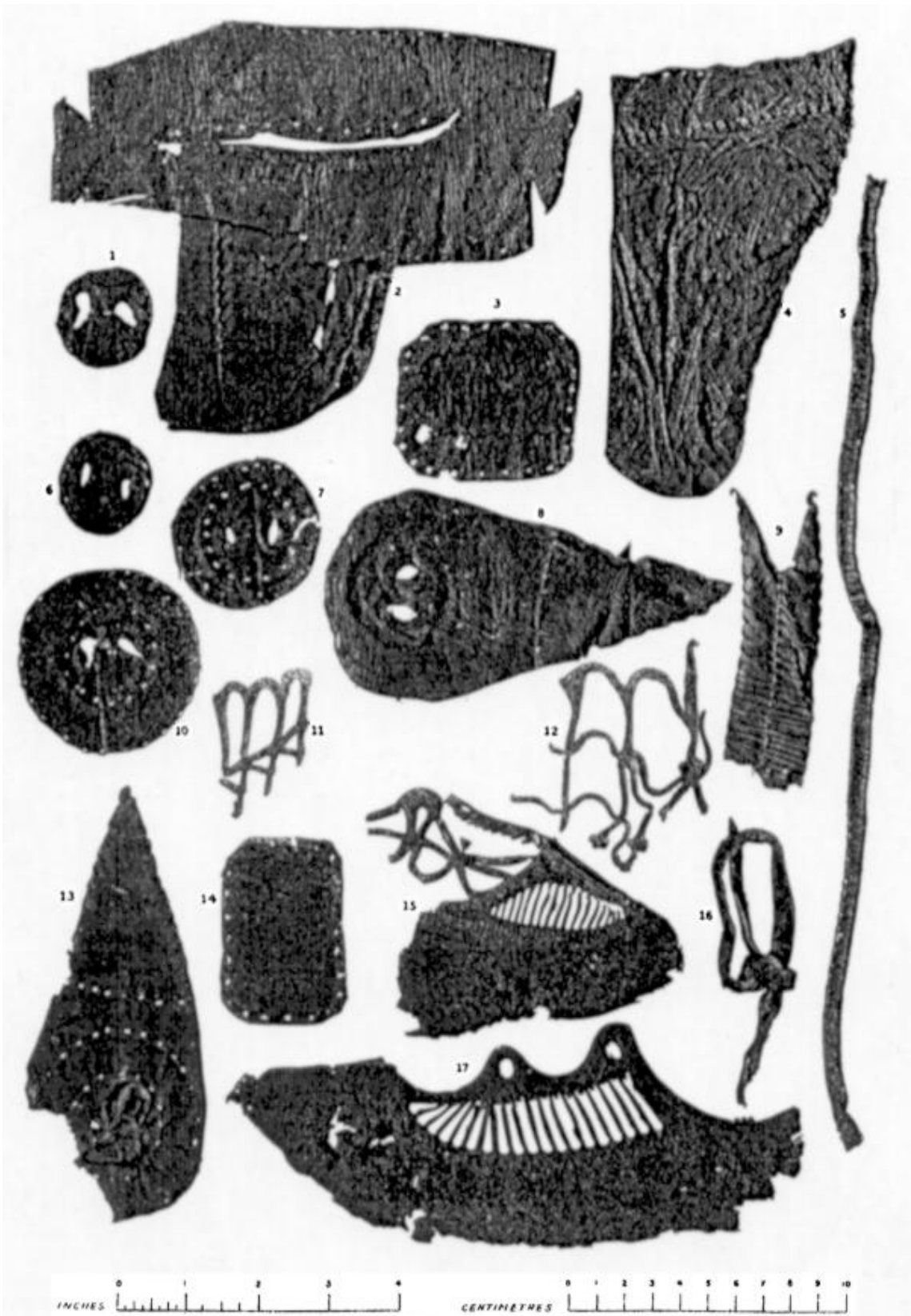
The ordinary footgear of the Roman legionary was the *caliga*—a sole laced to the foot by an assemblage of light thongs—the toes being exposed. Such shoes are to be seen on the columns of Trajan and of Marcus Aurelius, on the monument of Adamklissi, as well as upon most of the legionary grave slabs. A large number of these *caligae* were discovered in Mainz in the year 1857, and are now preserved in the Museum there.²

1 *Proceedings of the Society of Antiquaries of Scotland*, vol. xliii. p. 251, fig. 5 (3).

2 *Die Alterthümer unserer heidnischen Vorzeit*, Band iv. Taf. 37, Figs. 1–10.

PLATE XIX. LEATHER WORK

	PAGE
1. Circular patch through which a loop has been attached to a garment.	149
2. Pocket.	150
3. Patch.	149
4. Pocket.	150
5. Shoe lace.	152
6, 7, 8. Patches by which loops were attached.	149
9. Portion of a strap.	
10. Patch.	
11, 12. Parts of shoe uppers.	152
13. Leather patch, showing loop still in position.	149
14. Patch.	149
15. Shoe upper.	152
16. Loop.	150
17. Shoe upper.	152



It is clear that in this find, which probably dates from the first century, we have precisely the type of shoe of the monumental reliefs. The leather-work of the uppers is strong and light. There is no unnecessary ornamentation. It consists simply of a series of light loops, holding the shoe in its place and enabling it to be laced round the ankle and across the foot. The toes were exposed, one or more thongs passing between them. The whole upper and one thickness of the sole were cut out of a single piece of leather, the only stitching required being where the two sides are brought together at the back of the heel. A strong outer sole was clamped upon this with heavy nails, and one or more soles of a lighter character were inserted inside.

When we compare the figures of the Dacians and Germans represented on the Roman columns with those of the legionaries,¹ the difference in the shoes is striking. The barbarians are represented wearing a close-fitting shoe entirely covering the foot and fastened round the ankle, the ends of their long wide trousers being caught into it. This type of shoe, the *calceus*, is to be seen on the monuments representing the civil population, such as those from Neumagen, and good examples of the shoes themselves dating from about the second century are preserved at the Saalburg. In these we find examples of much more skilled leather-work than in the simple *caligae* from Mainz. Of these two types of shoes, the light-thonged upper, representing the military, and possibly Italian type, and the close-fitting shoe, possibly of Gaulish type, we have traces at Newstead. Of such *caligae* as those found at Mainz only one incomplete specimen was noted. The whole of the light thongs surrounding the heel had disappeared, but those covering the foot remained, and here the upper and one thickness of the sole had been cut from a single piece. Two inner soles were fitted on the inside, while an outer sole was affixed with strong nails. This method of construction seemed, however, to be exceptional. Except in the case of light shoes cut from a single piece of leather, the upper in most of the Newstead shoes was made separately from the sole. The soles consisted of from five to six thicknesses of leather, the inner layers being laced together by one or more narrow thongs of leather neatly inserted either down the middle or round the edges. In most cases the edges of the upper were doubled beneath the inner sole, while the outer sole was kept in its place by

¹ Cichorius, *Die Traianssäule*, cf Taf. xix. 102 and Taf. xxxii. 110.

the nails inserted through it. Nearly all the soles were strongly made and studded with nails. The light shoes made from a single piece were not uncommon, in these the leather being brought together at the heel, where alone there was any stitching (Plate XX., Figs. 1 and 3). Laces passing through the loops on the sides kept the shoe on the foot. The variety just described had no nails. Such shoes should probably be termed *carbatinae*. A similar shoe is still in use in Shetland and in Eastern Europe.¹

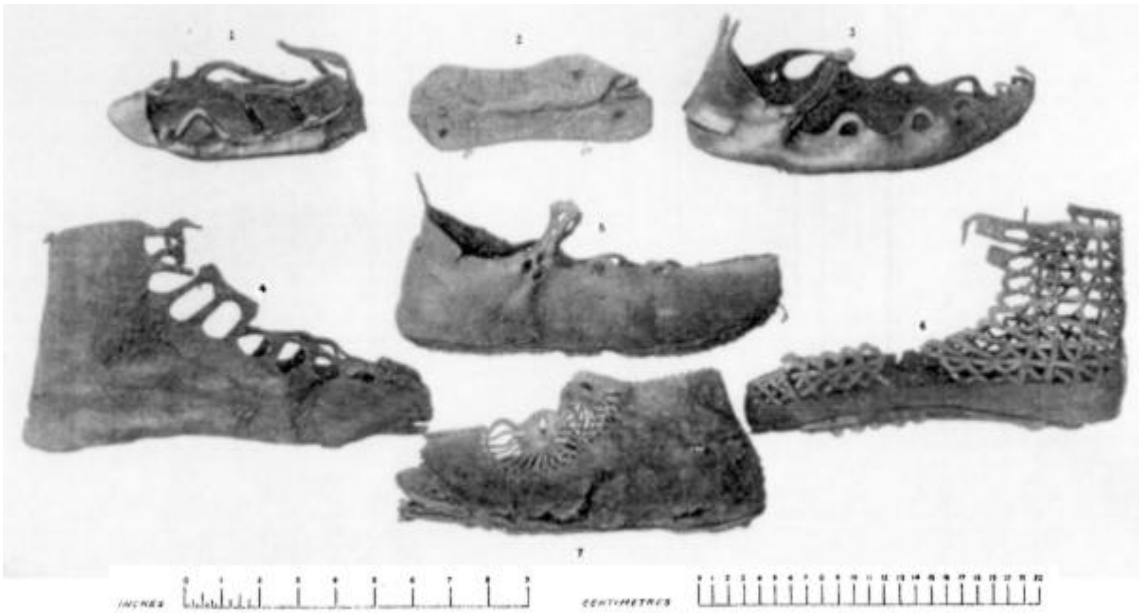
Generally speaking, shoes were much more common than boots, but it could not be said that there was any predominating type which marked itself out as the soldiers' ordinary wear; it was probably one of the coarser forms illustrated in Plate XX., such as Fig. 4. The soles with their heavy tackets were abundant. Sometimes the strong counter of the heel remained in its original position, even when the upper had entirely disappeared. Again, in many cases the shoes were obviously those of women and children rather than of grown men. There was no evidence that the sandal was in common use although one or two examples were noted.

Fig. 4 is probably a second-century type. It was found with others resembling it in the inner ditch of the East Annexe. Fig. 5, which came from Pit XXV, represents the *calceus*, the close-fitting type of shoe. It probably belonged to a youth. It is remarkably well preserved, even to the little tag at the heel for pulling it on to the foot. The nails form a decorative pattern on the sole, a feature not uncommon in the shoes of the period. Many of the shoes are remarkably fine examples of the skill of the leather worker, who exercised the greatest ingenuity and skill in cutting out the uppers, and occasionally in stamping them with lines of small decorative punch work. One of the most remarkable specimens (Plate XX., Fig. 6) came from Pit XVI. It was probably made for a woman, judging by its size and shape. Notwithstanding the lightness of its uppers, its sole is heavily covered with nails. Its light openwork associates it in the same class as the more simple *caligae* from Mainz, and like them it must belong to the first century. A child's shoe of the same sort was also found, but in less perfect preservation. Like the larger shoe, it had nails in the sole, and the same was the case in a tiny shoe which must have belonged to a child about four years old. In Fig. 7 we have another example of finely cut leather work. Others, again, may be seen in the fragments illustrated as Figs. 11, 12, 15, and 17 of Plate XIX., where also we have

¹ Haverfield, *The Classical Review*, Vol. xii. p. 142.

PLATE XX. SHOES

	PAGE
1. Child's shoe made from a single piece of leather (<i>carbatina</i>).	152
2. Oak sole for a child's sandal.	152
3. Shoe of the same type as No. 1.	152
4. Upper of shoe. Inner ditch, East Annexe.	152
5. Close shoe (<i>calceus</i>) with heavily nailed sole. Pit XXV.	152
6. Open work shoe (<i>caliga</i>) for a woman, with nailed sole. Pit XVI.	152
7. Shoe with finely worked upper.	152



a specimen of the long flat laces employed to fasten boots and shoes. The small sole of oak (Plate XX., Fig. 2) has evidently been intended for a child's sandal, but it bears few marks of wear.

Passing from boots and shoes, we come next to an object which illustrates more strikingly than anything else the decorative skill of the Roman leather worker. At the bottom of Pit LXXVIII, associated with a group of vessels which must belong to the first century, there were lying a number of fragments which at once attracted attention because, even in their muddy condition, they exhibited clear traces of a pattern executed in bright brass studs. When they were collected and examined in the National Museum, it became evident that originally they had all belonged to one and the same article—apparently a single piece of leather, which on being put together was found to measure twenty-two and a half inches in height and twenty and a quarter inches in breadth.

At first sight it bears some resemblance to a conventional eagle with outspread wings, but a closer examination conveys the impression that the portion which appears to correspond to the eagle's head is really a terminal peak. Along the straight margin, at the opposite end, is a line of small holes which seem to have been made with a view to attach the leather to some other object. There is no corresponding line on any of the other margins, although one or two isolated holes are to be noted elsewhere, and it seems probable that the whole hung from a line of studs inserted along this straight margin. The exact shape of the object will be seen in Plate XXI. From the ends of the margin which seems to form its base the sides expand in graceful curves, forming wing-like projections, and the whole figure terminates in three peaks,—a central point resembling a hammer in its outline with two leaf-shaped pieces springing from its base. Two circular openings, three and three-quarter inches in diameter, occupy a central position, one on each side of the figure.

Examination showed that two pieces of leather, not one, had been employed in its production—an upper layer of considerable thickness, and a backing of finer and thinner material. Here and there on its lower surface are small metal washers, apparently of bronze, of the type to be seen on the back of the studs in Plate XXV., Figs. 28 and 30. It is probable that the function of these was to assist in holding the two layers of leather together. Three such washers seem to have been attached to the back of each leaf or circle in the pattern on the front, to be

described presently. Doubtless they mark the place of larger studs, all of which have disappeared. The whole of the leather is covered with a design, executed partly by tooling and partly by inserting brass-headed studs of three different sizes. Parallel tooled lines appear to have formed a border round the entire figure, with the exception of the two leaf-shaped terminals, as well as round the circular openings already noted, and between these lines there has been inserted a continuous row of brass-headed studs. None of these studs are now left, but the exact size of the original series is evident from those that remain in the circle which forms the central point in the pattern. They were probably precisely similar to the studs illustrated in Plate XXV, Fig. 36. Fig. 35 of the same plate shows examples of the smallest size, here the chief element in the working out of the design. On the middle of the central hammer-shaped peak are two concentric circles of the small studs, while on each of the leaf-shaped projections which flank it are leaves of a well-known Roman type, the points curving inwards.

At the base of the three terminals are two concentric circles of the smaller studs, with a line of the medium-sized studs, already referred to, running between them. On either side of this circular ornament a straight line of the smaller studs extends as far as the tooling of the border. From this line rise six semi-circles, executed in the same way, three on each side of the circular device in the centre, and each divided from its neighbours by an upright line, which, broadened by the addition of a couple of studs near the top, has a spear-shaped ending. To judge from the washers on the back, there must have been three of the medium-sized studs in the field of each of these semi-circles, and three in each of the pointed leaves in the design, while on each side above the semi-circles there was placed a stud of the largest size. One of the large studs remains in its original position.

Below the straight line which divides the pattern, the design is composed entirely of leaves. Two of these, side by side, with the points turned outwards, seem to have filled the central space between the circular openings, while between the openings and the outer edge on either side we have a leaf springing from a stem below, with the point turned inwards. All of the leaves are outlined by double rows of tooling. Below the circular openings, where the figure is narrow, we have an oblong panel with *ansa*-like projections at either end. This has been outlined by a single tooled line filled in with a row of studs of the smallest size. The studs have disappeared almost entirely.



PLATE XXI. ORNAMENTED LEATHER WORK
Pit LXXVIII

Below the oblong panel the whole surface is covered by a design of leaves and stems. The centre of the design is occupied by a diamond-shaped panel formed by the stems of the leaves. At the top of the panel two stems first approach close to one another and then separate, the ends curving outwards. From each side a stem springs upwards, terminating in a leaf which points outwards. At the lowest point the stems, after being brought together, curve outwards and terminate on either side in pointed leaves.

The whole elements of this design are characteristic of provincial Roman art. The same pointed leaves may be seen frequently employed in sculpture, while both leaves and arcading appear in the decoration of an altar from Birrens, dedicated to Mars and Victory by Rhaetians serving in the Second Cohort of Tungrians. An excellent example of the leaf design is also to be noted in an enamelled bronze plate, of unknown provenance, now in the Museum of Karlsruhe.^[1]

Of the purpose the article just described was intended to serve it is difficult to put forward a satisfactory explanation. It was not unique. A portion of a similar object was subsequently found in Pit CII, also associated with early pottery. This fragment probably forms about a quarter of the whole piece, but in it we have part of the terminals and of one side. The surface has been covered with decoration, but the brass studs have all disappeared. The leather has been strong and is fully one-eighth of an inch in thickness. In this respect it differs entirely from the many fragments of leather with stitched margins which must have belonged to garments. It does not seem to have formed any part of clothing, and its whole appearance conveys the impression that it was used as a horse trapping. The stitching lines on the margin may indicate that it had been applied to some other material, perhaps a brightly coloured saddle-cloth, but no trace of such material remains. The circular openings may have been filled with thin metal plates. More than one example of thin circular discs of brass was recovered in the course of the excavations. Whatever may have been its use, it speaks plainly enough of the skill of the craftsman, and of the luxury in appointments out on the frontiers of the Empire in the first century of our era.

Over his leather surcoat the soldier wore his armour. This was of three kinds. The so-called *lorica segmentata* consisted of breast and back plates, with overlapping bands of iron or bronze, protecting the lower part of the body and the shoulders. This is the armour of Trajan's legionaries, and it

¹ *Alterthümer unserer heidnischen Vorzeit*, Band iii. Heft ix. Taf. 4.

appears also in the column of Marcus Aurelius. The second variety, *lorica squamata* or scale armour, is worn on the Trajan column only by the archers and by the Dacians, but it is more common on the column of Marcus. Lastly there was the *lorica hamata* or chain mail.

Lorica Segmentata at Carnuntum

No specimen of the first of these kinds seems to have been found, or at least preserved, prior to 1899, when a number of fragments were discovered at Carnuntum. With the aid of the sculptures of the Trajan column, Colonel von Groller, who described the find, was able to reconstruct the original.¹ It appears to have consisted of a breastplate formed of two curved pieces of iron, with a similar protection for the back. No entire specimen of any of the four pieces was included, but from numerous fragments which retained their bronze mountings, von Groller came to the conclusion that the plates on the back had been hinged, while those protecting the breast had been fastened by straps and buckles. Below the breastplate and backplate there were worn from five to seven bands of thin iron encircling the body and coming down to the hips. These appear to have been from two to two and a half inches wide. They slightly overlapped and were fastened together by bronze rivets which probably served at the same time to attach them to a leather backing beneath. Like the outer plates, the bands seem to have been hinged at the back, and to have each been provided in front with two hooks, one on either side, through which they were laced together with a cord or leather thong. Similarly there were fastened on each shoulder from three to five curved iron bands of the same breadth and thickness as those round the waist, and also fastened to leather by means of bronze rivets. The whole formed a light strong protection not too rigid to prevent a man working in it.

Lorica Segmentata at Newstead

A set of iron pieces found at Newstead in the pit in the Principia illustrates this type. The largest plate measures eight and a half inches wide and five and a half inches high (Plate XXII.). The metal is about a sixteenth of an inch thick and was curved to fit the body. It had evidently formed part of the breastplate, being in fact the lower portion of the half protecting the right side. On the left margin the metal is curved and slightly turned back to prevent the edge chafing the arm. Along the lower side are two rectangular slits, each five-eighths of an inch by one quarter of an inch, surrounded by a mounting of brass three-eighths of an inch wide, fastened to the iron by studs. On the right the

1 Von Groller, 'Römische Waffen,' *Der Römische Limes in Österreich*, Heft ii. p. 84.

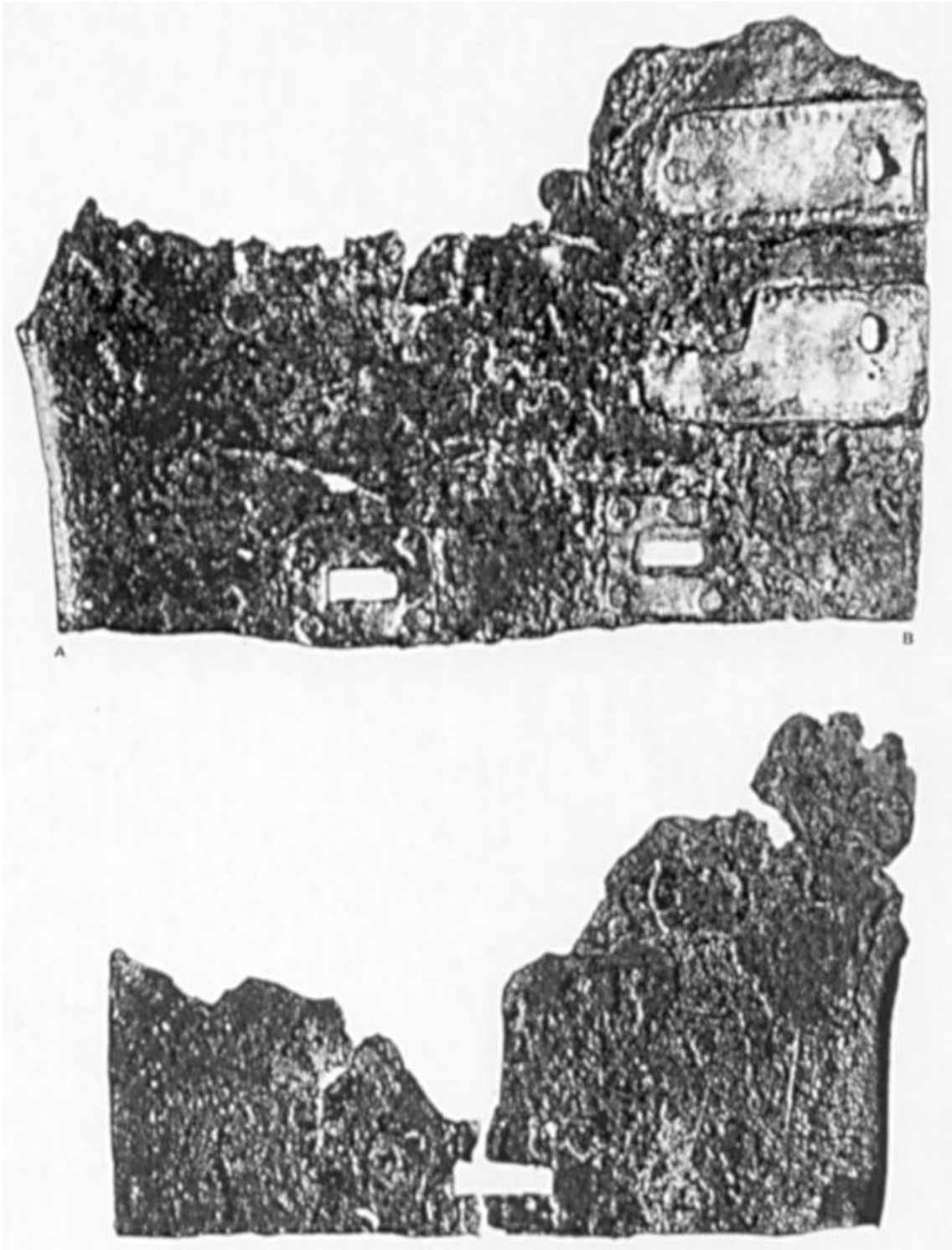


PLATE XXII. REMAINS OF IRON BREASTPLATE WITH BRASS MOUNTING.
A to B 8½ inches

plate terminates in a straight edge. It is ornamented by two horizontal bands of brass, one inch and an eighth wide, extending about three inches inwards from the edge and rounded off at the inner end. Half an inch

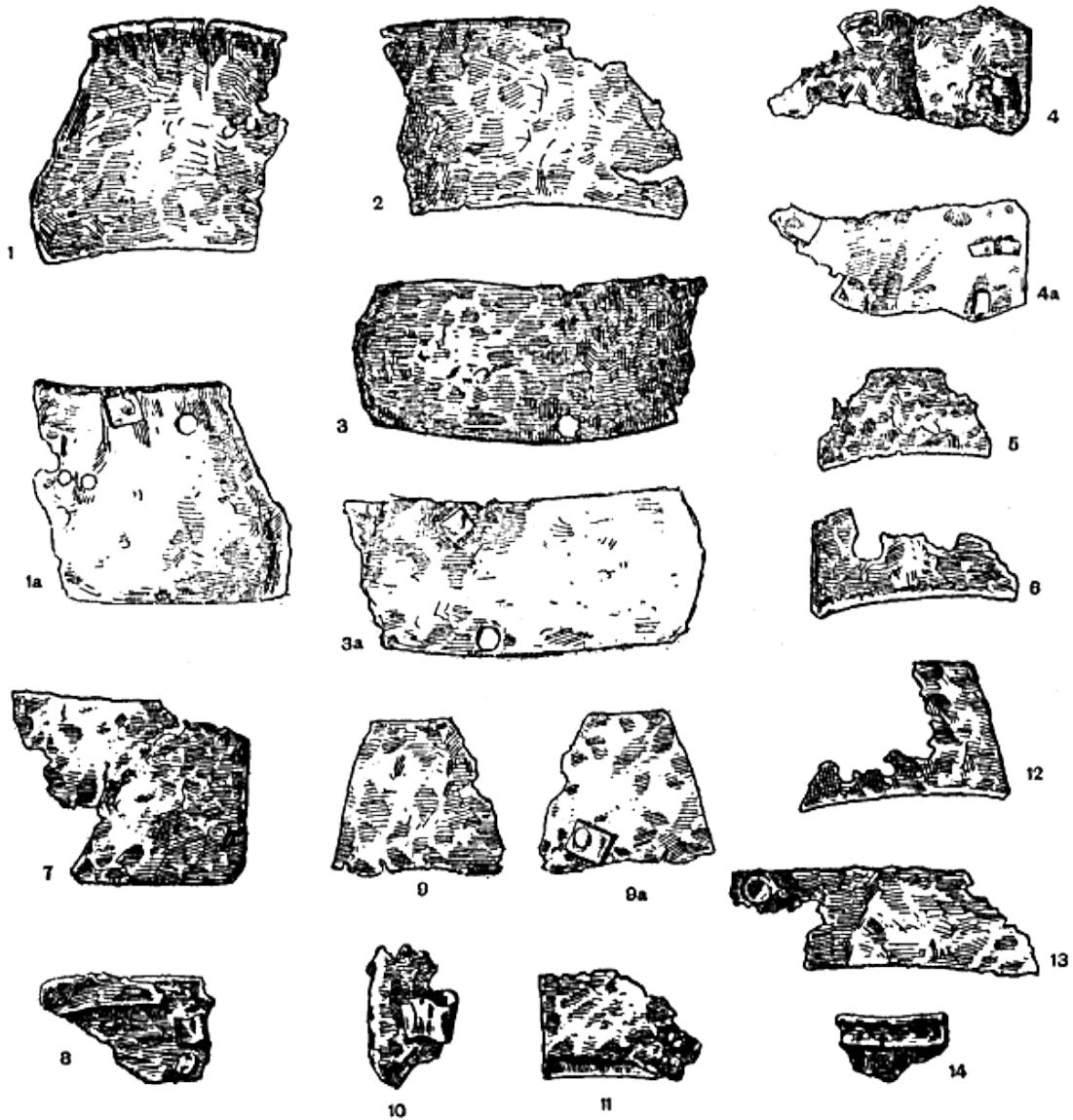


FIG. 11. REMAINS OF ARMOUR. 1a, 3a, 4a, 9a, show the backs of 1, 3, 4 and 9

from the margin of the plate each of these brass bands is furnished with a round hole about a quarter of an inch in diameter. A smaller fragment (Plate XXII.), broken in two, appears to be part of the corresponding plate for the back. It is seven and a quarter inches wide. On the right side the metal is turned back for the armhole. On the left the margin of

the plate is straight. The lower edge has a single brass mounted slit in the centre. The upper part of both plates is destroyed.

In addition to the preceding, there are some forty smaller fragments, a number of which are illustrated in Fig. 11. One of them appears to be the corner of one of the corresponding pieces of the backplate. Others from their smaller curve seem to have formed the overlapping plates employed to protect the shoulders. The width of three of these plates can still be ascertained. One (1, 1a), which was probably intended to be worn near the neck, has the edge turned back to prevent chafing, and measures three inches, a second (2) two and seven-eighths inches, and a third (3, 3a) two and an eighth inches. Each of them is furnished with a nut intended to fasten it to leather, and many show bronze rivets (13), probably for the same purpose. Two of the smaller pieces are furnished with loops for attachment. In one case the loop is of iron (4, 4a), inserted in the edge of the plate. In another it is of bronze (10). Some of these smaller plates (5, 6, 12 and 13) were probably part of the bands which went round the body. There is, however, no trace at Newstead of the characteristic hinge mountings of brass to be seen on the fragments at Carnuntum and elsewhere. While these pieces are too fragmentary to enable us to reconstruct the armour in any satisfactory way, the larger pieces from the breast and back plates furnish us with a detail which was absent at Carnuntum—the brass-mounted rectangular slits. These were doubtless intended for the passage of straps to bear the weight of the encircling iron bands worn below.

Lorica Squamata

Of the *lorica squamata* or scale armour the pit in the Principia (No. I) produced a remarkable specimen. No fewer than 346 armour scales were brought to the surface.



FIG. 12. ARMOUR SCALES
showing method of lacing

They were made of brass, which in the wet black mud had preserved its golden yellow colour. Each scale measures one and an eighth inches in length and half an inch in breadth, and one mm. in thickness. They are cut square at the upper end and rounded at the lower end. Close to the upper edge is a hole one-eighth of an inch in diameter, while a little lower down on each side are two smaller holes. The scales were fastened together by ties of brass wire, square in section, passing through the smaller holes. Through the larger upper



PLATE XXIII. SCALE ARMOUR.
Found in Principia, Chamber No. 5

holes passed thin leather thongs, by which the scales were laced on to a leather tunic or apron as shown in the accompanying figure.¹ Many of the scales were still fastened together when found, the largest number thus attached in any one case being fifteen. The right side of the upper scale always overlaps the left side of the scale below it, so that the two pairs of holes on the edges are brought exactly opposite one another. All trace of leather had disappeared. In addition to the find just described a single scale of the same type came from the Baths.

Remains of another type of scale armour were discovered in the floor of the chamber situated at the north-west corner of the Principia. Unfortunately, here also the pieces were too small to enable the cuirass of which they had formed part to be reconstructed. Altogether there were more than one hundred fragments (Plate XXIII.). These consisted for the most part of thin plates of brass from one inch to one inch and three-sixteenths in width, slightly curved, and having a thickness of two mm. The longest piece was about three and a half inches in length. In several instances it was clear that the fragment had formed the extreme end of the band to which it belonged. In such cases it was noted that the outer margin formed an acute angle with the lower edge, but that the sharp corner was blunted in the same manner as were the corresponding parts of heavier iron bands from Carnuntum. On the concave side of the bands near the upper edge are rivets. Upon several of these there are still to be seen adhering pieces of the leather backing to which they have been attached. At the end of each band near the edge a round hole has been bored; as none of these holes were found with rivets in them, it is possible that they were used for the insertion of a cord to draw the coat together. It is quite evident from the oxydisation of the metal that when the armour was left where it was ultimately discovered, the bands were overlapping. The curve of some of the pieces suggests that they were intended to protect the shoulders and arms. Others may well have covered the body. About half a dozen pieces, the largest of which measures four inches by three and seven-sixteenths inches, may have belonged to the breastplate.

Scale armour came from the East. It was in use as early as the fourth century B.C. in Southern Russia, where the great tumuli dating from this period have yielded not only bronze scales covering a leather cuirass, but also

1 This illustration of the method of lacing the scale on to the leather backing is taken from Thibetan scale armour, which probably preserves the ancient system.

scales of iron and of bone. The form of these scales varies considerably. One type of scale differs but little from those figured in Plate XXIV., but there is also a variety showing an irregular serrated edge, while another is composed of long metal strips arranged in perpendicular fashion.¹ We are told by Ammianus Marcellinus that the armour of the Parthians was fashioned of tongues of iron like feathers,² and the archers who wear it on the Trajan column were probably Orientals. As a matter of fact, at Carnuntum the shapes of the armour scales differ considerably. Colonel von Groller figures thirty-six different types.

In England the occurrence of scale armour has been noted on several occasions. About forty-seven scales were found at Ham Hill in Somerset.³ These were of burnished bronze, every alternate one being tinned or silvered. They were fastened together by bronze rings, and resembled in form the Newstead specimens shown in Plate XXIV., except that they had mostly at the upper end two holes, instead of one, for the leather thong or other fastening to pass through. From Hod Hill in Dorset came two armour scales of a larger size,⁴ while we have also specimens from Walltown Crag turret and Aesica on the wall of Hadrian. The last mentioned find, made in 1894, consisted of a considerable number of scales of very small size.⁵ Each scale measures half an inch by five-sixteenths of an inch, and is pierced with six holes in two rows of three. They were bound together with small ties of Wire, which passed through the outer holes, leaving the middle holes for securing them to the tunic.

Scale armour has continued in use down to the present day. The British Museum possesses a Polish cuirass dating from the seventeenth century, and among the objects brought back by the recent expedition to Thibet were specimens which closely resemble those worn in Roman times. The scales of the Thibetan examples are of iron, and are two and three-eighths inches long and three-quarters of an inch wide. In each scale were twelve holes, through which passed the leather thongs for lacing them together, while a larger hole was punched through the upper end

1 Collection Khanenko. *Antiquités de la Région du Dniepre*. Kieff, 1899. Liv. ii. plate vii.; also liv. iii. plate xxxix.

2 Hostem undique laminis ferreis in modum tenuis plumac contactum. Ammianus, xxiv.

3 Haverfield, *Victoria County History, Somerset*, vol. 1. p. 296.

4 *Proceedings of the Society of Antiquaries*, vol. xxi. p. 135.

5 *Proceedings of the Society of Antiquaries of Newcastle-on-Tyne*, vol. vi. p. 245.

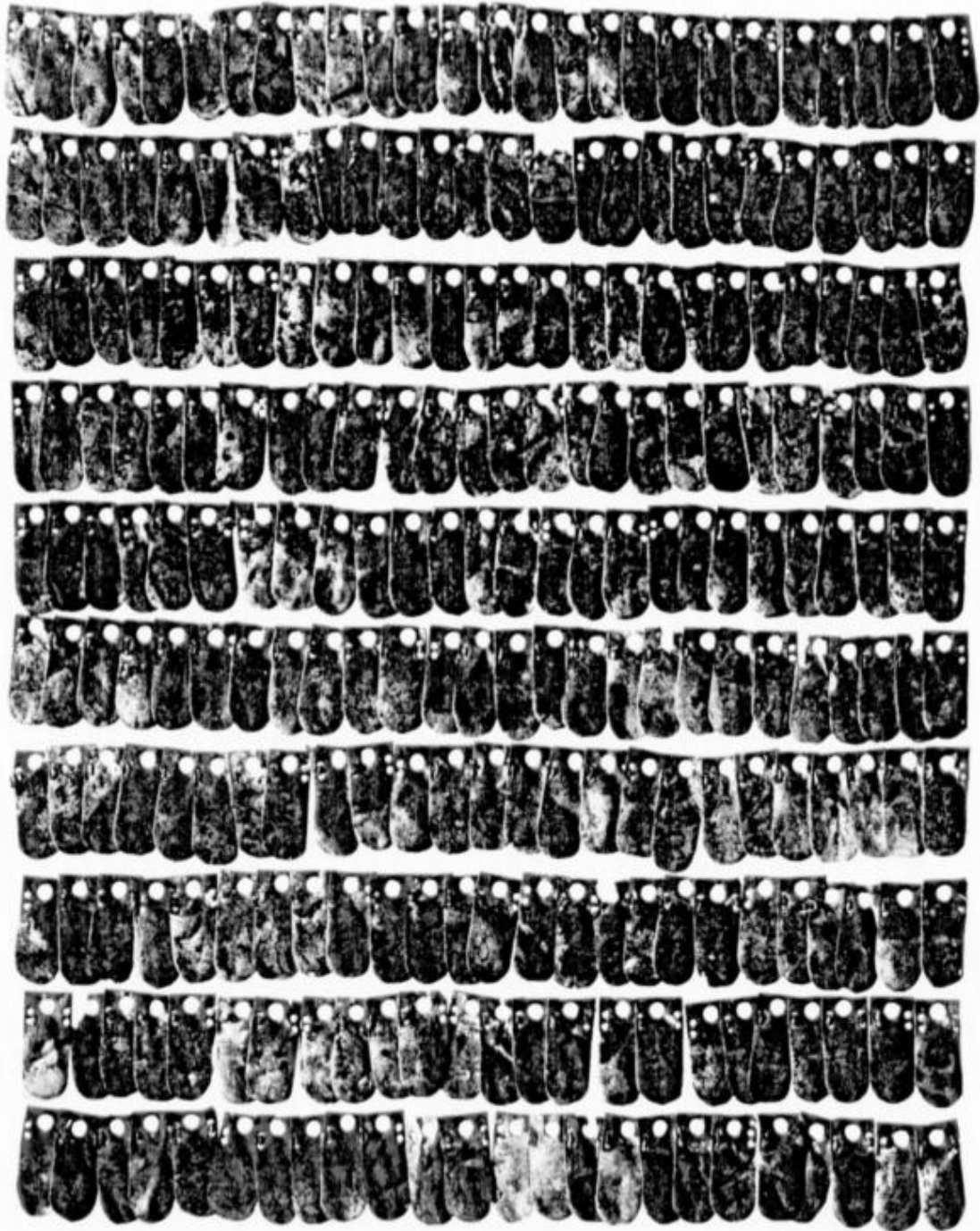


PLATE XXIV. SCALE ARMOUR OF BRASS.
Principia P

of each scale corresponding in position to the large hole in the Newstead scales. Through these larger holes there passed a double thong which bound the scales together, and at the same time prevented the sharp edges from chafing.

Scale armour is not of frequent occurrence on the grave monuments of the German frontier, but on the tombstones of the Sertorii at Verona—one that of a centurion, the other that of a standard-bearer—both figures are represented wearing a tunic of scale armour which covers the shoulders and comes down below the belt. The Carnuntum monument of Calidius (a work of the middle of the first century) shows also a scaled tunic of a centurion. Again, in the collection of marble portrait-busts from the great Gallo-Roman villa of Chiragan near Toulouse, the Emperors Antoninus Pius and Severus both appear wearing corselets of scale armour.¹

Lorica Hamata

The third variety of body armour, *Lorica Hamata*, was also represented at Newstead. Among the finds from the pit in the Principia (No. I) were pieces of chain mail, reduced by rust almost to a solid mass. They were composed of rings of iron wire having a diameter of about a quarter of an inch (Plate XXXVIII., Fig. 10). These rings were of two kinds. In one case the ends of the wire forming the ring had been hammered flat and riveted together, in the other they appear to have been welded. The two kinds are arranged in alternate rows, a system which was employed in the chain mail of the Thorsbjerg moss. When the whole is fastened together, each ring is attached to four others. In one small fragment a single ring of brass was noted; perhaps it was employed decoratively, as was done in later Oriental chain mail. Again, from the floor level at the west end of the Storehouse (Block XVI), two fragments of extremely fine chain mail were picked up (Plate XXXVIII., Fig. 8). They were composed of bronze rings of two different sizes, attached together in alternate rows, the larger rings having a diameter of three-sixteenths of an inch, the smaller a diameter of an eighth of an inch. The wire composing the larger rings appeared to have been flattened out at the ends and riveted together. Here and there affixed to the rings were small scales, also of bronze, three-eighths of an inch long by a quarter of an inch wide, resembling in shape the larger armour scales, but without any perforations and ribbed down the centre.

¹ *Joulin, Les Établissements gallo-romains de la Plaine de Martres Tolosanes*, plate xix. 276 B, plate xxiii. 299 B.

The Military Girdle

Around his waist, above his armour, the soldier wore the *cingulum* or military girdle. Most of the monuments on the German frontier show this utilised to support the sword on the right thigh and the dagger on the left, although sometimes, as on the Trajan column, the sword is worn on the *balteus*, a strap crossing the left shoulder.¹ The *cingulum* is usually represented as terminating in an ordinary strap and buckle, while the leather of which it consists is overlaid with mountings of decorative metal work, these being occasionally of circular shape. Sometimes the girdle terminates in front in an apron-like arrangement of leather straps, usually strengthened by studs inserted into it and ending in decorative terminals of metal. Metal objects which must have formed part of girdles were by no means uncommon at Newstead, though it is not always easy to distinguish them from mountings which had been attached to harness. One set of mountings is, however, specially noticeable, and must have belonged to the belt of some soldier of rank. It came from Pit XXVII.

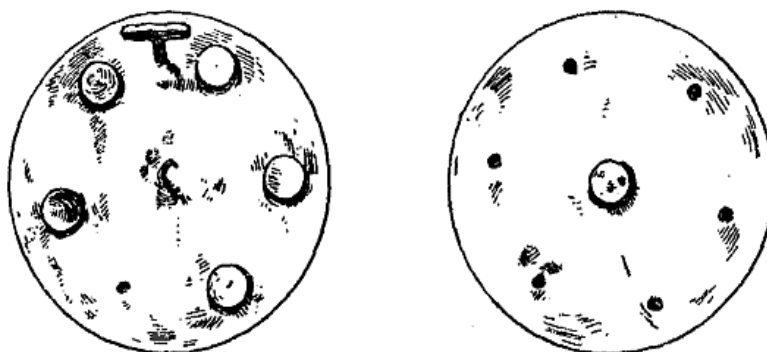


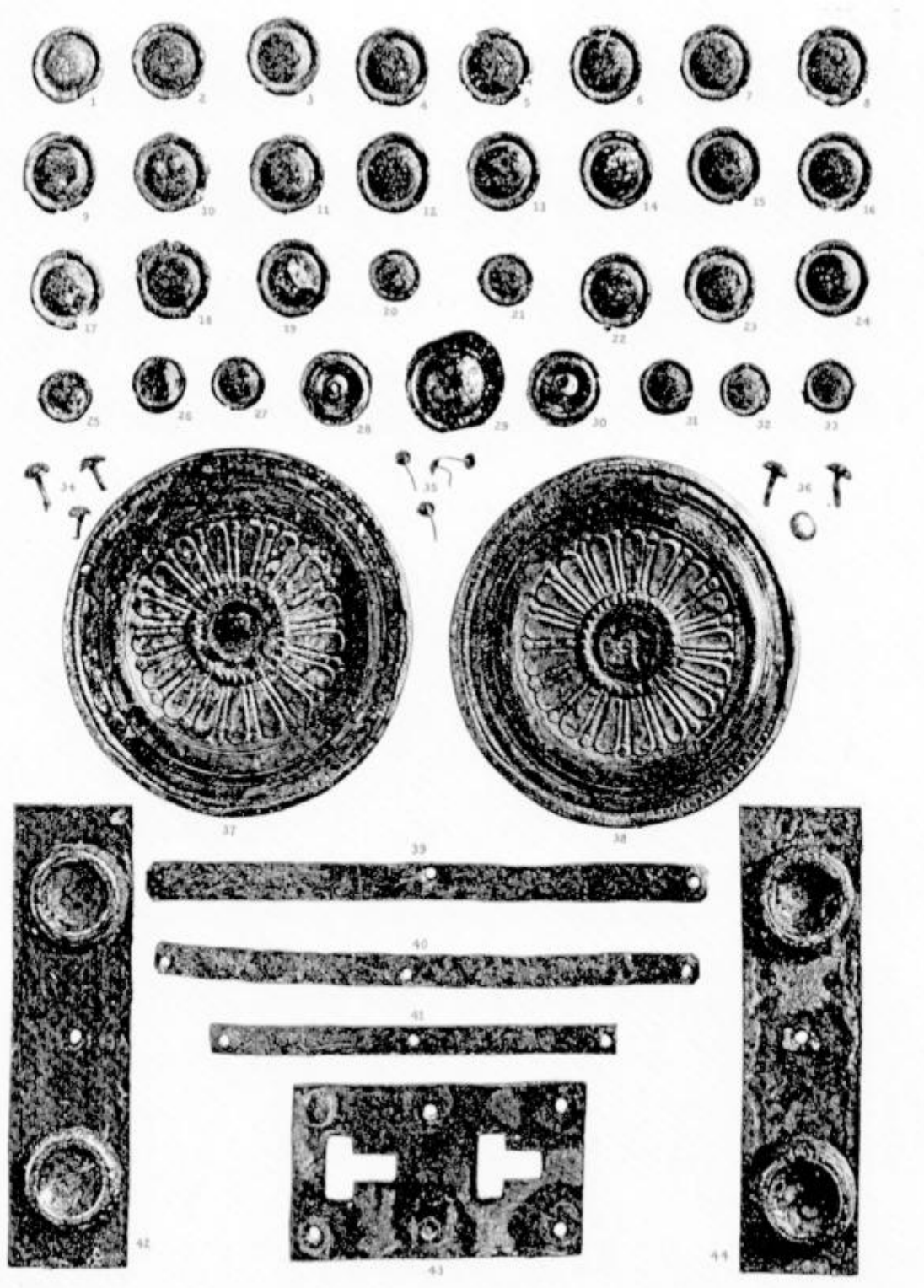
FIG. 13. BELT CLASPS. THE BACK OF THE PLATES

This consists of two circular plates of brass (Plate XXV, Figs. 37 and 38), and three rectangular plates of the same metal (Figs. 42, 43, and 44). The circular plates are each three inches in diameter, and the edges are turned over to catch a thin plate of silver embossed in the centre, which is in the form of a rosette. The plates, the back view of which is shown in Fig. 13 above, were fastened to the leather belt by small round flat-headed bronze studs. On one of the plates five of these remain. From the edge of the same plate depends a small T-shaped catch of copper, seven-sixteenths of an inch in length. The purpose for which this catch was designed is evident from an examination of the small rectangular plate (Fig. 43) two and a half inches by one and three-eighths inches, which was also included in the find.

¹ Lindenschmit, *Tracht und Bewaffung des römischen Heeres*, p. 8.

PLATE XXV. MOUNTINGS AND STUDS OF A LEATHER BELT

	PAGE
1 to 36. Brass studs for ornamentation of a leather belt.	163
28, 29 and 30 are reversed, showing the back view. 28 and 30 have small washers to keep them in position.	163
37, 38 and 43. The clasps of the belt.	162
39 to 41. Brass laminae, probably for stiffening the belt.	163
42 and 44. Ornamental mountings, all found in Pit XXVII.	162



INCHES 0 1 2 3

CENTIMETRES 0 1 2 3 4 5 6 7

In it there are two corresponding T-shaped slots. The rectangular plate must obviously have formed one of the terminals of the girdle, while the circular disc with its catch formed the other. The catch, when inserted and slipped back into the stem of the T, would be securely fastened, while the double slot enabled the wearer to tighten his belt. The two remaining rectangular plates of brass were three and three-quarter inches long by one inch broad, and had evidently been fastened to the belt, each by three studs. The end studs were of copper, circular in shape, seven-eighths of an inch in diameter with a concave surface.

In addition to these there were found four laminae of thin brass (Plate XXV., Figs. 39, 40 and 41) varying from five to three and a quarter inches long, which had perhaps been inserted in the belt for stiffening purposes, as well as 100 studs of different shapes and sizes (Figs. 1 to 36). The studs were of five different types. The largest, which are circular with a diameter of eleven-sixteenths of an inch, are furnished with small washers (Figs. 28 and 30) to prevent them slipping out of the belt. Many of them had portions of leather still adhering. The size of the smallest heads is hardly greater than that of an ordinary pin (Fig. 35). No doubt these studs were employed to form a decorative pattern on the leather. In shape they very closely resemble those found at Hofheim,¹ and we have among them precisely the same types as are used to execute the decoration of the leather object illustrated in Plate XXI. No metal terminals were discovered to suggest that the belt had had the apron-like arrangement so frequently to be seen worn on soldiers' monuments. But that this did not always form part of the girdle is proved by the example shown in the monument of the Centurion Favonius at Colchester. Here the decorated plates are rectangular, filled in with a richly embossed design. The method of fastening noted in the Newstead girdle is evidently one which was commonly in vogue among the Celtic peoples. The same T-shaped catch is used for the gold torc from Broighter near Limavady, as well as for the torc from Serries en Val near Carcassonne figured by Mr. Arthur Evans,² and it is employed as a fastening for the decorated circular clasps of a hauberk of chain mail in the Thorsbjerg find.³

1 Ritterling, *Das frühromische Lager bei Hofheim*, p. 51, fig 16.

2 *Archaeologia*, vol. lv. pp. 399 and 400.

3 Engelhardt, *Denmark in the Early Iron Age*, Th., pl. 7, fig. 8.

Helmets

Only the helmet is now required to complete the figure of the soldier in his armour. Of this the pits furnished specimens remarkable alike for their beauty and for their preservation. Pit No. XXII yielded an iron helmet without decoration, an iron helmet with a visor-mask, and a brass helmet, while the brass visor-mask of a fourth helmet came from the pit in the Bath Buildings. These appear to be the first Roman helmets that have come to light in Scotland. In England, at least five such helmets have been found. Four of them are preserved in the British Museum, and one in the Municipal Museum at Colchester. The specimens from England present a considerable variety in shape, only two of them being of the same type. No one of them quite represents the helmet of the legionary of the Trajan column, which was probably of thin iron, or perhaps sometimes of thick leather with raised metal bands, usually of bronze, projecting from the surface to protect the head.

The Legionary Helmet

The undecorated iron helmet from Newstead (Plate XXVI., Fig. 1) is probably the ordinary legionary helmet of the end of the first century. It is of very simple form, covering the head and coming well down over the brow. At the back it is prolonged downwards to protect the neck, and terminates in a rim projecting outwards for a distance of one inch and three-eighths. The inside of this undecorated helmet was no doubt furnished with thick padding, as we shall see to have been the case with the decorated helmet. On the outside, mountings which are now lost were probably attached to it for the better protection of the wearer and for ornament. The face was covered by two hanging cheek-pieces or *bucculae*, hinged one on either side of the helmet, and fastened together under the chin, so that only the eyes, nose and mouth were left exposed. The loops to which the cheek-pieces were attached still remain on the rim in front of the portion cut out for the ears.

Several different forms of helmets are known to have been in use among the Romans. In all of them we begin with a simple cap of metal whose general appearance is modified in various ways according to the particular method employed for protecting the back of the neck, and according to the particular mountings attached to strengthen or to ornament the whole. The helmets themselves are usually either of iron or of bronze or of brass. Many appear to have been made of iron with mountings of bronze. The hanging cheek-pieces, traces of which are so distinct on Plate XXVI., Fig. 1, are a constant feature of the legionary helmet in common use at the end of the first

PLATE XXVI. HELMETS

	PAGE
1. Iron helmet. Pit XXII.	164
2. Iron visor-helmet. Pit XXII. Back view.	168
3. Brass helmet. Pit XXII. The figure of Victory on the crown.	167



INCHES 0 1 2 3

CENTIMETRES 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 FIG. 1

INCHES 0 1 2 3 4 5

CENTIMETRES 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 FIG. 2

INCHES 0 1 2 3 4 5 6

CENTIMETRES 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 FIG. 3

century and for at least a hundred years longer. They are to be seen on the helmets of the legionaries sculptured on the bases of the Praetorium pillars from Mainz (Fig. 14), which cannot be later than 100 A.D. They are worn by the soldiers on the Trajan column. In both cases a band, which frequently ends in a projecting peak over the forehead, is added in order to thicken the helmet round the temples. Such a mounting is of common occurrence on the actual Roman helmets which have survived to our own day. As a simple peak, it forms an integral part of the example from St. Albans, which is to be seen in the Municipal Museum at Colchester. It appears as an attachment in the helmet from Friedberg, in Hesse, preserved at Darmstadt.¹ Or again, as in the specimen from Witcham Gravel, Cambridgeshire, now in the British Museum, it is present as a band running all the way round the margin, doubling the thickness of the metal not only over the brow, but also at the back.



FIG. 14. BASE FROM THE
PRAETORIUM, MAINZ

Other characteristic mountings which may be mentioned are the raised rims fastened behind the ears, and a comb-like crest of metal running from above the forehead down to the back of the head, dividing the helmet into two equal portions, and sometimes having a second band crossing it from ear to ear transversely. A good specimen of the latter method of strengthening is to be seen in the helmet from Friedberg already mentioned, while detached mountings of the sort have been met with in several of the Limes forts, as at the Saalburg and at Pfünz. Helmets with such attachments must have been worn at Newstead, as a small portion of a bronze crest (Plate XXXV., Fig. 8) was discovered in tracing the lines of the later barrack buildings of the Praetentura.

There is no indication that the specimen now under discussion had ever had a crest. On the other hand, the line of small holes, surrounding the crown and placed at a distance of five-eighths of an inch apart, may well have been originally intended for the attachment of some thickening band which

¹ Figured by Lindenschmit, *Tracht und Bewaffnung des römischen Heeres*, Taf. ix. 24.

Helmets

Only the helmet is now required to complete the figure of the soldier in his armour. Of this the pits furnished specimens remarkable alike for their beauty and for their preservation. Pit No. XXII yielded an iron helmet without decoration, an iron helmet with a visor-mask, and a brass helmet, while the brass visor-mask of a fourth helmet came from the pit in the Bath Buildings. These appear to be the first Roman helmets that have come to light in Scotland. In England, at least five such helmets have been found. Four of them are preserved in the British Museum, and one in the Municipal Museum at Colchester. The specimens from England present a considerable variety in shape, only two of them being of the same type. No one of them quite represents the helmet of the legionary of the Trajan column, which was probably of thin iron, or perhaps sometimes of thick leather with raised metal bands, usually of bronze, projecting from the surface to protect the head.

The Legionary Helmet

The undecorated iron helmet from Newstead (Plate XXVI., Fig. 1) is probably the ordinary legionary helmet of the end of the first century. It is of very simple form, covering the head and coming well down over the brow. At the back it is prolonged downwards to protect the neck, and terminates in a rim projecting outwards for a distance of one inch and three-eighths. The inside of this undecorated helmet was no doubt furnished with thick padding, as we shall see to have been the case with the decorated helmet. On the outside, mountings which are now lost were probably attached to it for the better protection of the wearer and for ornament. The face was covered by two hanging cheek-pieces or *bucculae*, hinged one on either side of the helmet, and fastened together under the chin, so that only the eyes, nose and mouth were left exposed. The loops to which the cheek-pieces were attached still remain on the rim in front of the portion cut out for the ears.

Several different forms of helmets are known to have been in use among the Romans. In all of them we begin with a simple cap of metal whose general appearance is modified in various ways according to the particular method employed for protecting the back of the neck, and according to the particular mountings attached to strengthen or to ornament the whole. The helmets themselves are usually either of iron or of bronze or of brass. Many appear to have been made of iron with mountings of bronze. The hanging cheek-pieces, traces of which are so distinct on Plate XXVI., Fig. 1, are a constant feature of the legionary helmet in common use at the end of the first



PLATE XXVII. BRASS HELMET.
Pit XXII

in his left hand, while with his right he urges his team onward with a whip. The animals rear with their paws thrown forward, producing a sense of motion and of the strain of the heavy car behind them. The car itself is boat-shaped and is set upon two low wheels, with the figure of the driver perched upon the top of it. Behind it a large pointed leaf, doubtless intended for a palm, projects into the design. Above this is a cone-like object which has a similar object corresponding to it on the other side of the helmet, in front of the leopards. These represent the *metae* or goals. On the upper part of the crown, behind the peak, is a second winged figure, floating in the air (Plate XXVI., Fig. 3). In the right hand this second figure holds what appears to be a piece of floating drapery but may possibly be intended for a palm branch, while with the left it grasps the cords attached to the harness of the leopards. In the Roman Art of the first century it is not uncommon to find Cupids represented engaged in some handicraft, as in the well-known frescoes of the house of the Vettii at Pompeii, or personifying one of the greater gods. Here a Cupid plays the part of the Indian Bacchus, urging on his leopard car while Victory flying before guides him past the goal. The modelling of the figures is coarse, but the design is well spaced and the general result effective. On the rim of the helmet at the back a punctured inscription can be distinctly traced. It appears to consist of eight letters.

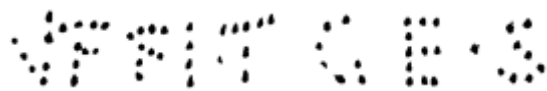


Fig. 15. PUNCTURED INSCRIPTION ON THE BRASS HELMET

A Cavalry Helmet

The first four are somewhat doubtful; the last four, TGES, seem quite plain. It is possible that the formula of the inscription is a soldier's name, followed by T, standing for *Turmae* (= 'of the troop'), and the name in the genitive case of the troop-commander.¹ The helmet is certainly of a shape worn by cavalry soldiers. The same high-peaked form is to be seen on the monuments of horsemen preserved at Cologne—Marcus Sacrilus of the Norician Ala, serving in the troop of Paterclus, and T. Flavius Bassus of the Norician Ala, of the troop of Fabius Pudens (TVR·FABI·PVDENTIS), while the inscription presents a close analogy to the letters punctured on the bronze

¹ Cf. Kastell Osterburcken, p. 31, small metal plate with punctured inscription, T·QVARTI·AGRPTI; also Kastell Pfünz, plates inscribed, T·FLAVI·VICTORIS·CV: Taf. ix. Fig. 4; and T·FLAVI·ALPIN[1], Taf. ix. Fig. 2.

visor-mask found in the river Olt in Roumania and now in Vienna,—VITALIS.T.CRISPINI.¹ Finally, there is a marked resemblance in shape between this brass helmet and the head-piece of the beautiful bronze helmet found at Ribchester in Lancashire in 1796. The last, which can be seen in the British Museum, has preserved its visor-mask modelled in the form of a human face. The embossed decoration of the two head-pieces is in the same high relief. The designs, however, are different, the Ribchester helmet having figures of horsemen and men on foot engaged in combat. Curiously enough, cone-like metae occupy a similar position in both designs. Helmets such as these are of the highest rarity. There is, however, a bronze one from Nikopolis in Bulgaria² which furnishes a notable parallel to the Newstead specimen. There too the visor-mask is wanting. At the same time there is considerable general similarity in design and in the method of decoration. It is clear that both must belong to the same period.

The Helmet with Visor-Mask

Of Roman helmets having visors in the form of a human face at least two varieties are known. One of these is represented by the Ribchester helmet, the other by the helmet found at Bettenberge, in Wurtemberg, and now preserved at Stuttgart.³ We have seen that, in the former case, the head-piece had a high projecting peak, under which the visor-mask was attached. In the Bettenberge helmet, on the other hand, there is no projecting peak, and the visor-mask overlaps the head-piece. This latter type was also exemplified at Newstead by an iron helmet, which, even in its present mutilated condition, must rank as one of the most beautiful things that the receding tide of Roman conquest has left behind it. It consists of two portions—a head-piece and a visor-mask—both hammered out of very pure metal (Plate XXIX.). Unfortunately it lay on heavy stones and has been seriously damaged. Large portions are wanting on the back and right side of the head-piece, while the mask has been broken in two, and the greater part of the upper portion above the forehead entirely destroyed. As in the other helmets already described, the head-piece terminates over the neck in a projecting rim, one inch and a half deep, which has been overlaid with a thin plate of bronze, decorated with an embossed chevron pattern. The treatment of the chevron is distinctly inferior to the work on the rest of the helmet. The whole of the head-piece is embossed with a representation of elaborately dressed hair. Round a central knot on the back of the head are rows of

1 Benndorf, *Antike Gesichtshelme und Sepulcralmasken*, Taf. x.

2 Benndorf, *Op. cit.*, Taf. xii. Fig. 34.

3 *Ibid.* Taf. viii.



PLATE XXVIII. BRASS HELMET
Pit XXII

hair-locks, all bound together by a laurel wreath, the flowing ends of which divide over the nape of the neck. The same curling hair comes down over the temples of the visor-mask. The ears are gone, but on the left side the beautiful clear-cut profile of the face shows little signs of injury. The features are beardless and youthful. The lips are slightly apart, and the nostrils and eye-holes both open. The stud which is visible low down, beneath the ear, doubtless formed part of the fastenings that held head-piece and visor together. Among the locks of hair, small attachments of silver can still be discerned. Five of these are on the left side of the face, one on the lock over the forehead, and two on the right side. These fragments of silver have the appearance of small circular pins inserted into the iron. One of those on the left side of the face has still affixed to it a small piece of thin silver plating, a circumstance which appears to indicate that the purpose of the circular pins was to hold a plating of silver in place over the hair, and probably over the whole face. The thin plate of bronze with its chevron pattern, which covers the projection over the neck, may also have been plated with silver or with gold. Traces of similar decoration on the rim of the plain iron helmet have already been noted, and several of the visor-masks known to us have evidently been enriched by a plating of more precious metal. Thus, on a visor-mask found at Gräfenhausen, Wurtemberg, the hair, the eyebrows, and the eyelids are gilded, while the rest of the face is overlaid with silver; the Bettenberge helmet is plated with silver, and the helmet from Nikopolis is bronze gilt.

The helmet with visor-mask was doubtless developed by a simple process of evolution from the helmet with hanging cheek-pieces. The cheek-pieces would tend more and more to cover the face, and would thus gradually assume the form of a mask. On a bronze cheek-piece from a votive helmet found at Dodona, the lips, the heavy moustache, and beard, are all reproduced.¹ Another example in the same metal, which shows the lips and moustache but is of coarser execution, is in the Museum of St. Germain-en-Laye, its original *provenance* being unknown. Such cheek-pieces are in all probability the forerunners of the complete visor-mask. The masks themselves sometimes show traces of their ancestry. In the Bettenberge helmet, as also in a helmet from Heddernheim, the visor retains the outline of the cheek-pieces, while the open space between them is filled up with a small mask that covers the eyes, nose, and mouth, and can be detached at will. In the Ribchester and

1 Benndorf, *Op. cit.* Taf. xiv. 4.

the Newstead helmets the distinction of the cheek-pieces has disappeared, and the mask is formed of a single piece of metal.

Mountings on the Head-Piece

Returning to the head-piece, we may note that it is provided with a number of attachments. At the back of the neck, just at the spring of the projecting rim, is a small bronze loop. A somewhat larger loop is fastened to the central hair knot, while on the left side is a tube-like socket of bronze, and on the right a triangular projecting stud. Two bronze loops in the very front, at the highest point, were doubtless employed to keep the visor-mask in position. Of the remaining attachments the ring at the back of the neck was perhaps used with one of the others to sling the helmet. The tube-like object and also the central loop were apparently for plumes. The plume, or *crista*, appears on various monuments; worn transversely, it was a distinguishing mark of the centurion. As a bunch of feathers on the top of the helmet, it can be seen on the gravestone of the legionary C. VALERIUS CRISPUS, at Wiesbaden, or, in a more exaggerated form, on the monument of the standard-bearer FLAVINUS of the ALA PETRIANA at Hexham—a monument which in the opinion of Professor Haverfield may belong to an early period in the occupation of North Britain. That the helmet had been intended for actual use is obvious, not only from the attachments described above, but also from the fact that there were remains of thick padding in the inside of the head-piece. The padding appeared to have been composed of wool, and to have been fastened to the metal by some resinous substance, which became sticky when hot water was applied. Traces of similar padding were found adhering to the mask.¹

Visor-Mask from the Baths

Even more complete is the specimen of a visor-mask which came from Pit LVII at the Baths (Plate XXX.). It is made of brass, and weighs 1½ lbs. avoirdupois. Like the iron mask, it represents a beardless face with a nose slightly aquiline. The hair is elaborately braided and curled over the temples, a few loose locks falling down in front of the ears. The lower edge of the metal, which is three mm. thick, is turned back to prevent chafing. Some distance below each of the ears a hole has been bored to receive a fastening for attaching the visor to the head-piece. On the upper edge, where the metal is somewhat thinner, there are signs of repair; a copper plate 4½ inches by 2¼ inches has been riveted to the back, and in this a hole about 3¼ inches square has been cut to give

¹ On the back of a mask found at Hellingen, near Luxemburg, traces were recognised of a resinous substance probably applied for the same purpose. *Nordiske Fortidsminder*, ii. p. 42.



PLATE XXIX. IRON HELMET WITH VISOR MASK.
Pit XXII

passage for yet another fastening. The dressing of the hair recalls in a measure the elaborate coiffures of the Roman ladies of the first and second centuries, so much so indeed that the mask can hardly have been intended to represent a male head. Compared with the iron visor, which, with its beautiful idealised features, must rank as a work of art of high quality, the brass mask is distinctly inferior in style. It is altogether more mechanical. Yet, both are the outcome of that phase of art which, under the influence of Greek tradition and Greek craftsmen, produced in Rome the remarkable portrait busts and reliefs of the first and second centuries.

It may be doubted whether any of the surviving monuments provides a representation of a Roman visor helmet in actual use. Nor indeed is it likely that a representation of a man should show the visor drawn down and the face concealed. M. Reinach has pointed out among the arms in the trophies upon the balustrade of Pergamum a helmet which is evidently of this type.¹ But it belongs to an earlier period. On the tombstones of the standard-bearers QUINTUS LUCCIUS and CAIUS VALERIUS at Mainz, the helmet is shown on the left shoulder, and the front of it appears to take the form of a face with peaked ears. In both instances, however, long bands hang over the shoulder below the helmet, suggesting the skin of an animal's forelegs terminating in paws. It is, therefore, probable that we have in each of these cases a representation of a skin hood with the animal's features drawn over the helmet. In the gravestone of the standard-bearer PINTAIUS of the Fifth Cohort of the Asturians at Bonn, a hood of this kind is shown worn above a helmet with cheek-pieces, the long bands of skin with their claws being crossed over the breast.² Such coverings for helmets had been fashionable at least since Hellenistic times. On some of the coins of Seleucus I., for example, the king wears a helmet covered with the skin of a panther.

The Period of the Helmets

The great rarity of the visor-helmets has already been alluded to. In Britain the Ribchester helmet has hitherto been the sole representative of the class, and complete examples from the Continent are almost as scarce, although the number of visor-masks is greater.³ The most perfect specimen of head-piece and visor together is that already mentioned as

1 Reinach, Art. 'Galea,' Daremberg and Saglio, *Dictionnaire des Antiquités*, fig. 3410.

2 Donner von Richter, 'Die Hedderheimer Helme,' *Mitteilungen über römische Funde in Hedderheim*, Heft 1. p. 50.

3 A list of helmets and of visor-masks corresponding to those found at Newstead, which have been discovered throughout Europe, will be found appended to this chapter.

having been found at Bettenberge. It is made of bronze, and has been overlaid with silver. A head-piece, which has evidently undergone alteration in barbarian hands, was discovered at Thorsbjerg, in Schleswig. Of the masks, some fifteen in all are known. Hitherto none of the finds have been made in circumstances which rendered it possible to fix the exact period to which this type of helmet belongs. Dr. Donner von Richter,¹ whose treatise on the subject is one of the most recent, places the Ribchester and Nikopolis helmets at the beginning of the third century. Now, however, the unmistakable association with first-century pottery has furnished a new and valuable clue. The Newstead helmets must have been deposited in their resting-places prior to 100 A.D. The probability is that both the Ribchester and the Nikopolis helmets belong to the same period. At Ribchester, certainly, the pottery shows that the fort is old enough for a first century helmet to be lost in it.

Their use

The exact purpose for which the visor-helmets were intended is somewhat uncertain. It seems clear that in battle they would be cumbrous and of little service. Benndorf, who made an elaborate study of the group, came to the conclusion that they were not part of the Roman soldier's equipment, but were really parade armour, destined to figure in certain ceremonies, and especially to be used as death-masks, laid upon the face of the body when it was deposited in the grave. It is an undoubted fact that such masks have occurred as grave furniture. A case in point is the recent discovery of a mask of hammered iron at Chassenard, in France.² At the same time, it is impossible to suppose that the Newstead helmets, with their woollen padding, and with their visor-masks showing signs of repair and of alteration, had no other purpose than to be laid on a dead soldier's face. A passage from Arrian's *Τεχνη Τακτικη*, cited by Benndorf, probably furnishes us with the true explanation, although Benndorf himself seems hardly to have appreciated the full importance of his quotation. The *Τεχνη Τακτικη* was written in the twentieth year of the reign of Hadrian,—that is, in 136 A.D. The last ten or twelve chapters are devoted to a description of the sports or exercises indulged in by the Roman cavalry. The author apologises at the outset for the difficulty he feels in making the necessary explanations. In many cases, he says, there is not even a Latin equivalent for the technical terms, some of which are Iberian, and some

1 Donner von Richter, *Op. cit.* pp. 40 and 41.

2 Déchelette, 'La Sepulture de Chassenard,' *Revue Archéologique*, 1903, tome i. p. 235.



PLATE XXX. BRASS VISOR MASK
Pit LVII

Celtic, the whole institution having been borrowed by the Romans from the Celtic horsemen who formed so important an element in their mounted force.

A Passage from Arrian

After telling how the ground was specially selected and prepared, he proceeds: 'Then those of them who are conspicuous for rank or for skill in horsemanship ride into the lists armed with helmets made of iron or brass and covered with gilding to attract the particular attention of the spectators. Unlike the helmets made for real battle, these helmets do more than serve as a protection to the head and cheeks; they are made to correspond in every way to the faces of the horsemen, with openings at the eyes large enough to admit of a clear view and yet sufficiently small not to involve exposure. They have yellow plumes attached to them, not to serve any useful purpose, but rather for display. If there be but a slight wind, then when the horses gallop in the charges, the plumes make a brave show, waving in the air 'under the influence of the breeze. And the horsemen carry oblong shields, not like shields for real battle but lighter in weight—the object of the exercises being smartness and display—and gaily decorated. Instead of breast-plates, they wear tunics, made just like real breast-plates, sometimes scarlet, sometimes purple, sometimes parti-coloured. And they have hose, not loose like those in fashion among the Parthians and Armenians, but fitting closely to the limbs. Their horses are most carefully protected by frontlets, but do not require any side armour, for the javelins they use for exercise are of wood without any metal. Even so they might injure the eyes of the horses, but they fall harmlessly on their flanks, particularly as these are for the most part protected by trappings.'

Arrian then describes at length the sort of exercises for which these preparations were intended. The horsemen rode in squadrons headed by a standard-bearer. Some carried ordinary Roman ensigns. Others had Scythian pennons made of bright-coloured cloth stitched together in the form of a serpent, which filled as it was borne swiftly through the air. The evolutions performed were of a most complex character, requiring great skill in horsemanship. As the rider dashed on, showers of wooden spears were discharged with great rapidity. These gave place to more serious exercises in which blunted spears were employed. But the latter were levelled against the opponent's shield, never against the helmet, which was not strong enough to withstand a thrust.

1 C. 34. I am indebted to Mr. George Macdonald for supplying this passage.

Phalerae

So far, the nature of the various objects described has been sufficiently obvious. In the case of some of those that follow, the difficulties of interpretation are more serious. Thus, in Pit XXII there were found, in association with the helmets, nine discs of thin bronze (Plate XXXI.). Eight of these are circular, and the remaining one may be described as lenticular or kidney shaped. The measurements of the circular pieces are as follows: four of them are 4 inches in diameter; one $3\frac{3}{8}$ inches, one $4\frac{1}{2}$ inches, and two $3\frac{7}{8}$ inches. The greatest length of the kidney-shaped pieces is $3\frac{1}{4}$ inches, its greatest width 2 inches. That all were intended to be worn together seems certain from the circumstance that each has inscribed upon it the name of a man—DOMETIUS or probably DOMITIUS ATTICUS—whose dress they doubtless adorned. Nomen and cognomen have been scratched in two lines in cursive characters, ownership being indicated by the use of the genitive case—DOMETI ATTICI. On one of the discs the nomen DOMETI stands alone. On another the spelling is DMETI, while on yet another the cognomen appears as ATICI. All of the discs are furnished with small bronze rivets which were evidently used to fasten them to leather. At one end of the rivet is a small round washer, whose purpose has clearly been to prevent the rivet slipping out of its place. The larger discs have six rivets, the two smaller only four. The kidney-shaped piece has five.

Names on the back

With one exception the name of the owner is inscribed on the same side as that on which the washers are, and therefore on the back next the leather. In the case of the exception—one of the two smaller discs—the holes appear to have been altered, while the position of the rivets (which are somewhat longer) has been reversed so that the name appears on the other side from the washers. The occurrence of these names is an interesting illustration of a well-known custom. Vegetius tells us that the Roman soldier used to inscribe his name together with that of his cohort or century on the back of his shield.¹ The same pit provided another series of objects which exemplified this practice even more fully.

What purpose did the bronze discs we have been describing serve? Their number and shape at once recall the phalerae of the monuments. The phalerae were a series of round metal plates worn on the breast on a light framework of leather. In the representations which have survived they are sometimes highly decorated and sometimes plain. They were classed among

¹ Praeterea et in averso scuto uniusculusque militis litteris erat nomen adscriptum, addito et ex qua esset cohorte quave centuria. Vegetius, *Epit. rei milit.* ii. 18

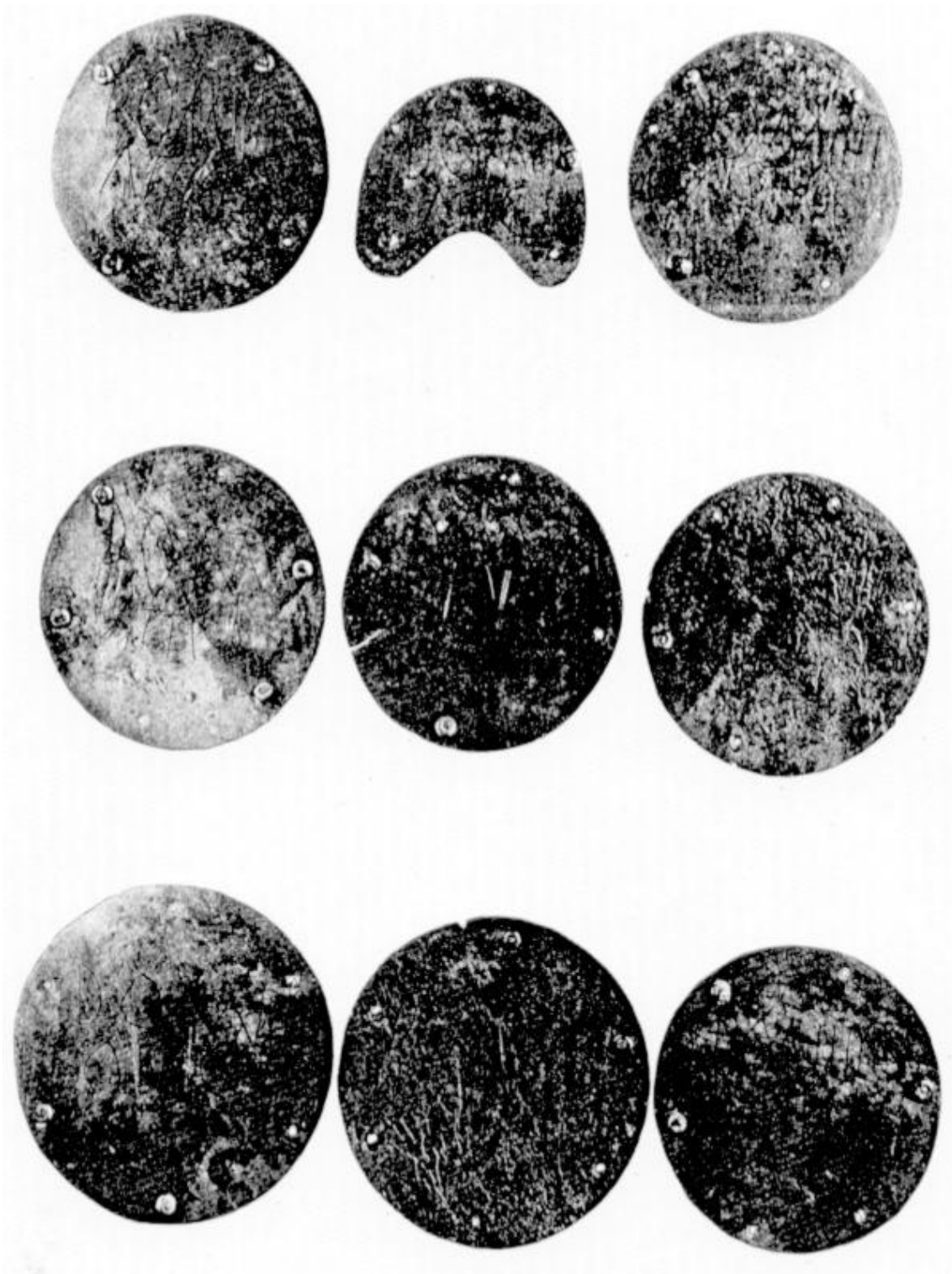


PLATE XXXI. INSCRIBED BRONZE PHALERAE
Pit XXII

the *dona militaria*, and were worn as a badge of military distinction with the *torques* and the *corona muralis*. They appear to be always grouped in unequal numbers, and very commonly in sets of nine. There is no doubt that many of these objects are very closely related to the phalerae employed to decorate harness. The form and decoration must have been very similar. But, when used on harness, phalerae were placed at the points of junction of straps, and were furnished on the back with strong loops sufficient to withstand a considerable strain. This is a function which the light rivets of the discs we are discussing would have been ill-fitted to perform. They are much more suited for fastening the metal plates to a leather tunic or on bands of some strong material, to be worn over the breast on ceremonial occasions.

Phalerae on Monuments

Probably the best known monument illustrating the wearing of such military decorations is that of the centurion Marcus Caelius, found at Xanten on the Rhine and now preserved at Bonn. It dates from the early first century. On the breast of the effigy are five phalerae ornamented heads in high relief. Similarly, with Gnaeus Musius, the standard-bearer of the Fourteenth Legion, whose tombstone, illustrated in Fig. 16, is in the Museum at Mainz, wears nine plain circular phalerae, while the centurion Q. Sertorius Festus at Verona has likewise nine phalerae decorated with a Gorgon, Bacchic heads, an eagle, and a horse. So far as can be seen, the selection of designs was purely arbitrary, but possibly the more elaborate forms belonged to the officers of highest rank. Not infrequently the phalerae on their leather framework appear in a panel on a tombstone. Thus they can be seen, nine in number, displayed on the monument of the horseman Caius Marius at Bonn.



FIG. 16. TOMBSTONE OF GNAEUS MUSIUS

The following additional representations of sets of phalerae may be noted: on the tombstone of the centurion C. Allius of the Thirteenth Legion, from Vindonissa, nine plain phalerae in three rows; on a tombstone found at Boppard, nine plain phalerae; on a tombstone at Mainz, with other trophies, nine plain phalerae; on the tombstone of C. Vettius and Q. Vettius from Magdalenenberg, near Zollfeld in Carinthia, nine plain phalerae; on the tombstone of M. Pompeius at Tusculum, nine phalerae with heads in relief; on the tombstone of the centurion L. Blattius of the Fourth Legion at Fregose, in Venetia, nine phalerae.¹

The Lauersfort Phalerae

Coming now to actual examples, we may note the well-known set found at Lauersfort,² near Crefeld, Rhenish Prussia, in 1858. This is preserved at Berlin. It consists of ten bronze discs, covered with thin plates of hammered silver, nine being circular, with a diameter of $4\frac{1}{4}$ inches, and one crescent-shaped. On the back of each are three small loops for fastenings. The circular pieces are decorated with heads in high relief,—Jupiter, Cupid; a Gorgon, a lion, and so on. On the face of one of them is punctured the name G. FLAVI FESTI, while each plate has the name MEDAMI punctured on the back. The crescent-shaped piece bears the figure of a double sphinx, whose position shows that the disc had been worn with the horns of the crescent pointing downwards. If we may judge from the inscription, the same must have been the case with the crescentic disc belonging to DOMITIUS ATTICUS. A find from Novaesium may also be cited as presumably analogous.³ It consists of six discs, each, however, with a segment cut out of the circle so as to produce a form approaching a crescent. They are plates of thin strong bronze from 3 to $3\frac{3}{4}$ inches broad, with either three, four, or five rivets for fastening them to leather. In one of them the rivets are replaced by rings.

Between the Newstead discs and such decorated phalerae as the Lauersfort find, the difference is doubtless considerable. But all the evidence available seems to indicate that the former were worn on the breast, like the phalerae of the monuments. They were a set bearing the name of one man. Numerically they correspond to those represented on more than one Roman tombstone. In size they closely resemble the Lauersfort pieces, while both sets include a more or less crescent-shaped piece worn with

1 Hofmann, *Römische Militärgrabsteine der Donauländer*. Wien, 1905.

2 Jahn, *Die Lauersforter Phalerae*. Bonn, 1860.

3 Lehner, 'Die Einzelfunde von Novaesium,' *Bonner Jahrbücher*, Heft 111–112, p. 367, and Taf. XXX. A, Fig. 48.

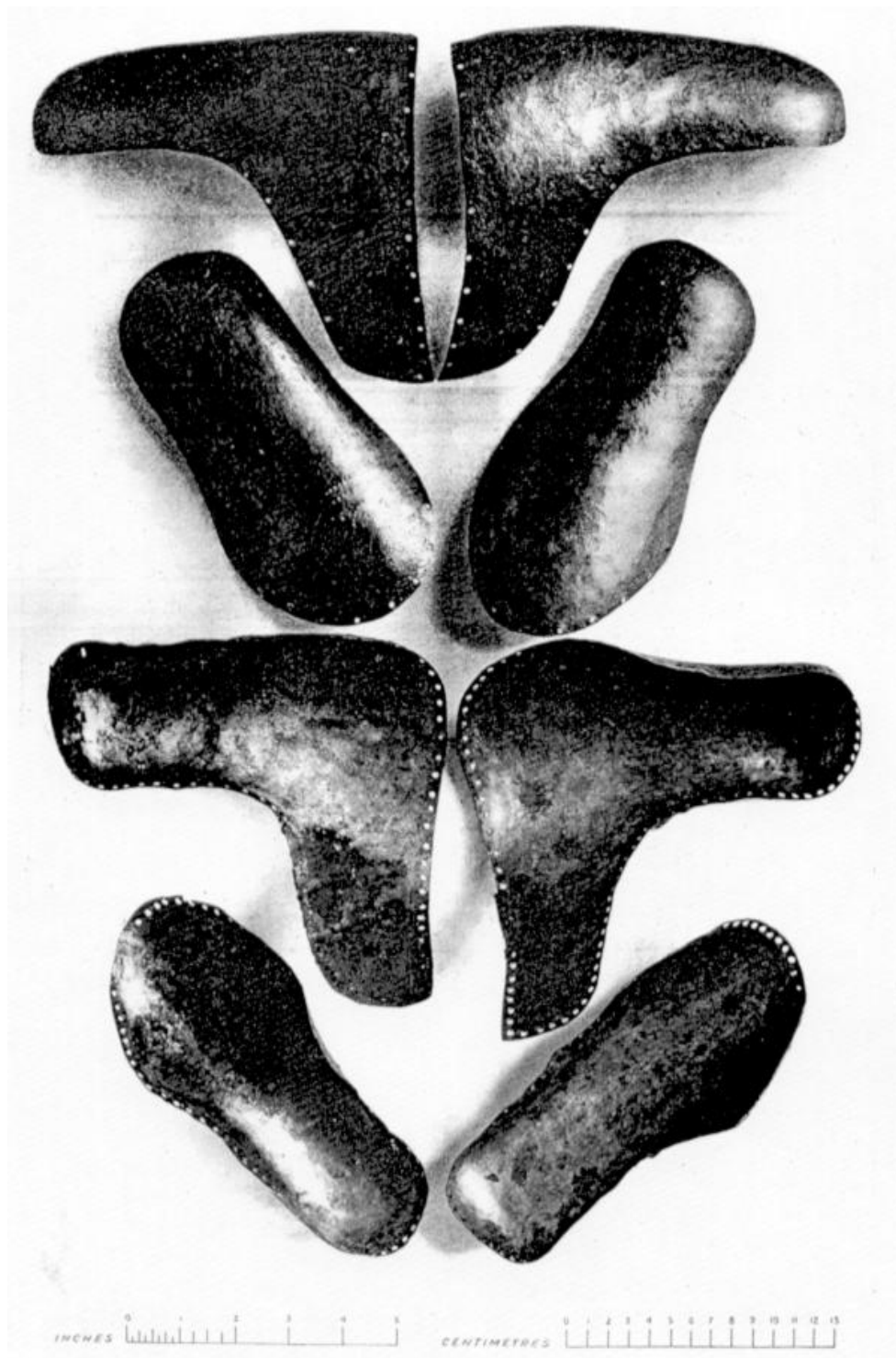


PLATE XXXII. BRONZE OBJECTS OF UNKNOWN USE.
Pit XXII and Pit XXVII

the horns downwards. Is it possible that in the Newstead pieces we have the decoration of one of those Cimbrian tunics mentioned by Arrian—discs that glittered and shone as the horseman rode in mimic warfare? Or were they, rather, the pieces of a breast-plate of simple pattern which, in a decorated form, became symbols of distinction?

Bronze Objects of Unknown Use

The group of bronze objects which follows should probably be classed as armour (Plate XXXII.). That is the inference suggested by their shape as well as by the circumstances in which they were discovered. They were found twice, each time in a set of four. The first set was taken, like certain of the helmets, from Pit XXII. The second set came from Pit XXVII, where it was associated with the mountings of the military belt already described. At first sight they look like shoulder-pieces.

Two of the members of each set seem arranged, one for the right, the other for the left side, each of them being furnished with a depending peak at one end. Along the line of the top they measure $7\frac{7}{8}$ inches, and from the top line to the end of the peak 7 inches. The two smaller members of each set are without the depending peaks. Holes have been punched at regular distances round the edge of each of the eight, obviously for attaching leather.

In the set found in Pit XXII, each piece was marked with a number and a name.

One of the larger pieces has the number XV punctured upon it, followed by the name SENECEO, scratched with a knife-point in cursive letters, while below this name, and turned the reverse way, a second name has been scratched with a blunter point and much more irregularly. The latter is read by Professor Haverfield as CRESCES. On each of the other three pieces is punctured the number XII, followed by the name SENECEONIS, scratched as before. The members of the set found in Pit XXVII hardly differed

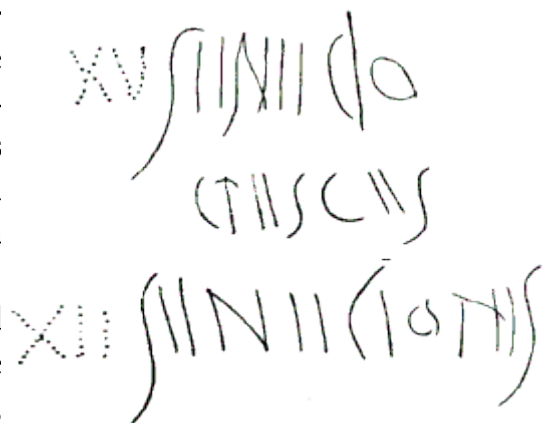


FIG. 17. NAMES INSCRIBED UPON THE BRONZE OBJECTS FROM PIT XXII

from the others in their dimensions. But the holes punched in the edge were much more numerous, while the fragments still adhering made it

evident that the whole four pieces had been completely covered with leather on the outside. Where the leather remained on the depending peaks, it seemed to have been turned back inside for a distance of $\frac{3}{8}$ of an inch.

Objects of this character do not appear to have been met with before on any Roman site in Britain. Abroad they have occurred at least twice,—once in the early fort of Haltern, where a single piece corresponding to one of the smaller members of the set has been found, and again at Novaesium, where two pieces corresponding to the smaller size and a fragment of a depending peak, which had evidently belonged to a piece of the larger size, came to light in one of the buildings identified as cavalry barracks. It should be noted that they were associated with the bronze discs already mentioned. There is nothing in the monuments that throws any light on the purpose of these curious objects, on which *SENECIO* has marked his name. But it seems just possible that it is to the idea of tournament armour that we must look for an explanation of them as well as of two curious circular discs of bronze, one of which, like them, was found along with the helmets, while another came from Pit XCII (Plates XXXIII. and LIV., Fig. 5). These discs measure $9\frac{1}{4}$ inches and $9\frac{7}{8}$ inches in diameter respectively. The edges of the metal, which is thin, are turned back as though the discs had been fastened to wood or leather, while on the back of each of them are three metal loops, as if for lacing them to the backing. These loops will be seen in Fig. 18 p. 181), which shows the back of the disc reproduced in Plate XXXIII. In the disc found with the helmets in Pit XXII (Plate LIV., Fig. 5) there rises in the centre the outline of a human head and shoulders. Surrounding the head, as though to bring it into higher relief, is a halo-like concavity. In the example from Pit XCII (Plate XXXIII.) the central feature of the design takes a less definite form, but the surface of the concave band which surrounds it is broken by a series of raised lines radiating from the centre and giving a fan-like appearance to the whole. The discs do not appear to be substantial enough for shield bosses of the ordinary character. Were they, like the helmets, destined to figure on parade? In the description from Arrian, already quoted, we are told that above the horsemen, as they rode, were borne Roman standards and Scythian pennons. Just as the smaller bronze discs resemble in form the phalerae of the monuments, but yet differ from them in their absence of decoration, so these larger embossed plates, on one of which we have a clear suggestion of the *imago clypeata*, recall the discs that, decorated with imperial heads in high relief, formed part of a Roman standard.



PLATE XXXIII. BRONZE DISC
Pit XCII

I. ROMAN VISOR HELMETS WITH MASKS

PLACE OF FIND.	MATERIAL.	WHERE PRESERVED.	WHERE ILLUSTRATED.
GERMANY.			
1. Bettenberge, Wurtemberg	Bronze, silver plated	Royal Antiquarium, Stuttgart	Benndorf, <i>Op. cit.</i> Plates VII. and VIII.
2. Hedderheim, Hesse	Bronze with white metal plating	Historical Museum, Frankfort-on-M.	<i>Mittheilungen über Hedderheim</i> , I. Taf. IV.
3. Thorsbjerg, Schleswig	Silver	Museum vaterländischer Alterthümer, Kiel	Benndorf, <i>Op. cit.</i> Taf. XV. 3 a.
GREAT BRITAIN.			
4. Ribchester, Lancashire	Bronze	British Museum	<i>Vetusta Monumenta</i> , Vol. IV. Pl. I. Benndorf, <i>Antike Gesichtshelme und Sepukralkmasken</i> , Plates IV. V. and VI.
5. Newstead, Roxburghshire	Iron	National Museum, Edinburgh	Page 168, <i>supra</i> .
SERVIA.			
6. Semendria,	Bronze	Museum of Belgrade	Benndorf, <i>Op. cit.</i> Taf. I. 1a and 1b.

II. MASKS WHICH HAVE BEEN ATTACHED TO HELMETS

PLACE OF FIND.	MATERIAL.	WHERE PRESERVED.	WHERE ILLUSTRATED.
FRANCE AND ALGERIA.			
1. Chassenard - -	Iron	Museum of Saint Germain-en-Laye	<i>Revue Archéologique</i> , 1903, Tom. I. p. 235.
2. El Grimidi - -	Bronze	Museum of Algiers	Doublet, <i>Musée d'Alger</i> , Pl. XVI
3. Rodez - - -	Bronze	Museum of Rodez	de Laurier, <i>Un casque de Gladiateur Musée Archéologique</i> , Paris, 1879. Reinach, <i>Bronzes figurés de la Gaule romaine</i> , p.346.
GERMANY.			
4. Cologne	Iron, bronze plated	Royal Museum, Berlin	Benndorf, <i>Op. cit.</i> Taf. XLV. 3.
5. Gräfenhausen	Bronze, gold and silver plated	Royal Museum, Stuttgart	Lindenschmit, <i>Alterthümer</i> , Bd. IV. Taf. 39.2.
6. Mainz	Iron	K. K. Antikencabinet, Vienna	Benndorf, <i>Op. cit.</i> Taf. XII. 2 a.
7. Weissenburg	Bronze	Museum of Weissenburg	Lindenschmit, <i>Op. cit.</i> Bd. IV. Taf. 39.3.
8. Thorsbjerg	Silver	Museum vaterländischer Alterthümer, Kiel	Engelhardt, <i>Denmark in the Early Iron Age</i> , Plate 5.
GREAT BRITAIN.			
9. Newstead	Brass	National Museum, Edinburgh	Page 170, <i>supra</i> .
HOLLAND.			
Vechten	Iron gilt	Royal Museum, Leyden	Benndorf, <i>Op. cit.</i> Taf. XIII. 1 a.
Nymwegen - -	Bronze	The Gildemeister Collection, Amsterdam	von Lipperheide, <i>Antike Helmen</i> , p. 323.

PLACE OF FIND.	MATERIAL.	WHERE PRESERVED.	WHERE ILLUSTRATED.
ITALY.			
12. Nola - - -	Bronze	British Museum	Benndorf, <i>Op. cit.</i> Taf. III.
LUXEMBURG.			
13. Hellingen- -	Bronze	Museum of Luxemburg	Benndorf, <i>Op. cit.</i> Taf. XII. 1 a.
ROUMANIA.			
14. River Olt near Rieska -	Bronze	Museum für Künst und Industrie, Vienna	Benndorf, <i>Op. cit.</i> Taf. X.
15. ?	?	Museum of Bucharest	Cited by Reinach in Daremberg et Saglio, <i>Dictionnaire des Antiquités, Art. Galea.</i>

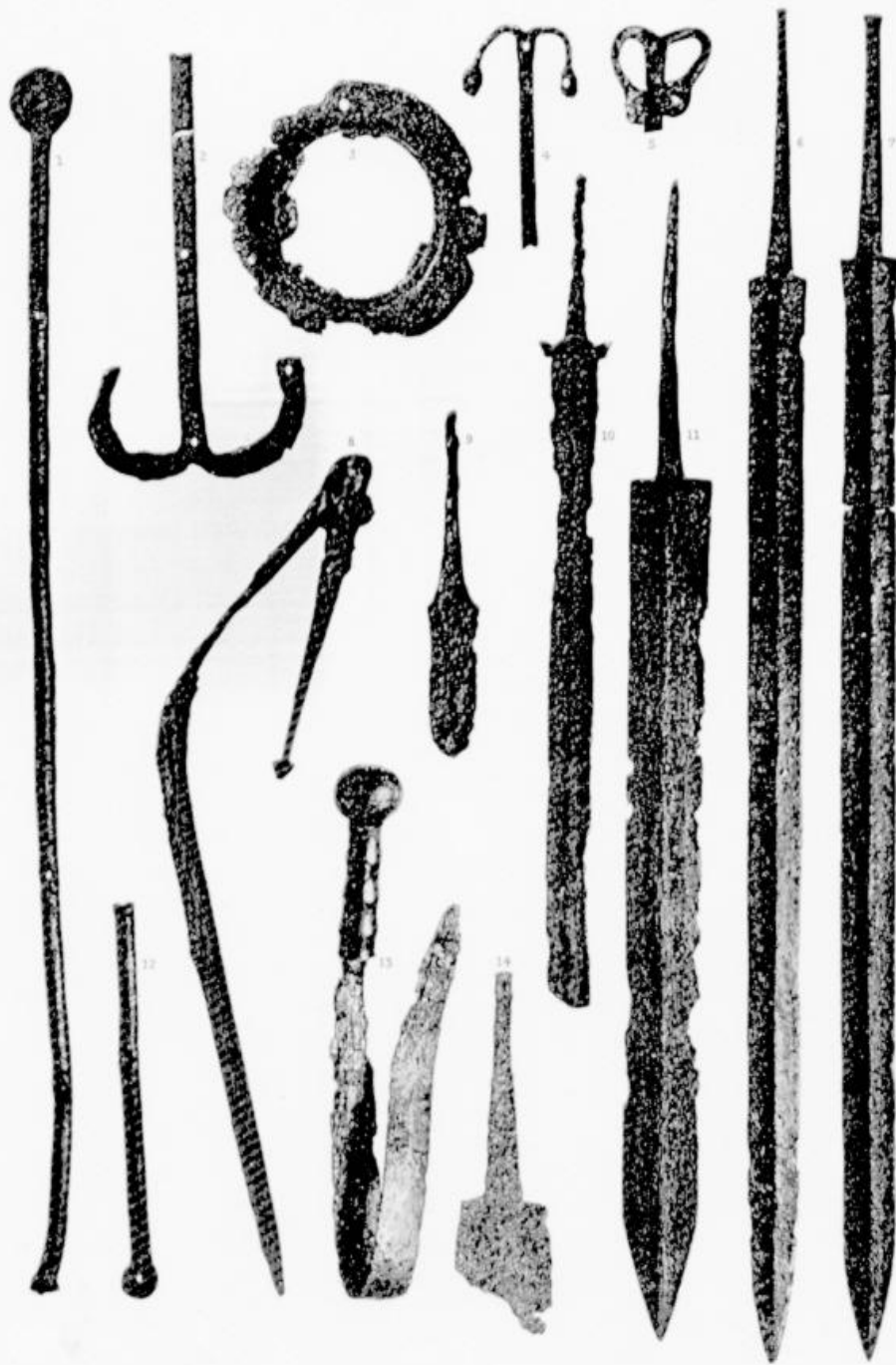
III. DECORATED HELMETS TO WHICH VISOR-MASKS WERE PROBABLY AT ONE TIME ATTACHED

PLACE OF FIND.	MATERIAL.	WHERE PRESERVED.	WHERE ILLUSTRATED.
AUSTRIA- HUNGARY.			
1. Szekely-Koosard -	Bronze	Museum of Nagy- Engel (Siebenburgen)	von Lipperheide, <i>Op. cit.</i> p.343.
2. Iron Gates, The Danube	—	In a private collection, Vienna	von Lipperheide, <i>Op. cit.</i> p.315.
BULGARIA.			
3. Nikopolis - - -	Bronze gilt	Antikencabinet, Vienna	Benndorf, <i>Op. cit.</i> P1. XII. Fig. 3 a.
EGYPT.			
4. Antinopolis - -	—	Royal Museum, Berlin	von Lipperheide, <i>Op. cit.</i> p. 339.
GERMANY.			
5. ?	Bronze	Royal Museum, Berlin	<i>Jahrbuch des K. Deutschen Inst.</i> Band XX. p. 21, Fig. 8.
6. Thorsbjerg - -	Bronze	Museum vaterländischer Alterthümer, Kiel	Engelhardt, <i>Denmark in the Early Iron Age</i> , P1. 5.
7. Wurtemberg - -	Iron	Royal Museum, Stuttgart	
GREAT BRITAIN.			
8. Newstead, Roxburghs hire	Brass	National Museum, Edinburgh	Page 166, supra.
9. Guisborough, Yorkshire	Bronze	British Museum	von Lipperheide, <i>Op. cit.</i> Fig. 343.
PALESTINE.			
10. Bed of the Jordan -	?	Royal Museum, Berlin	<i>Jahrbuch des K. Deutschen Inst.</i> Band XX. p. 21, Fig. 8.

PLATE XXXIV. SWORDS AND SHIELD MOUNTINGS

	PAGE
1. Shield mounting. Pit XVI.	181
2. Mounting, perhaps intended for a shield. Pit XVI.	181
3. Shield boss. Pit I.	180
4. Shield mounting. Ditch of early fort.	181
5. Shield mounting. Ditch of early fort.	181
6. Sword (<i>spatha</i>). Pit XIV.	183
7. Sword. Pit XVI.	183
8. Sword iron, with bronze hilt mountings. Pit LVIII.	185
9. Dagger or knife.	188
10. Sword iron, with brass mount. Pit LVII.	185
11. Sword (<i>gladius</i>). Pit LVII.	183
12. Shield mounting. Ditch of early fort.	181
13. Sword, with bone hilt. Pit LVII.	184
14. Portion of sword. Pit LVII.	183

All of the objects figured are of iron.



INCHES 0 1 2 3 4 5 6 7

CENTIMETRES 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

CHAPTER X

Weapons

Shields

IN the sculptures of the Trajan column the Roman soldier marching out to the conquest of Dacia is represented carrying his shield on his left arm and his sword tucked under his right, while from his spear, which is borne over his shoulder, hang his camp kettle and other items of his equipment.

The weapons no less than the armour are illustrated by the Newstead finds. The remains of shields are very slight. The shields in use were probably of light wood, covered with hide or leather and bound with bronze or iron. They had a central projecting boss and some more or less rigid metal framework. Wood and leather alike have disappeared, leaving nothing save a few fragments of the metal mountings. On the Trajan column the shields of the legionaries are rectangular with a curve inwards to protect the body. The same shape appears on the sculptures from the Praetorium at Mainz. Some of the monuments, again, display a shield of hexagonal form. The most common type, however, is oval. This may be noted on the Trajan column among the spoils of the Dacians, as well as in the hands of Romans. It also figures among the Gaulish trophies on the Arch of Orange. We may infer that it was the shield generally borne by the auxiliaries.

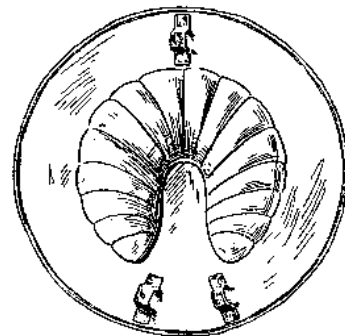


FIG. 18. REVERSE OF
BRONZE DISC FROM PIT
XCII

It is probable that such fragments of shields as have been recovered at Newstead belonged to the oval type. The most typical was a much damaged boss of iron which had certainly been an *umbo* or shield-centre. It came from the pit in the Principia (Plate XXXIV., Fig. 3), and had had a total

diameter of $6\frac{3}{8}$ inches, while the domed central portion projected about $1\frac{1}{2}$ inches and had a diameter of $3\frac{7}{8}$ inches. It had been fastened to the shield by five nails or rivets. Similar bosses have been found at the Saalburg and other Roman castella abroad. From the bottom of the same pit came a number of decorative fragments of brass, which may well have formed part of the ornament of the shield. The remains of a second shield-boss of iron were found in Pit LXXXIII.

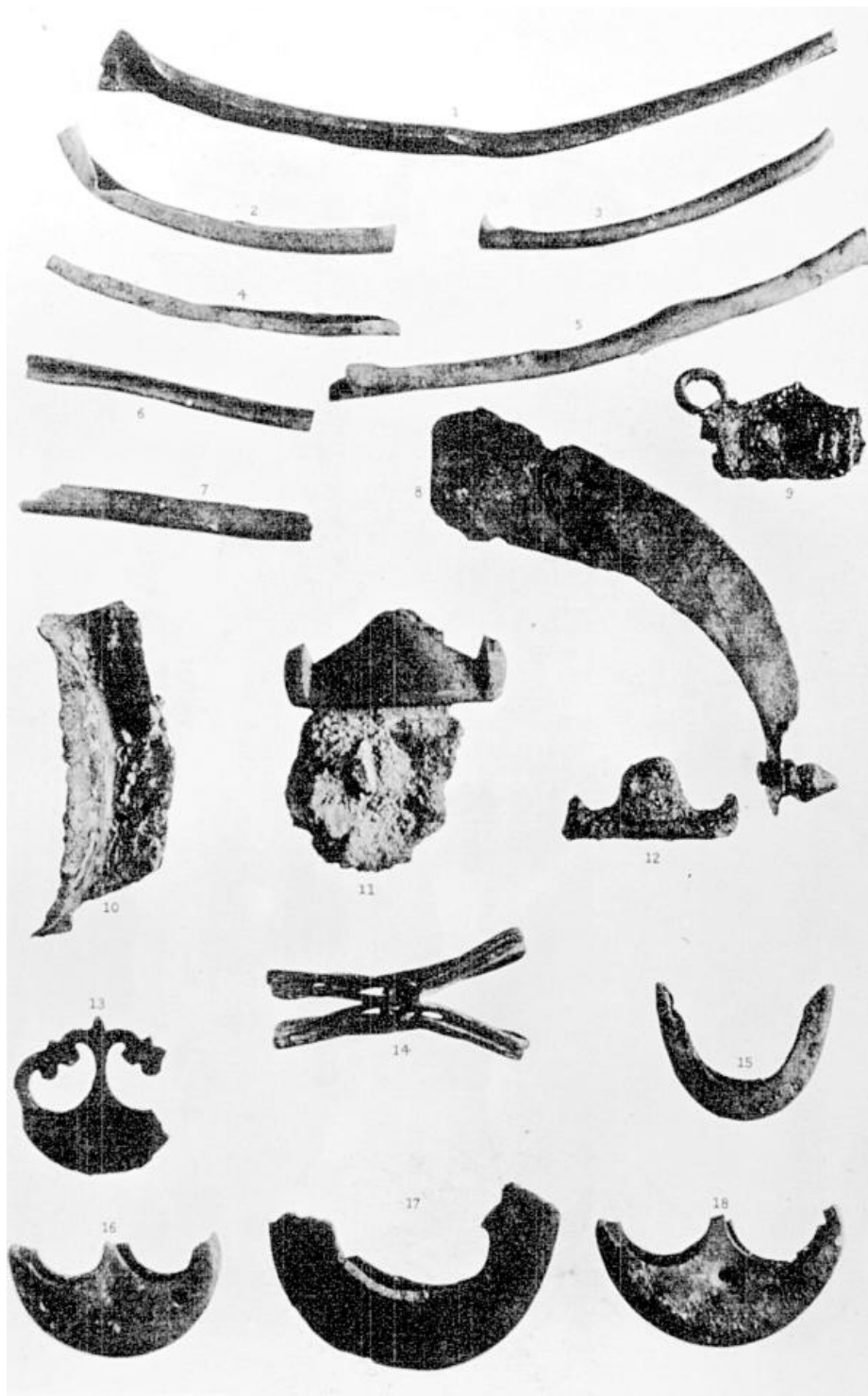
Remains of their Framework

Another object, found in association with tools and weapons in Pit XVI, appears to have belonged to the framework of a shield. This is an iron rib (Plate XXXIV., Fig. 1), 28 inches long, flat on one side and rounded on the other. It has a width of half an inch. Although only one of the ends remains, it would appear that each of them has been beaten out flat so as to form an almost circular plate, having in the centre, on the side corresponding to the flat side of the main rib, a large flat-headed rivet $\frac{5}{8}$ of an inch in diameter: evidently intended as a fastening for attaching to thin wood or thick leather. The iron rib is perforated with four holes, at equal distances apart, for fastenings. Another rib, $25\frac{1}{2}$ inches long, came from Pit XCVI. It is somewhat thicker than the last specimen. In addition to the flattened plates at each end, it has four nail holes. The metal, $3\frac{1}{4}$ inches from each end, has been curved outwards just enough to permit a strap being passed between it and the wood to which it was fastened. Another object, which was evidently the terminal of a similar rib, came, like the shield-boss, from the pit in the Principia. It too shows the flat-headed rivet for attachment. Three other portions of similar ribs (Plate XXXIV., Figs. 4, 5 and 12) were taken out of the ditch of the early fort. They are all flat on one side and rounded on the other, and have holes through them, by means of which they were fixed to the shield. Two of these latter pieces are characterised by a new feature. They bifurcate at the end, while the terminals are curved backwards, one on each side of the rib, and have their ends flattened out and perforated. The iron mounting illustrated in Plate XXXIV., Fig. 2, has in shape something in common with the objects just described. It was found in Pit XIV, and may also have served as a shield mounting.

A rib of some sort was often employed in the construction of shields. It may be seen, for instance, attached to a central boss on the early Gaulish shields, from the cemeteries of the Marne, which are now in the Museum of St. Germain-en-Laye. Again, it occurs on the later

PLATE XXXV. MOUNTINGS FOR SHEATHS AND HELMETS

	PAGE
1 to 7. Edgings of brass, probably belonging to sheaths. Pits LVIII and LIX.	187
8. Helmet mounting of bronze. Praetentura.	165
9. Fragment of iron lorica with bronze mounting.	
10. Ear piece from a helmet, bronze. Pit XXII.	166
11. Sword guard, bronze. Pit LVIII.	186
12. Sword guard, bronze. Praetentura.	186
13. Sheath mounting. Baths.	187
14. Brass loop, probably from a sheath. Pit LIV.	187
15 to 18. Terminal mountings of sheaths) bronze.	187



Lombard shields from the cemeteries of Testona and Civezzano.¹ In both these cases the rib is flattened out at the end and perforated to receive a rivet. No purely Roman example of such shield-ribs appears to be known, but the sculptured monuments occasionally reproduce it. Thus, on the sarcophagus of the Vigne Ammendola there are several representations of the oval Gaulish shield without a boss but strengthened by a rib, or band of metal, running along its longest axis, and by a second crossing it transversely. In this case there is the same bifurcation of the rib as has been observed in two of the Newstead specimens, and the ends are curved backwards, combining a more secure fastening with a more ornamental terminal. A Gaulish shield on a relief found at Avignon shows the oval form with a central boss fastened by large-headed rivets and a straight central rib.² While on the Arch of Orange, where some of the shields are not furnished with a central boss, there are ribs which display a variety of decorative treatment.

Swords

The Newstead pits provided some interesting examples of the sword. A specimen (Plate XXXIV, Fig. 11) of the gladius, or short heavy sword, so familiar on the monuments of legionary soldiers, came from the Pit at the Baths (No. LVII). This has no mountings of any kind. The blade measures $19\frac{1}{2}$ inches in length and the tang for the hilt $6\frac{5}{8}$ inches. The width immediately below the tang is 2 inches, and this is maintained with hardly any taper until within 3 inches of the point. There is a slight midrib. A fragment of a similar sword was found along with it. It consists of a small portion of the upper part of the blade, $2\frac{1}{2}$ inches long and $2\frac{3}{8}$ inches wide, and a tang $5\frac{1}{4}$ inches long (Plate XXXIV, Fig. 14). With these may be compared a typical short Roman sword found, with its sheath, in the Thames near Putney, and now in the British Museum. It has a length of $20\frac{9}{10}$ inches, and the width of the blade near the hilt is $2\frac{3}{4}$ inches.

A second type of sword is illustrated by finds from Pits XIV and XVI, associated in both cases with first-century pottery. One of these specimens, that from Pit XIV (Plate XXXIV, Fig. 6), is in excellent preservation. The blade measures $24\frac{1}{2}$ inches and the tang 6 inches. The former has a width of $1\frac{3}{8}$ inches at the hilt, and gradually tapers to $1\frac{3}{16}$ inches at 3 inches from the point. The example from Pit XVI (Plate XXXIV, Fig. 7), which is unfortunately broken in two pieces, has a slightly longer

1 J. de Baye, *Industrie Longobarde*, plate i.

2 Espérandieu, *Recueil général des Bas Reliefs de la Gaule romaine*, vol. i. p. 171, No. 236.

blade, 25 inches, but is otherwise similar in character and in dimensions. Both show a distinct midrib. On neither is there any trace of the mountings of the hilt, nor of the sheath. Another incomplete sword from the Pit at the Baths still retains the greater part of its bone hilt (Plate XXXIV, Fig. 13). The blade has been doubled back, and the point is gone. The remaining part of the blade measures $16\frac{1}{4}$ inches in length, and has a maximum width of $1\frac{3}{16}$ inches. The hilt, which is $4\frac{1}{4}$ inches long, is obviously imperfect. It terminates at the upper end in an ovoid pommel $2\frac{7}{8}$ inches in circumference. The grip has alternate ridges and flutings to prevent it slipping in the hand, and no doubt it expanded again beneath, as do the hilt of bone recently discovered near Dorchester, and the ivory hilt found at Mainz and now in the Museum there. The Dorchester specimen is $6\frac{4}{5}$ inches long, and represents a variety which appears to have been in common use among the Romans. It is frequently to be seen on legionary monuments. It is, therefore, probable that this doubled-up sword, and the two more perfect blades, Figs. 6 and 7, are, like Figs. 11 and 14, to be classed as Roman.

The Gladius and the Spatha

The two types of sword that have been discussed, as exemplified by Figs. 11 and 6, probably represent the weapons of the legionary and of the auxiliary respectively. We learn from literary sources that in the time of Claudius the auxiliaries carried a sword, known as the *spatha*, which differed from the sword of the legionaries. Vegetius, writing at a much later date, describes the *spatha* as being longer than the *gladius*. Under Vespasian, too, the horsemen had a longer sword than the infantry. The contrast between the weapons of the legionary and of the auxiliary—the *gladius* and *pilum* in the one case, and the *spatha* and *hasta* in the other—is strikingly brought out in a passage of Tacitus, in which he describes the defeat of Caratacus by Ostorius Scapula.¹

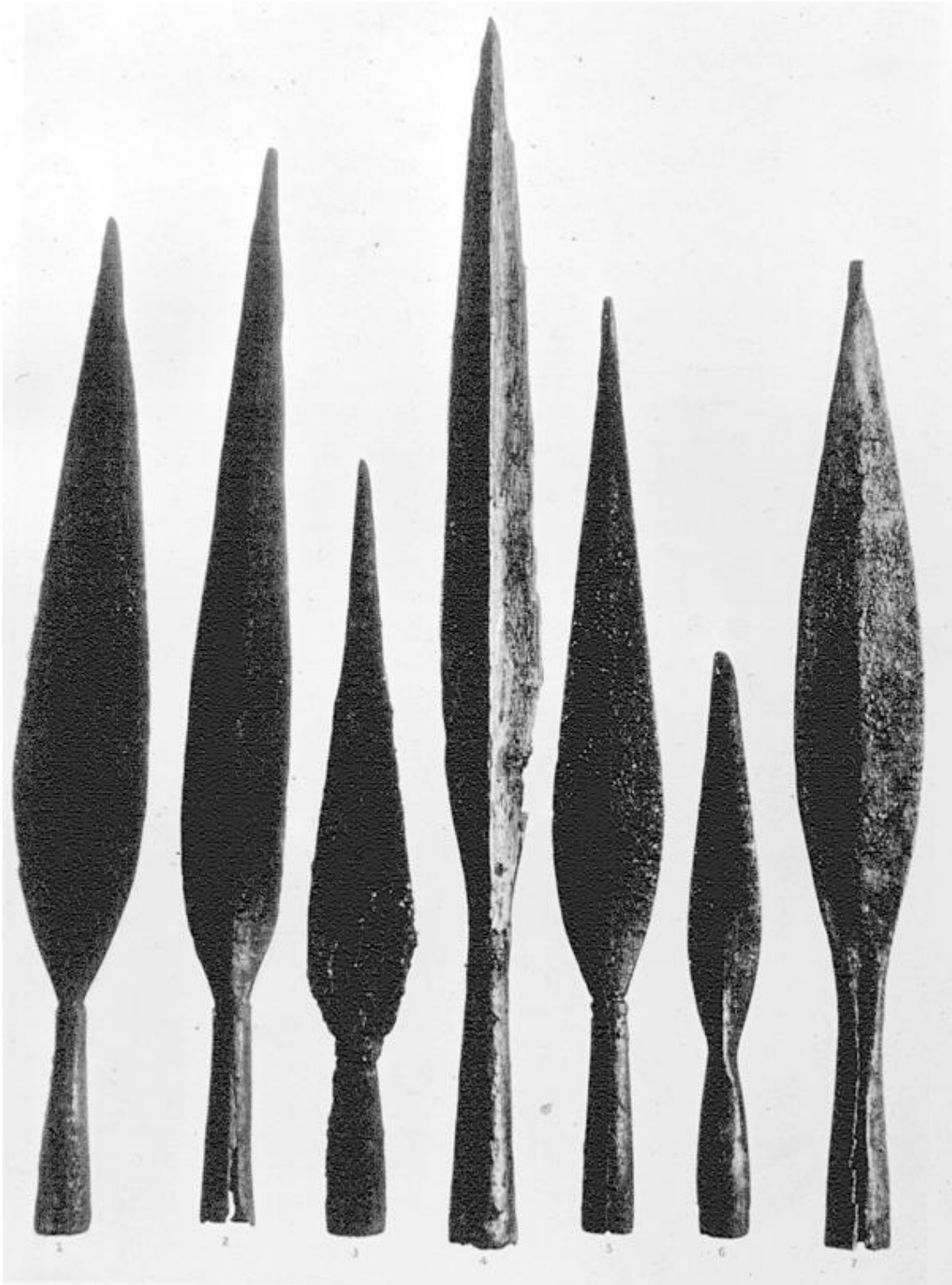
The long narrow blade of the *spatha* is closely akin to the Celtic swords of La Tène. No doubt many of the auxiliaries brought their native weapons with them into the Roman service. Thus, the curved sword which the Dacians wear in the sculptures of the Trajan column reappears on a tablet from Amboglanna, now at Newcastle, dedicated by Dacian auxiliaries. In the same way this long light sword, the counterpart of which may be found in pre-Roman graves in Central Europe, was perhaps the weapon

1 "Si auxiliariibus resisterent, gladiis ac pilis legionariorum, si huc veterent, spathis et hastis auxiliarium sternebantur." *Annals*, Book xii. c. 35.

PLATE XXXVI. SPEARS

	PAGE
1. Spearhead. Pit XVI.	188
2. Spearhead Pit XVI.	188
3. Spearhead. Pit LIV.	
4. Spearhead. Found in 1846 during formation of the railway.	188
5. Spearhead, with punctured inscription. Pit XVI.	188
6. Spearhead. Pit XVI.	188
7. Spearhead. Pit XVI.	188

All the objects figured are of iron.



of the Celtic peoples. An example very closely approaching the Newstead specimens was found, with objects typical of the close of the bronze age, in a tumulus at Louette St. Pierre, Canton de Geduine, Belgium, and may be seen in the Museum of Namur.

The Celtic Sword

It is natural to enquire whether any trace of the native sword is to be distinguished among the fragments of broken weapons. The answer is probably in the affirmative. One complete sword and portions of three others seem to be Celtic weapons. The first find (Plate XXXIV., Fig. 10) came from Pit LVII at the Baths. All that remained was a portion of the blade, somewhat bent and very frail, $14\frac{3}{4}$ inches in length, with part of its iron tang. At the base of the tang the sword-guard of thin bronze was still in position. On the lower edge where it joins the blade the guard is quite flat. Its upper outline describes a central curve with terminal cusps. The whole is entirely undecorated. The significance of this discovery was not appreciated until the finding of a second sword in Pit LVIII, a receptacle whose position and contents alike suggested that it belonged to the early period, probably the advance of Agricola. Besides the sword and a quantity of early pottery, it contained a number of fragmentary bronze objects, including a piece of thin brass with embossed Late Celtic ornament. The sword (Plate XXXIV., Fig. 8) had been rendered useless by bending the hilt down upon the blade. The blade measured 23 inches in length, and the tang for the hilt $5\frac{1}{2}$ inches. The greatest breadth was $1\frac{3}{8}$ inches, tapering to $1\frac{1}{4}$ inches at a distance of 3 inches from the point. All that remained of the hilt was the small rounded knob of bronze which had constituted the pommel, and the mounting which had served as the guard. Both of these appear to have been overlaid with silver. In outline the mounting resembles the one already described. It is in its decoration that its chief interest lies. There we may recognise, though poorly executed and, indeed, somewhat debased in their character, the sinuous stems and trumpet-shaped terminals so dear to the Late Celtic metal-worker.

Sword Guards

Another guard (Plate XXXV., Fig. 11), presumably also of a Celtic sword, was taken from the same pit. It is of yellow brass, more solid than the last specimen, and without any decoration. A fourth example, also undecorated, subsequently came to light among the surface-finds. That such mountings are a typical feature of the Celtic sword can be shown from a good many British analogies. Celtic swords of this period are of rarity in Scotland, owing

perhaps to the fact that, being of iron, they are liable to be destroyed by rusting. But, while the blades have disappeared, we have one or two examples of sheaths. The finest of these, which is of bronze, was found at Mortonhall, on the Pentland Hills, and is now in the National Museum in Edinburgh. The blade of the sword for which it was made must have been about 22½ inches long—that is, a blade of very nearly the same length as the Newstead specimen. Several sword-guards are known. One, found in a moss at Middlebie, in Annandale, in association with a group of typical Late Celtic objects such as bridle-bits and harness mountings, is illustrated below in Fig. 19 along with one of the Newstead specimens, and two specimens from Hod Hill, near Blandford, Dorset.

No. 1 represents the decorated guard-mounting from Pit LVII. It will be evident that the design, though comparatively poor, is closely related to that upon No. 2, which is the Middlebie specimen, and that this in its turn is but an inferior copy of

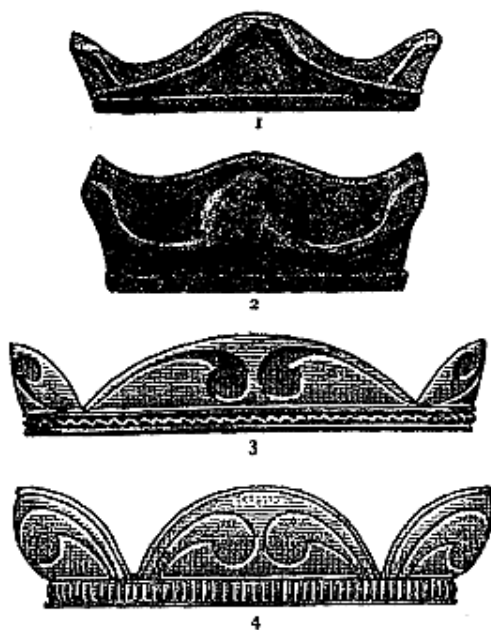


FIG. 19. LATE CELTIC SWORD GUARDS

such designs as we see on Nos. 3 and 4, the sword-guards from Hod Hill. It thus seems probable that during the period into which the Newstead occupations fall, the art which produced the Hod Hill mountings, and the great shield found in the Thames at Battersea, had begun to decline. Other evidence to the same effect will be dealt with later.

Mountings of this form are of a purely Celtic character, as is clear from the occurrence of undecorated examples on many pre-Roman swords. A case in point is the sword from Catterdale, Wensleydale, Yorkshire, where the sheath is 23 inches in length.¹ Another is a sword from Flasby, Yorkshire. Perhaps earlier in date than the preceding examples is a form of

mounting to be seen on a sword from a grave at Grimthorpe Wood, Pocklington, East Yorkshire.² This last example was probably about 3 inches long. The guard

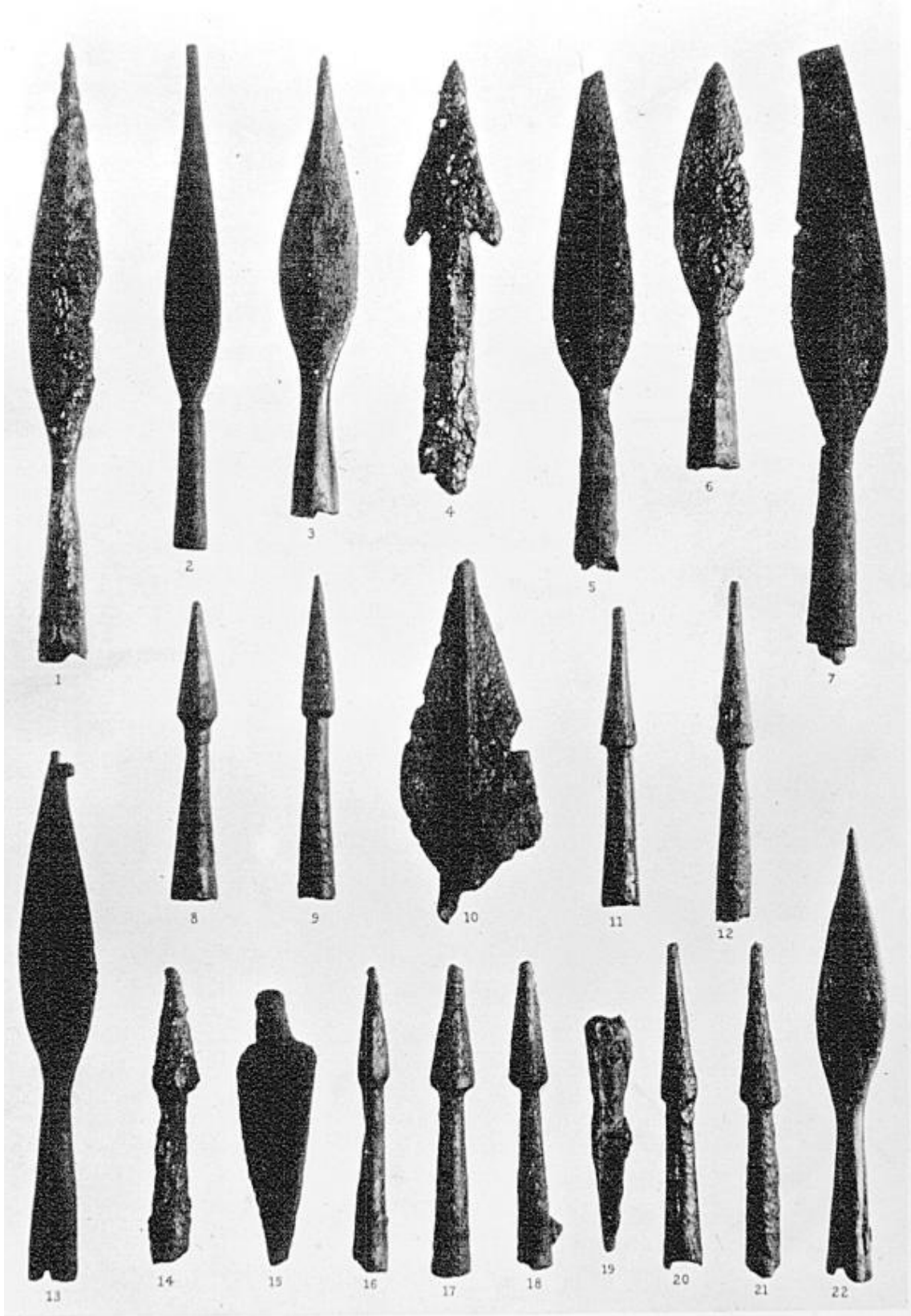
1 *Archaeologia*, Vol. xlv. p. 251, plate xvi.

2 J. R. Mortimer, *Forty Years' Researches in British and Saxon Burial Mounds*, plate i. p. 150.

PLATE XXXVII. SPEARS AND ARROW-HEADS

	PAGE
1.	Spear-head. 188 and 189
2 and 3.	Spear-heads. Ditch of early fort.
4.	Barbed spear.
5 and 6.	Spear-heads. Pit
7.	Spear-head. Pit LV.
8.	Arrow-head. Pit LV.
9.	Arrow-head. Ditch of early fort.
10.	Portion of spear-head showing strong midrib.
11 and 12.	Arrow-heads. Ditch of early fort.
13.	Spear-head of iron. Ditch of early fort.
14.	Arrow-heads. Praetentura.
15.	Spear-hutt of iron. Ditch of early fort.
16 and 17.	Arrow-heads. Pit LV.
18.	Arrow-head. Pit VII.
19.	Spear-butt of iron. Baths.
20.	Arrow-head. Principia.
21.	Arrow-head. Pit VII.
22.	Spear-head. Ditch of early fort.

All of the objects figured are of iron.



1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

has a high ogee outline, and is curved on the lower edge as though to allow the corresponding outline of the sheath to fit into it. In this respect it forms a connecting link between these British swords and the swords of the Swiss lake-dwellers. Many of the latter have, at the base of the hilt, a guard formed of a thin strip of bronze with a similar high ogee curve, into which the sheath was fitted. The same feature may be noted further south on an early sword from Introbobbio, Como.¹

Sheaths

Another interesting object which is illustrated in Plate LXXVII., Fig. 4, must have formed part of a sword-sheath. It was found at a considerable depth on the south side of Block XIV, and is of bronze, being $3\frac{7}{8}$ inches long. Apparently it had been affixed to the upper part of the sheath, thus forming a loop through which the belt would pass. No doubt a piece corresponding to the terminal on the lower side, but of shorter length, originally projected on the upper side of the loop.² Similar loops are to be seen at Novaesium,³ and also in a variety of shapes on scabbards from Thorsbjerg.⁴ There remain to be noted a few mountings which must have belonged to sheaths. Plate XXXV. shows a number of pieces of thin bronze (Figs. 1–7), several of which also came from Pit LVIII. These were probably edgings, while Figs. 13, 15, 16, 17 and 18 provide good specimens of the chape. Fig. 14, a neatly looped object of brass wire from Pit LIV, seems designed to hold a sheath together.

Three objects from Pit LVIII (Plate LXXXIV, Figs. 4, 10 and 13) may have formed part of the mountings of hilts of swords or of daggers. Fig. 4 is semicircular in shape and consists of two pieces of bone held together by bronze pins, two on each side. It is $2\frac{1}{2}$ inches wide at the base, $1\frac{7}{8}$ inches high, and $\frac{3}{4}$ of an inch thick. Between the two plates there has been cut a hole sufficiently large for a thin metal tang to pass through. Fig. 10 is an imperfect specimen of the same class. These latter might very well have served as the bases of hilts. The method of construction—two plates of bone pinned together with metal studs—may be seen in the pommel of a sword hilt, found at York and now in the Museum there. Fig. 13, which is of heavy brass, resembles the bone objects in shape and is of much the same dimensions. Its weight, however, makes one hesitate to

1 *Bulletino di Paleontologia Italiana*, vol. xii plate X. 29.

2 For the interpretation of these objects see *Der Obergermanische-Raetische Limes*, Lief. 32, Kastell Zugmantel, p 64.17.

3 *Bonner Jahrbücher*, Heft 111/112, Taf. xxxiii A. 36.

4 Engelhardt, *Denmark in the Early Iron Age*, pl. 10.

suggest that it ever formed part of a sword or dagger. At the same time its shape is one which was employed on daggers, as may be seen from a sculptured trophy from Trier. Fig. 9 of Plate XXXIX. is probably a dagger. Another of these was found in Pit XCVII.

The Spear

The weapon of most frequent occurrence was the spear. Heads of spears were found throughout the fort. They were often leaf-shaped, but exhibited a considerable variety in form, while they ranged in size from 14 inches in length down to 4¼ inches. The great majority lay near the surface, and were in consequence little more than shapeless masses of rusty iron. A few were found in pits, and these were in better condition. One group of five, found in Pit XVI, among the curious mass of iron objects which the pit contained, was of special interest. All five were in excellent preservation (Plate XXXVI., Figs. 1, 2, 5, 6 and 7). They measure respectively, inclusive of the socket, 12¼, 11½, 11¼, 10⁵/₈ and 6½ inches in length. Without exception they are leaf-shaped and flat, showing very little midrib.

For the most part they are very slender at the neck, where blade and socket join, but the metal always thickens towards the point. The sockets had been formed by turning over the end of the flat metal plate, from which the spear has been hammered, until its edges came together. On the opposite side from that on which they meet is a hole for the nail by which the spear-head was fixed to the shaft. At least one of the heads has been

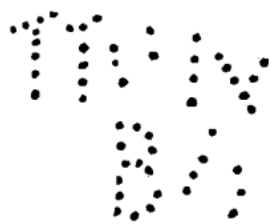


FIG. 20. PUNCTURED INSCRIPTION ON A SPEAR FROM PIT XVI

blunted by use. Portions of the wood still remaining in the sockets indicated that the shafts had been of hazel. On one of the blades (Fig. 5) was the punctured inscription shown in the accompanying figure. Professor Haverfield suggests the reading T·I·V·N·B·A, possibly TURMA·JUNII·BASSI, but some of the letters are uncertain. The fine spear-head shown in Plate XXXVI., Fig. 4, was found during the formation of the railway in 1846. The various spears differ markedly in character. One (Plate XXXVII., Fig. 4) is barbed. Some are spears for thrusting, others probably for throwing.

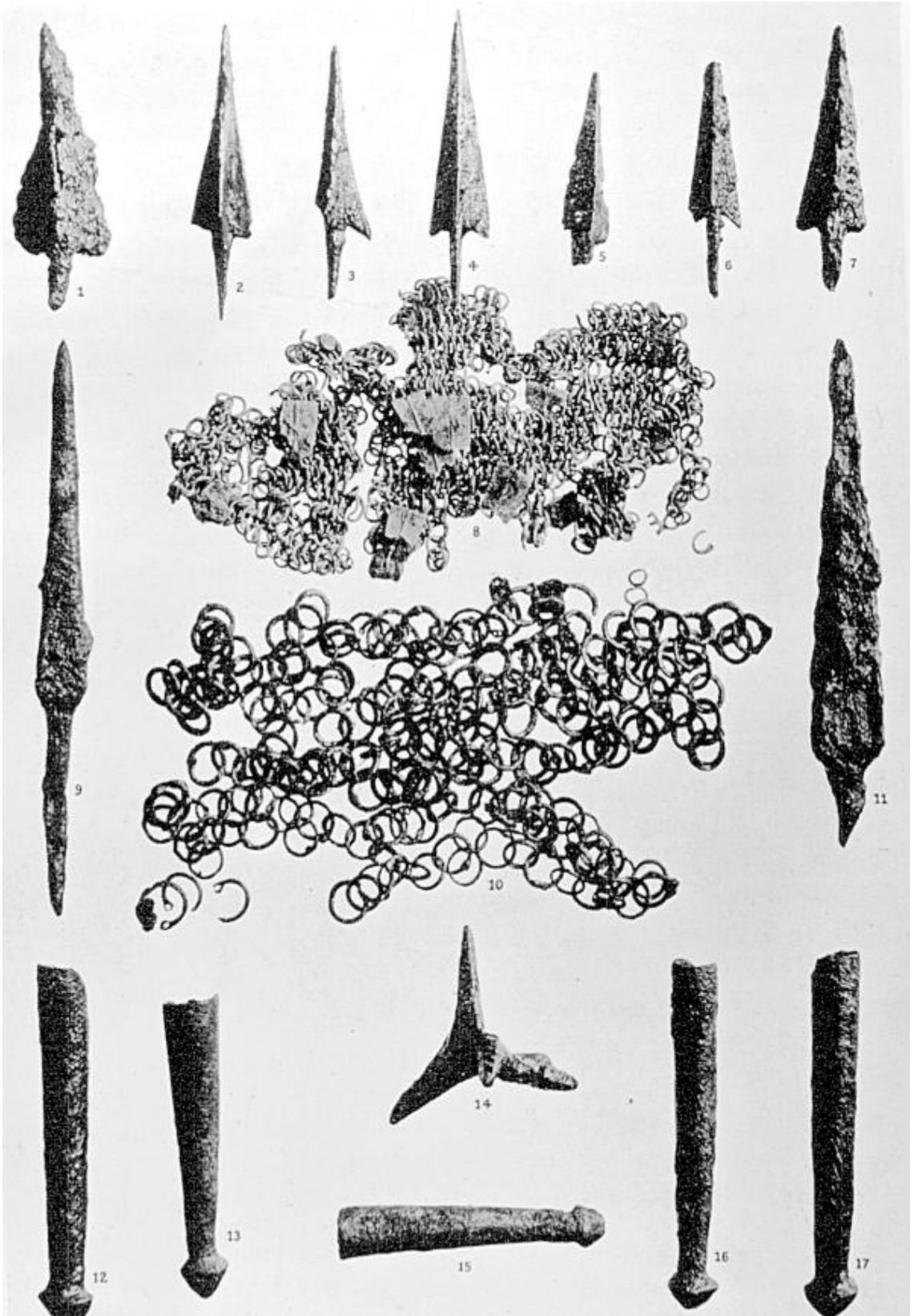
Among the miscellaneous finds are two objects which seem to be the heavy pointed butts of spears.

Arrows

It is possible that there may have been bowmen among the auxiliaries. If so, they were perhaps of Oriental stock—Palmyrenes, or Hamii from Syria. Some of them appear in the sculptures of the Trajan column, clad in scale armour and wearing a curious high conical helmet. The Hamii have left traces of their presence at Magna on the wall of Hadrian.

PLATE XXXVIII. CHAIN MAIL, ARROW-HEADS, ETC.

		PAGE
1.	Arrow-point of iron. Praetentura.	189
2 to 6.	Arrow-points of iron. Pit No. I.	189
7.	Arrow-point of iron. Block XVI.	189
8.	Chain mail of bronze. Block XVI.	161
9.	Arrow-point of iron near Block XVI.	189
10.	Chain mail of iron. Pit I.	161
12, 13, 15, 16, 17.	Iron sockets. Ditch of early fort.	189
14.	Caltrop. Iron. South Annexe.	



They also seem to have been at Bar Hill.¹ To judge from the monuments, the bow must have been comparatively short and stout. No positive traces of the weapon itself were got, but a few iron arrow-points were found, things in themselves so delicate that their survival is rare. The finest, which came from the pit in the Principia, measures from $1\frac{3}{4}$ to 2 inches long. They are triangular in section, and are slightly fluted and barbed, with a tang for insertion into the wood of the shaft.² Five of this type came from Pit I (Plate XXXVIII., Figs. 2 to 6), one from the barracks of the Praetentura (Fig. 7), and one from the north buttressed building (Fig. 1). The north buttressed building also yielded a larger type of arrow-head, having a point $2\frac{3}{8}$ inches long and a tang $1\frac{3}{8}$ inches long. It is square in section, $\frac{3}{8}$ of an inch wide at its broadest part (Fig. 9). There is occasionally some difficulty in drawing an exact line between arrows and spears. But the small spear-like objects, measuring from $3\frac{1}{2}$ to 4 inches in length and rounded at the point, probably belong to the former class. They have no harbs and are furnished with a socket for fixing them to a wooden shaft. They were evidently in use at an early period: one of them (Fig. 2), blunted by wear, came from the inner ditch of the early fort on the west side. The leaf-shaped arrow, which was present in such large numbers in the Principia at Housesteads, did not appear at Newstead. The type of short solid arrow-point shown in Plate XXXVI., Figs. 8 and 9, was not uncommon. It measured about $3\frac{1}{4}$ inches in length. The head was circular or heptagonal in section and was furnished with a socket to receive the shaft. Such weapons have been noted on many of the German Limes forts belonging to different periods, but at Newstead they were found only in the ditch of the early fort and in the early pits. More than once they were associated with the sockets terminating in a spherical projection illustrated in Plate XXXVIII., Figs. 12 and 13. Though no evidence was obtained that this association was other than fortuitous, it seems possible that the sockets were fitted to the end of the shafts. Such arrows may have served as ballista-bolts. Whether any specimen of the pilum was found is doubtful. There was certainly no representation of the long, light iron shaft of this weapon; but among the solid pointed heads there are one or two which had possibly belonged to it (Plate XXXVIII., Fig. 11).

1 *The Roman Forts on the Bar Hill* p. 85.

2 For the occurrence of similar arrowheads at Corbridge and elsewhere, see *Archaeologia Aeliana*, 3rd Series, vol. v. p. 106, and Professor Haverfield's note, Appendix II.

CHAPTER XI

Pottery. Terra Sigillata or Samian Ware

OF all the characteristic remains found on Roman sites there is nothing more enduring than the shards of broken pottery. Colours, textures, shapes are usually preserved, and thus it is often possible to reconstruct from one or two tiny fragments the exact form of vessels long since hopelessly broken and scattered. These shards, too, as more facts are ascertained about them, become increasingly valuable as a means of fixing dates. Among the Romans, as among ourselves, shapes and methods of decoration changed with the fashions of the time, and, if we could get a thorough knowledge of such changes, we should have a chronological series even more valuable than coins to the archaeologist. In Britain little has as yet been done to achieve such a result. We have indeed in our island few sites which were first occupied sufficiently late, or were abandoned sufficiently early, to be helpful. Cemeteries in which the interments can be dated with any certainty are no less rare. Sites of towns like Silchester were occupied for a long period, and in these stratification is, as a rule, difficult. But we may hope something from the careful records made at Manchester, and from the excavations now proceeding at Corbridge-on-Tyne and Caersws.

On the Continent the study of the subject is more happily placed. The various stages that marked the advance of the Roman arms are known from other evidence, and in the great legionary fortresses, as well as in the smaller forts and outposts,—established, altered, or abandoned, as the tide of conquest ebbed and flowed across the Rhine,—deposits have been identified as belonging to definite periods, sometimes periods of comparatively short duration. In the fort of Haltern,¹ for instance, which lies in the country between the Rhine and the Elbe, we have remains datable to the reign of Augustus, for we know that the period of occupation must fall between the

¹ Ritterling, 'Haltern und die Altertumsforschung an der Lippe,' *Mitteilungen der Altertums-kommission für Westfalen*, Heft ii.

years B.C. 9 and A.D. 10. In Hofheim,¹ also to the north of the Rhine, the finds date from the reigns of Claudius and Nero, covering the twenty years between A.D. 40 and A.D. 60. Again, Pompeii, destroyed in A.D. 79, gives us another fixed point of great value. The legionary fortresses of Vindonissa and Novaesium likewise furnish us with types dating from the first century, and many of the Limes forts—Sulz and Gnotzheim, for example—have their beginnings in the time of Vespasian or Domitian, while the early occupations of others, such as the Saalburg and Zugmantel, may belong rather to the reigns of Trajan and of Hadrian. The shards gathered from these various sites comprise examples that must have issued from the potteries of Arezzo and from the factories of Southern Gaul, as well as from the workshops of the later craftsmen on the Rhine. In this material, carefully studied and classified by Dragendorff, Ritterling, Koenen, and others in Germany, and by Déchelette in France, we have our best guide to a proper understanding of the corresponding objects from Newstead.

Terra Sigillata

At Newstead the brightly glazed red earthenware, often called 'Samian,' bulked largely. Of all the pottery which the Romans brought with them it illustrates best the homogeneous nature of their civilisation, and of their methods and art of decoration. Older antiquaries saw in it the red ware of Samos mentioned by Pliny, but the epithet 'Samian' is as much of a misnomer as our own 'china,' and the ware is now frequently termed *Terra Sigillata* (sealed clay), especially on the Continent—a name devised to describe the fine red material from which it is manufactured. Its chief characteristics are its bright colour, its fine glaze, and the raised decoration applied to certain of its types. It must have been employed, much as we use china, for the finer dishes for table service.

Terra Sigillata was of foreign origin.² We have no evidence that it was ever manufactured in Britain. It seems clear that it was first made in Greek lands and later in the potteries of Arezzo. These potteries appear to have been in operation as early as the second century B.C., and they probably reached the height of their prosperity in the following century. Thereafter they declined in importance, although they were still celebrated in the first century of the Christian era. At first they appear to have produced vases with a black glaze, but this soon gave place to a red coralline colour. The pieces

1 Ritterling, *Das frühromische Lager bei Hofheim*, p. 23.

2 For the facts contained in this outline of the history of *Terra Sigillata* I must express my indebtedness to the work of M. Déchelette; *Les vases céramiques ornés de la Gaule romaine*, 2 Vols. Paris, 1904.

produced were sometimes decorated, sometimes undecorated. The decorated vases of Arezzo of the best period are of great beauty, remarkable not only for the colour of the paste and the regularity of the glaze, but also for the reliefs adorning them, which are conceived and executed with a high degree of artistic delicacy. They were formed in moulds, and the decoration was produced in the following manner. The potter had his stock of punches, representing various designs—garlands, figures, masks, and decorative borders. These were impressed on the inside of the mould, which was then burnt and ready for use. The sides of the vase moulded in it took the designs in relief, and, shrinking in the baking process, could be easily withdrawn without damage. To the body of the vessel, after it had been taken from the mould, there was added the foot, and, in the chalice form, which was common at Arezzo, also the rim and the decorated handles. The names of the potters were stamped on the outside of the vases across the ornament.

The products of these Arretine potteries found their way to Spain and to Africa. They are of common occurrence in the cities of Southern Gaul—at Nimes, at Narbonne, at Mont Beuvray. North of the Rhine they appear in the early fort of Haltern, but with the exception of the goods of the potter Ateius, little Arretine ware seems to have reached Germany, the Danubian country, or Britain. The potter Ateius appears to have flourished about the reign of Augustus, and to have exported his wares very widely, not only to other parts of Italy and to Southern Gaul, but even as far as Egypt and the banks of the Rhine. Although vessels bearing his name have been discovered at Arezzo and other places in Etruria, the exact site of his workshop is still doubtful. It has been suggested that he had a manufactory in Southern Gaul as well as in Italy. In any case he is of special interest for students of ceramics, because his decorated vases, which are somewhat few in number, and which from their form of ornamentation are connected with the products of Arezzo, belong to the period of transition which comes between the decadence of the Italian potteries and the rise of those established in Gaul.

In the first century of our era there were in operation in Gaul a number of potteries in which the influence of Italian models may be clearly discerned. One group produced light-coloured white and yellow wares, specimens of which are very seldom found further north. The other, a much more numerous group, produced red wares which appear to be directly modelled upon the pottery of Arezzo. Two districts have been identified as the chief

sources of the production of red wares. The earlier factories appear to have been situated in the country of the Ruteni at La Graufesenque, in the modern department of Aveyron, at Montans in Tarn, and at Banassac in Lozere—all in South-Western France. Somewhat later a second set of red-ware potteries sprang up in the country of the Arverni, the modern Auvergne,—at Lezoux near Clermont-Ferrand, and neighbouring localities in the valley of the Allier. Of these potteries our literary sources tell us nothing. Their history, as far as we know it, has been worked out purely by archaeological methods. In the excavations of the sites alluded to, many remains of potters' kilns have been met with, and large collections of fragments of vases and moulds have been obtained. In this way, the types of vessels made, the names of the potters, and the designs characteristic of each pottery have been ascertained, and from the manner in which they occur on sites which can be dated with some approximation to accuracy, Déchelette has deduced certain limits within which the activity of the various potteries may be placed.

La Graufesenque (with which we may include the neighbouring potteries of Banassac and Montans) appears to have begun its exportation early in the first century A.D. Its products, however, do not appear at Haltern. On the other hand, they are plentiful on the Lower Rhine at Vechten, at Xanten, and at Novaesium. They have been found in the cemetery of Andernach along with a series of coins ending with Nero, from which Déchelette concludes that the beginning of the exportation must be placed between the year A.D. 16 and the rise of the Flavian dynasty. Its close is, however, of more importance so far as Newstead is concerned. At Pompeii, destroyed in A.D. 79, nineteen bowls of Rutenian origin have been noted, while the pottery of Lezoux is entirely absent. Again, in the forts of the German Limes that date from the end of the first or the early years of the second century A.D., such as Waldmössingen, Heidenheim, and Okarben, the decorated products of the Rutenian potteries hold the field unchallenged. But with the end of the first century or the beginning of the second, the prosperity of the workshops of La Graufesenque would seem to have ended, and the activity of the Rutenian potters to have given place to that of those of Lezoux.

Déchelette dates the beginnings of Lezoux as early as the year A.D. 40. He places its first period between that year and A.D. 75, and considers it to have been a period of limited production. A second period of greater activity, marked by the use of many new designs, is placed between the years A.D. 75 and 110. It is during this period, and probably towards the end of it, that the

export of Arvernian pottery is believed to have gradually superseded that of Rutenian ware. Lezoux, however, did not reach the zenith of its prosperity until the second century, in which it seems probable that its exports attained to a wider proportion than those of the earlier Rutenian potters had ever done. This climax may with some confidence be assigned to the age of the Antonines. With the barbarian inroads of the middle of the third century, about the year A.D. 260, the manufacture probably ceased. But long before this date the export trade must have shrunk as newer potteries arose in the north. By the first half of the second century, the manufacture of *Terra Sigillata* had apparently commenced at Heiligenberg, near Strassburg; at Trier; and at Rheinzabern, near Speyer. The potteries of Westerndorf in Bavaria probably began somewhat later. It was from Rheinzabern that the later forts on the Limes drew their supplies, and its wares were exported as far as Britain. Westerndorf, on the other hand, seems never to have established a trade connection with Western Europe at all.

Terra Sigillata at Newstead

The quantity of decorated *Terra Sigillata* found at Newstead during the four years of excavation is not, on the whole, very large, when the extent of the area turned over is considered. At the same time it forms the most extensive collection as yet obtained in Scotland. Its chief importance, however, lies in the fact that it falls readily into at least two periods, the first corresponding to the campaigns of Agricola in the first century, and the second probably to the re-occupation under Antoninus Pius and the subsequent operations in the second century. It is difficult to over-estimate the value of such a distinction, inasmuch as it appears to afford a certain clue which, properly applied elsewhere, may enable us to distinguish the camps and forts of Agricola throughout Scotland from those of the later advance.

In the first of the two periods the decorated pottery is chiefly Rutenian. It is uncertain at what date the products of the Arvernian potteries first began to come to Britain. At Newstead we find no trace of the orange-yellow colour or of the designs peculiar to the early carinated bowls of Lezoux. When we pass from these to the hemispherical bowls, with decoration corresponding to the second Lezoux period, we have no stamps of the potters cited by Déchelette as typical of the period. The sole exception is DIVIXTUS, whose place in Scotland is clearly among the potters of the Antonine age. Further, we have no examples of the finely executed reliefs in the manner of LIBERTUS. At the same time it seems certain that Lezoux pottery

had made its appearance at Newstead before the end of the first occupation. Of this we have an indication from the occurrence, in the ditch of the early fort, of the small globular pot (Déchelette, Type 67), a form which appears to belong to Lezoux, and no doubt other types are represented. An examination of the Plique collection at St. Germain-en-Laye makes evident the difficulty of distinguishing with certainty the forms of decoration employed by these two groups of potteries towards the end of the first century in the so-called transition period. It seems probable that at this time not a few designs must have been in common use in both. In Scotland, however, the interval which is known to have elapsed between the Agricolan and the Antonine invasions renders the presence of the so-called transition style as sure an indication of early date as a knowledge of the provenance of the ware. In the second of the two periods the pottery is mainly Arvernian, corresponding to Déchelette's third period of Lezoux, although one or two pieces can be recognised as imported from the Rhine, probably from Rheinzabern.

The chief assistance in the classification of the Newstead finds was derived from the excavation of the various pits and ditches. A brief summary of the nature of this evidence will make what follows clear. It may also be noted here that the more important results confirm in a great measure the deductions drawn from similar investigations on the Continent. The ditches of the early fort were effectually closed by the works of the later one. The heavy rampart of clay, and in places the wall, had been piled above them. Their contents were thus sealed up. From these ditches there was recovered a considerable number of fragments which can only date from the first occupation, and which formed an index to the whole early pottery of the fort. The outer system of ditches of the West Annexe belong to the same period, and they also contributed a few pieces, while a number of pits, situated for the most part within or at no great distance from the defences, yielded pottery of a very similar character. The shards from the overlapping ditch in front of the West Gate were likewise early, although it is beyond doubt that the ditch had formed part of the fortification of the second fort; and early pottery was found in association with later types in the large ditch on the west front. On the other hand, the inner system of ditches of the West Annexe, one of which ran right through the buildings at the Baths, produced only the later types of pottery. These were found also in the outlying ditch parallel with the east front, called above the

Inner East Annexe ditch, and in several of the pits and wells, more especially in those lying within the South Annexe to the south of the line of railway. It should, however, be added that the number of fragments from the over-lapping ditch is not large, and that the labour and expense involved in clearing out the great ditch of the later fort prevented any attempt to deal with more than a small section of it.

The earliest systematic study of *Terra Sigillata* was made by Professor Dragendorff in 1895.¹ He illustrated in a chronological series the leading types of vessels, with the earlier Arretine forms from which they were derived, distinguishing each by numbers, which have continued to be generally employed by archaeologists. A later and more minute classification of the decorated ware was published by M. Déchelette in 1904.² The works of these scholars must form the basis of all subsequent investigation, and they will be frequently referred to in what follows. In illustrating the various types of dishes met with, it has seemed well to provide a series of sectional drawings. These will be found to give the outlines not merely of the vessels recovered in a more or less complete condition, but also of a number of types which could only be recognised from fragments. The more or less complete vessels are also for the most part reproduced in the plates.

I. Undecorated Ware of the Earlier Period

The ditch of the early fort produced fragments of some twelve types of vessels. All of these were of comparatively thin ware, hard-baked and bright red in colour, with a very high glaze. The vessel of most common occurrence was a round saucer-like platter (Dragendorff, Type 18), for which see Plate XXXIX., Fig. 1. Apart from the features already referred to, it is distinguished from later specimens chiefly by the delicacy of the moulding round the lip and the flatter plane of the bottom. One specimen, which it was found possible to reconstruct almost entirely, had a diameter of 6½ inches. The bottom bore the incomplete potter's stamp SIL....., probably for SILVINI or SILVANI. The fragments indicated that these vessels had been numerous. A good specimen was recovered in complete condition from Pit LXXVI, with other early dishes; it bore the potter's stamp OF MSCVLI.

Another type of saucer-like platter was characterised by the absence of any projecting moulding round the lip (Plate XXXIX., Fig. 2). The outside of the rim is decorated by horizontal flutings, while in the inside,

1 *Bonner Jahrbücher*, Heft xcvi. and xcvii. pp. 18 ff.

2 *Les vases céramiques ornés de la Gaule romaine*.

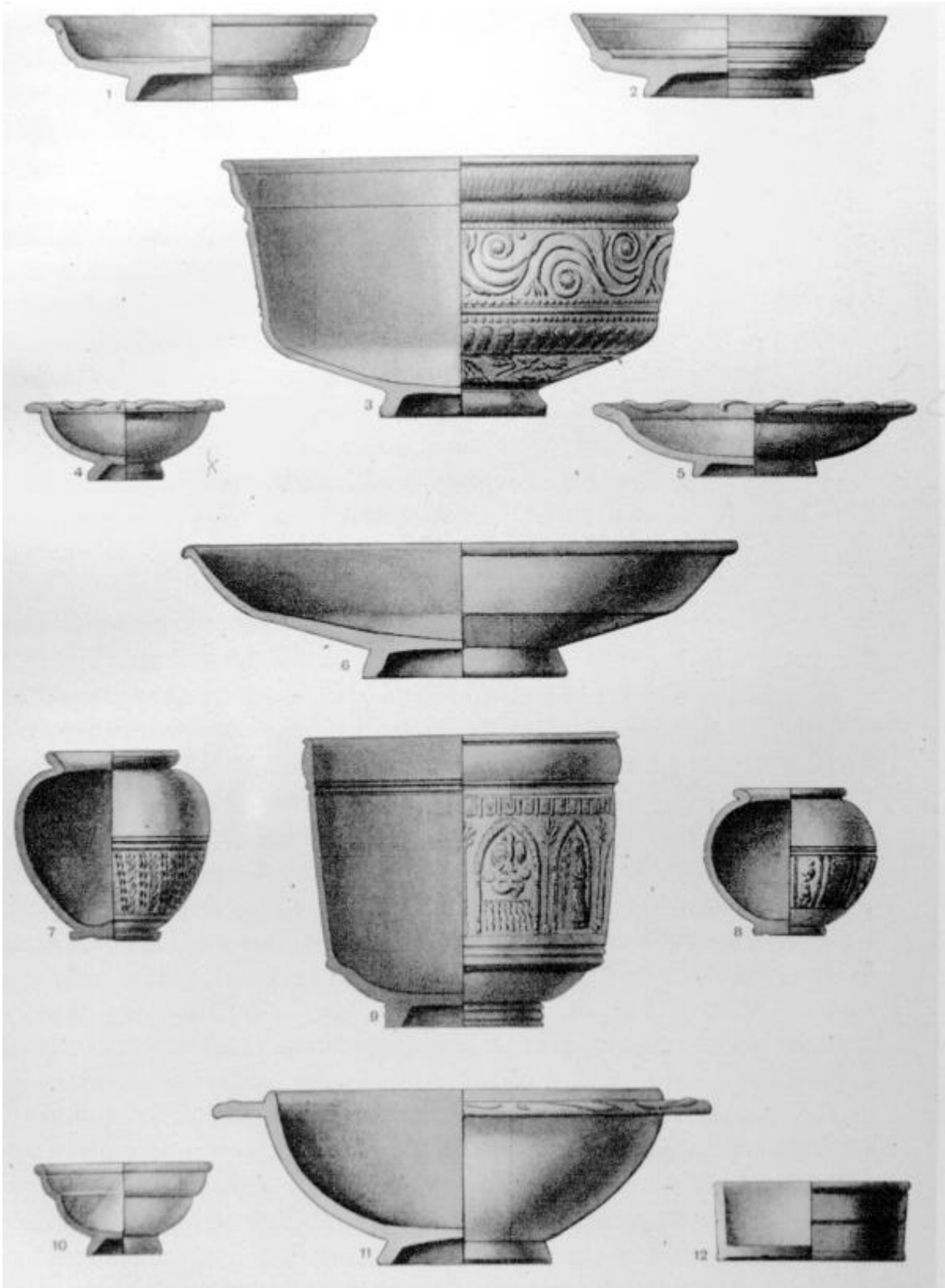


PLATE XXXIX. TYPES OF VESSELS, TERRA SIGILLATA.

round the line where the bottom unites with the rim, there is a rounded hand of moulding. A complete specimen also came from Pit LXXVI, with the stamp of the Rutenian potter SABINVS. These dishes were not so common as the type just described. They were noted only about eight times. That the two types were contemporary is shown by the fact that both occurred with the stamp (OF·VITA) of the Rutenian potter VITALIS. The peculiar interest of the latter lies in the fact that, while the other shape gradually developed into coarser later forms, this one was probably not in use for any very long period, and soon disappeared entirely. It is found in the early fort at Hofheim, near Wiesbaden; and is therefore of the period between A.D. 40 and A.D. 60.¹ It occurs also at Wiesbaden, but seems to have fallen completely out of fashion before the second century, for it is entirely absent at the Saalburg. In Scotland its presence at Inchtuthil is evidenced by a small fragment, a circumstance in itself sufficient to prove the early occupation of that fort. A fragment of a plate approaching the form Dragendorff, Type 18, but of larger size (Plate XXXIX., Fig. 6) calls for mention. When complete it has had a diameter of 9¾ inches. The bottom shows little or no rise in the centre.

The common cup of the first period (Plate XXXIX., Fig. 10) was the shape Dragendorff, Type 27. It is characterised by the double curve which is exhibited in the outline of the sides. Specimens of this vessel in different sizes came from the early ditch and from most of the early pits. It is found at Hofheim, and also at Pompeii, where it occurs in glass. Three specimens, quite undamaged, were found in Pit LXXVIII. All were stamped, but as in the case of other vessels of this type the stamps were poorly impressed and almost illegible. The cup appears in some of the Limes forts, such as Pfünz, and it must therefore have continued to be used in the second century, although in the later occupations at Newstead its place seems for the most part to have been taken by a cup with approximately straight sides (Plate XL., Nos. 16 and 18), which was probably just coming into use during the first occupation at Newstead.

The small dish with vertical sides, Dragendorff, Type 22, shown in Plate XXXIX., Fig. 12, was not found in the ditch of the early fort; it came from Pit VII. Its bright glaze and hard thin fabric are evidence of its early date. The type does not appear to have been a common one at Newstead. It is found in Germany, usually, if not always, without potters' stamps. It is

¹ Ritterling, *Das frühromische Lager bei Hofheim*, Taf. vi. 2.

present at Hofheim, and has been got at Heddernheim, in a grave, in association with the carinated form of decorated bowl characteristic of the first century. Small cups or shallow bowls with overhanging rims, decorated with ivy leaves or lotus buds in barbotine, as illustrated in Plate XXXIX., Fig. 4, were common at Newstead in the early period (Dragendorff, Type 35). Two of these were taken undamaged from Pit LXXVIII, while a fine example of the somewhat larger variety (Dragendorff, Type 36) was found in Pit LXXVI (Plate XXXIX., Fig. 5). As on many of the fragments of these taken from early pits the glaze is very bright. Such vessels had hardly appeared at Hofheim before its abandonment, but they are said to be common on the Rhine on sites datable to about the year A.D. 70. In the finds from the Antonine and later periods the glaze is less bright.¹ Vessels such as that shown in Plate XXXIX., Fig. 11, must have been common in the first occupation, as numerous fragments came from the early ditch, though these were so miscellaneous that it was impossible to reconstruct a complete specimen. The characteristic feature of this dish is its flat rim, about 1¼ inches wide, decorated in barbotine. The example in Plate XXXIX. is drawn from fragments, with the help of a specimen found at Rottweil. A similar bowl from London is now in the British Museum. At one point on the rim a lip is formed by the application of two slightly raised bands which converge as they approach the edge. Such flat-rimmed bowls occur at Hofheim, but without barbotine decoration. There



are also some among the first-century pottery from Vindonissa preserved at Königsfelden, near Brugg. By the Antonine period the type must have disappeared.² Another variety of bowl from the early ditch is represented only by a fragment of a lip, of type resembling that of the mortaria. The glaze is dark and very bright (Fig. 21). A second fragment found near the surface in Block XIII probably belongs to another dish of much the same type and period.

II. Undecorated Ware of the Later Period

We turn now to types which belonged to the later period, extending approximately from the year 140 AD. to about A.D. 180. By this time several of the earlier forms had disappeared, or had become modified. Thus Figs. 2, 3, and 10 must have fallen out of use, while Fig. 1 had developed into the later form shown in Plate XL., Fig. 22. The vessel is altogether a coarser, thicker dish, with a heavier moulding round

¹ Koenen, *Gefässkunde der vorrömischen, römischen und fränkischen Zeit in den Rheinlanden*, p. 93.

² Hölder, *Die römischen Thongefässe der Alterthumssammlung in Rottweil*, plate x. fig. 2.

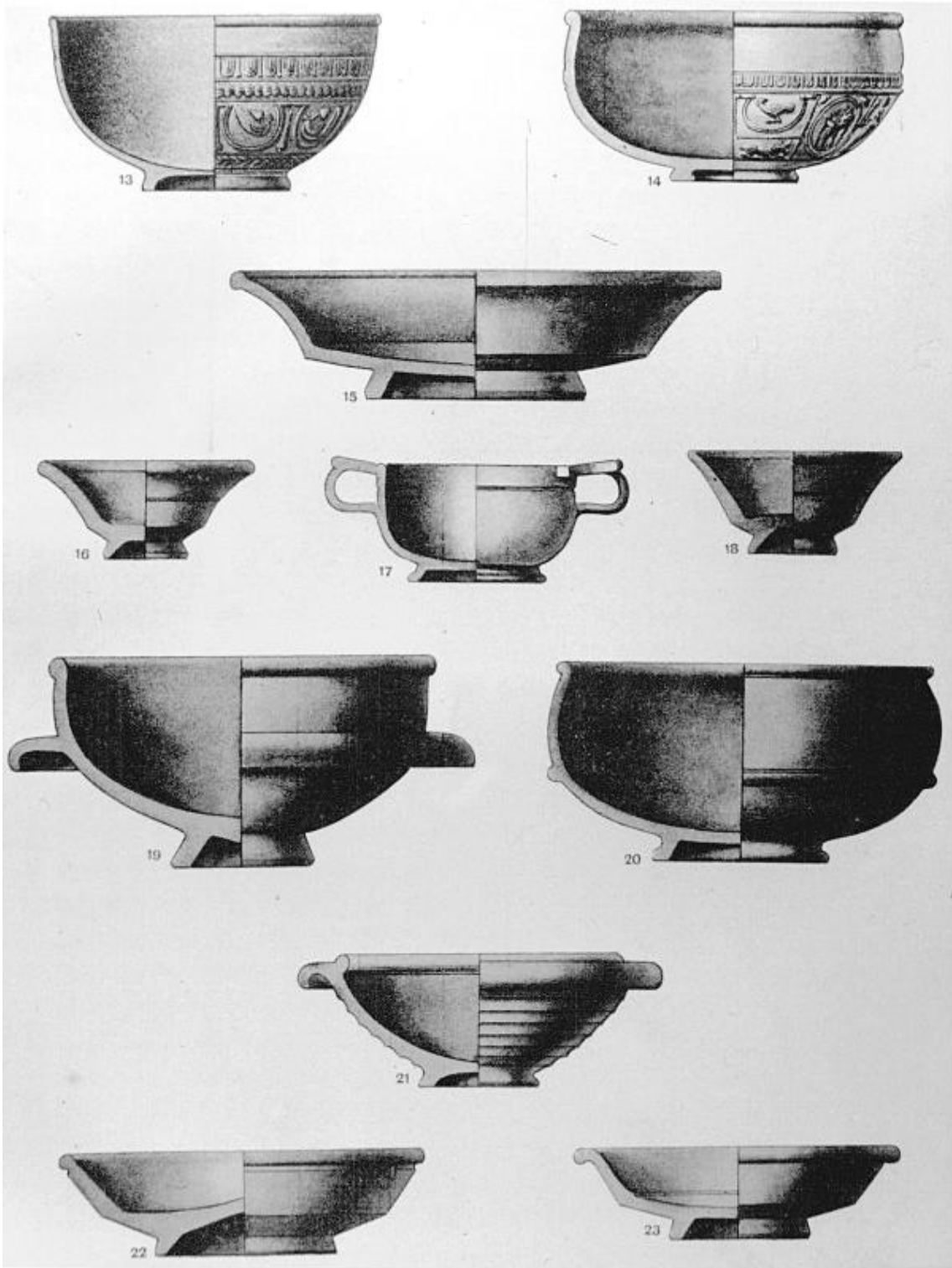


PLATE XL. TYPES OF VESSELS, TERRA SIGILLATA.

the rim, and the bottom is much more raised in the centre. A good specimen came from Pit XIII. Another bore the stamp of the Lezoux potter AVITUS. Scattered throughout the fort, and in the more distant rubbish pits on the south, the cup Dragendorff, Type 33 (Figs. 16 and 18) was of frequent occurrence. It is generally agreed that this form of cup gradually supplanted the older one (Dragendorff, Type 27). It seemed doubtful indeed whether it had found its way to Newstead in the early period of occupation, until it was found in Pit LXXVIII, associated with early dishes. Here were remains of at least two specimens of small size, brightly glazed. One of these bore the incomplete stamp RISPI·M, probably CRISPI·M. The later examples were larger, thicker and less highly glazed. In the ditch of the early fort the fragments of cup Dragendorff, Type 27 were common, whereas there was only one small fragment that might possibly be attributed to the later form. The presence of the later cups in the more distant pits of the South Annexe, where they were frequent, may be regarded as a proof that these pits belong to the second century. One, without a maker's name, of fine material was taken out of Pit XXXIX (Fig. 18). It had been thrown in whole, but was unfortunately damaged by the workmen. A coarser specimen from Pit XIII (Fig. 16) bore the stamp SAMILLI·M. Of the fragments which show potters' stamps the great majority belong to this cup, or to the platter Dragendorff, Type 33 (Plate XL., Fig. 22). Such dishes must have been used at table much as we now use cups and plates, and were probably regarded in these days as a better medium for advertisement than some of the larger vessels. Plate XL., Fig. 17, represents a two-handled cup, a type of vessel which was only observed once at Newstead. It is obviously a form derived from metal. The colour is somewhat of an orange yellow tint. It bears no potter's stamp. The cup in shape closely resembles Dragendorff's Type 34, a form only known to him as coming from Banassac, but the dish in question must belong to some pottery of the Antonine period. It was found in Pit XCV, associated with several dishes of coarse ware, typical of the second century. The finds from the pit also included a well-worn 'first brass' coin of Trajan and a cup (Dragendorff, Type 33) with the stamp GEMINI·M.

The cups and shallow bowls with lotus-bud decoration on the rim were seemingly much scarcer in the later occupations than in the earlier. That is the conclusion suggested by the large number of fragments found in the ditch of the early fort. At the same time others occurred at varying levels throughout the site. A dish of unusual shape (Plate XL., Fig. 23) was found near the

surface in excavating the barrack blocks of the Retentura. It bears a stamp in the form of a rosette impressed on the bottom. This type of dish is common at Lezoux, and there is a specimen with the same stamp in the Collection Plique in the Museum of St. Germain-en-Laye.

A large platter of thick coarse material (Plate XL., Fig 15, and Plate XLI., Fig. 4) came from the filling of the large drain in the Retentura constructed in the early ditch. This drain must have been in use in the last period, to which therefore the dish probably belongs. The same kind of platter was found at Housesteads where the familiar first century types were absent.

The type of bowl shown in Plate XL., Fig 19, with an overhanging flange about an inch below the rim (Drag. 38) was not of common occurrence. The illustration is drawn from fragments obtained from finds comparatively near the surface. One or two pieces of similar bowls, rather smaller than Fig 19, were found in the inner ditches of the West Annexe. In Germany bowls of different sizes with such overhanging rims are met with in the first century.¹ Those with an outline resembling Fig. 19 are common in the graves of the Antonine period. To the same epoch we may assign the bowl shown in Plate XL., Fig. 20, which was found in association with the last form in one of the inner ditches of the West Annexe. It stands $3\frac{3}{4}$ inches high with the opening 7 inches in diameter. A slightly projecting moulding divides the sides horizontally. Above it the side curves inward towards the lip. Unlike the earlier pottery, the material is white in the break. The glaze is a dull red, though that may have resulted from its surroundings. This type of bowl was rare.

Plate XL., Fig. 21, shows a bowl of somewhat thick ware, with heavy overhanging lip and low footstand. Below the rim the outside is indented with very slight parallel horizontal flutings. The inside is quite smooth. Fragments from one bowl only were found. But it has been possible to reconstruct the type with the help of a specimen found at Corbridge. Its appearance there justifies the inference that such vessels were in use in the second century. Professor Schumacher, of Mainz, dates this form of vessel to the latter half of the second century.

III. Decorated Ware of the Early Period

We come now to the decorated vessels of Terra Sigillata. These are the most interesting of all the products of the Gaulish potters. Four distinct types were met with. Of rare occurrence was the small globular pot (Type Déchelette 67, Plate XXXIX., Figs. 7 and 8), with decoration in low relief. A damaged example was found in the ditch of the

1 Koenen, *Gefässkunde*, p. 94, Taf. xiv. 14.

	PAGE
1. Bowl approaching type Dragendorff 44. Inner ditches, West Annexe.	200
2. Bowl. Type Dragendorff 37, with early wreath decoration. Retentura.	201
3. Globular pot. Type Déchelette 67. Pit XIV.	200
4. Large plate. Drain inserted in ditch of early fort. Retentura.	200
5. Platter. Type Dragendorff 31. Pit XXIV.	198
6. Platter. Type Plate XXXIX., Fig. 2. Ditch of early fort.	196
7. Globular pot. Type Déchelette 67. Ditch of early fort.	200
8. Cup. Type Dragendorff 35. Retentura.	198
9. Cup. Type Dragendorff 33. Pit XLII.	199
10. Small bowl. Type Dragendorff 22. Pit VII.	197
11. Platter. Type Dragendorff 18. Ditch of early fort.	196
12. Cup. Type Dragendorff 27. Retentura.	197
13. Cup. Type Dragendorff 33. Pit XXXIX.	199
BOWL. Type Dragendorff 37, considerably restored.	208



PLATE XLI. VESSELS OF TERRA SIGILLATA

early fort, while a complete and uninjured one came from Pit XIV. The specimen from the ditch, which is partially restored, stands 2½ inches high, and has a band of decoration 1½ inches wide running round the sides. In each alternate panel is a human figure; but the execution is poor, and the design does not admit of any interpretation. Fragments were also found in Pits LIX and LXIV. The type belongs to the first century, and appears to be the product of Lezoux. In Germany such pots are found in the latter part of the Flavian period, but they do not occur in Antonine and later cemeteries.¹

Apart from these small vessels, the whole of the decorated fragments belong to bowls of the three shapes,—the carinated bowl (Dragendorff, Type 29), Plate XXXIX., Fig. 3, the cylindrical bowl (Dragendorff, Type 30), Plate XXXIX., Fig. 9, and the ordinary hemispherical bowl (Dragendorff, Type 37), of which two specimens are given in Plate XL., Figs. 13 and 14.

Of these the carinated bowl is the earliest, being derived directly from the krater of the Arretine potters. At Hofheim, with the exception of a single fragment of the hemispherical type, the decorated bowls used by the garrison were all either of this shape or of cylindrical form. The hemispherical bowl had scarcely yet made its appearance in Germany, although it probably began to come into use towards the close of the Hofheim occupation. It is found at Pompeii, destroyed in A.D. 79, and appears gradually to have everywhere supplanted the earlier shapes. Before the Antonine period the carinated bowl had disappeared. At Newstead fragments of no fewer than thirty bowls of the carinated type were found. Most of them came from the ditch of the early fort, but portions also occurred in the overlapping ditch before the West Gate, as well as in the outer ditches of the West Annexe and in the great ditch of the second and later periods. It is probable that all of these belong to the last quarter of the first century. The peculiar shape of the carinated bowl dictated the method of its decoration. The surface of the bowl was divided horizontally into two parallel zones, each covered with a distinct band of ornament, the two zones being separated from each other by a wreath or slightly raised moulding. The ornamentation was moulded as in the manufacture of the Arretine ware. When the bowl was withdrawn from the mould, the everted rim was added,—the line of junction is always clearly marked on the interior. On the everted rim we find almost invariably a roughening of the surface caused by

¹ Koenen, *op. cit.* p.90, Taf. xiii. Fig. 12.

passing a small wheel over the soft clay so as to leave a series of slight parallel lines.

The cylindrical bowl was of less frequent occurrence, the number of fragments belonging to this shape being comparatively small. The decoration seemed to be usually arranged in panels. In a good specimen obtained from the ditch of the early fort (Plate XLII.) it is in arcades. In the bowls of this type belonging to the later period—portions of one or two specimens of which were obtained—the decoration was arranged in large medallions and panels. The later bowls were easily distinguishable from those of the early period by their method of decoration, and by the heavier rims. The hemispherical bowl was the common type, and that exhibits considerable variety in the ornament.

The shapes of decorated bowls probably did not alter during the earlier period; the three types already described were doubtless in use during the whole of it. In the later period, the carinated bowl had disappeared; the cylindrical bowl was rare, and had become much coarser and heavier; the hemispherical type was almost universal. The decoration of the earlier hemispherical bowls is, for the most part, in what is known as the 'transition' style. The arrangement of ornament in double zones, characteristic of the carinated bowls, continued to be employed on the hemispherical bowls. The leafy scrolls are elegant and graceful. The lower margin of the decorative band usually terminates in a wreath. We have also the division of the surface into panels or metopes in which figures are introduced,—scenes from gladiatorial shows, animals and birds. The filling up of these panels with lines of arrow points, and the use of the cruciform motive, a pattern resembling the St. Andrew's Cross, in its more graceful forms, are also characteristic. The borders inserted to define the decorative band are distinctive, and they occur much more frequently now than they do in the later pottery. In Plate XL., Fig. 13, we have a bowl from Pit LXIII, showing one of the earlier forms of decoration. Like the later bowl figured beside it (Fig. 14), it is comparatively small in size. In the later period the graceful scrolls of the early bowls have disappeared. Decoration in panels, however, survives. Large medallions containing figures as in Fig. 14 are common, as also large wreaths enclosing medallions and figures. A few specimens mark the introduction of the style known as 'free decoration,' in which figures of men and animals are scattered over the surface without any surrounding framework.

The early pottery is on the whole thinner and finer than the later. The

glaze, too, is perhaps more brilliant, although, where the conditions of deposit have been good, the glaze of the Antonine pieces is often wonderfully fine. In the Newstead collection the specimens which have preserved their lustre best are invariably those which have been taken from the black deposit of pits or ditches. Pieces found even at a considerable depth, but not lying in this deposit, had become dull, while pieces found near the surface were usually worn and corroded by the action of the soil.

The following are the principles that have been observed in arranging the collection of decorated *Terra Sigillata* for illustration. Those specimens which appear most typical of the two main periods have been selected for reproduction. These have been classified according to the places where they have been found rather than according to their shapes or design. Thus, the fragments from the ditch of the early fort are placed first, as they form the index to the whole of the early pottery. Following them come the fragments from those pits in which the *Terra Sigillata* was of the same early character, and lastly a certain number of early pieces from the surface. The large inner ditch on the west side of the fort embraces both periods. The later period is illustrated by examples from the inner system of ditches of the West Annexe, from the inner ditch of the East Annexe, and from the pits which contained pottery presenting similar characteristics. Finally, there are other surface finds. The series of types thus obtained is of importance in determining the chronology of the vessels of coarser ware found in association with them in pits and ditches.

I. TERRA SIGILLATA OF THE FLAVIAN PERIOD

A. Finds from the Ditch of the Early Fort

1. Fragment of a bowl (Dragendorff 29). Two friezes divided by a moulding and a double row of beads. In the upper frieze a small central panel defined by double zigzag lines ending in rosettes, in which is a figure, draped, walking to left. On either side, panels filled with three rows of arrow-points. In the lower frieze, a band of S-shaped ornament. (Page 205, Fig. 1.)
2. Fragment of a bowl (Dragendorff 29). Two friezes divided by a wreath. In the upper frieze are portions of two panels. In one panel two geese hold in their beaks an eel or snake which winds gracefully between them. In the other is an ornament resembling a double series of chevrons. The lower frieze has been filled with festoons and tendrils. (Page 205, Fig. 2.)
3. Fragment of a bowl (Dragendorff 29). The bowl has been decorated with

a double frieze, divided by a moulding having a row of beads on either side. The lower portion alone remains. Below the moulding a row of S-shaped ornament, and lower still a band of festoons and tassels. In the festoons the tendrils end in a small pointed leaf. (Page 205, Fig. 3.)

4. Fragment of a bowl (Dragendorff 37). Panel divided horizontally by a line of arrow-points between dotted lines. Both halves contain animals running to right. On the left, part of an upright panel with cruciform design. (Page 205, Fig. 4.)

5. Small fragment of a bowl (Dragendorff 29) showing scroll with leaves. (Page 205, Fig. 5.)

6. Fragment of a bowl (Dragendorff 37). A bird catcher, facing to right, throws his net over a small bird. (Page 205, Fig. 6.)

7. Fragment of a bowl (Dragendorff 29). Two friezes divided by a moulding having a line of beads on either side. In the upper is a scroll, with tendrils ending in a small pointed leaf. The lower frieze has been filled with a band of oval ornaments. (Page 205, Fig. 7.)

8. Fragment of a bowl (Dragendorff 29). Two friezes divided as in the preceding number. In the upper, a scroll with tendrils ending in small pointed leaves. In the lower, panels alternating with small medallions. (1) In a medallion, a figure of Cupid to right. The angles filled with tendrils. (2) Panel divided horizontally; in the lower half, a hare (Déchelette 951); in the upper half, three rows of arrow-points. (3) In a medallion, a figure of Cupid to left, holding an indistinct object in each hand (Déchelette 230). Tendrils in the angles. (4) Remains of panel divided as in (2). La Graufesenque. (Page 205, Fig. 8.)

9. Bowl (Dragendorff 30). Part of the sides and foot restored. Egg and tassel moulding. The surface is divided by arches. Between each arch is a zigzag stem floreated at the top. The panels are filled alternately with (i) Upper half, an eagle (recalling Déchelette 982), with wings displayed, standing above a hare. To represent the dead hare the ordinary stamp of the couchant animal has simply been turned upside down. In lower half, four rows of arrow-points. (2) A draped female figure walks to left with the chin leaning on the right hand, which is supported under the elbow by the left. In front is a conventional palm branch. The figure is said to recall the attitude of Penelope on a fresco in Pompeii, and it occurs on a bowl from La Graufesenque found at Cabeza del Griego, Spain (see Déchelette, ii. p. 89). The figure is also to be seen on pottery from Montans in the Musée Raymond, Toulouse. (Plate XLII.)

10. Fragment of a bowl with figure of Cupid holding a bow. (Page 205, Fig. 9.)

11. Bowl (Dragendorff 30). The greater part of the side is restored. Egg and tassel moulding. The surface is divided into panels, of which three remain. In the centre stands a nude figure of a Satyr, grasping a thyrsus with both hands.



PLATE XLII. BOWL OF TERRA SIGILLATA.
Ditch of Early Fort



Tendrils in the angles. The panels on either side are incomplete. They are divided in two, horizontally, by rope mouldings. In the upper halves, a figure of a deer and a hound. In the lower halves, figures of men advancing to left bearing shields in their left hands (probably intended for gladiators), and double wreaths. (Page 205, Fig. 10.)

12. Fragment of a bowl (Dragendorff 37). The ornament has been arranged in a double frieze. In the upper half, of which little remains, a scroll. In the lower, head of a hound with a collar running to left (Déchelette 928), and remains of leaf decoration. Below it, a wreath. La Graufesenque. (Page 205, Fig. 11.)

13. Fragment of a bowl (Dragendorff 37). Beneath an egg and dart moulding, a leafy scroll framing a small figure of Cupid with a mirror; below which, arrow-points. (Page 205, Fig. 12.)

14. Fragment of a bowl (Dragendorff 37). A nude figure seated on a rock with a branch of tree behind. This is the figure of a fisherman (Déchelette 556), seated on a rock holding a line upon which struggle two fish, while behind him is a tree covered with fruit. It is used by the potter Germanus. See also De Bonstetten, *Recueil d'antiquités suisses*, Pl. XVIII. La Graufesenque (Page 205, Fig. 14.)

15. Small fragment found near the last, and probably belonging to the same bowl; it represents the tail of a dolphin such as is to be seen on the bowls of Germanus. See Knorr, *Die verzierten Terrasigillata-Gefässe von Rottweil* Pl. IX. 7, X. 3. La Graufesenque. (Page 205, Fig. 13.)

16. Fragment of a bowl (Dragendorff 37). Egg and tassel moulding. A scroll with leaves and tendrils not unlike Déchelette, Plate VI. 3, enclosing in the lower part an animal and lines of arrow-points. (Page 205, Fig. 15.)

17. Fragment of a bowl (Dragendorff 37). Egg and tassel moulding. The surface divided into panels: (1) Portion of the cruciform ornament common at this period. (2) Two gladiators in combat. A Samnite or *secutor* on the left. He wears a large plumed helmet; bands of leather protect his thighs; he carries an oblong shield and a short sword. A Thrac opposes him with smaller shield and short curved blade, the *sica*. (3) The cruciform ornament is repeated. (4) Incomplete, a lion attacking a bestiarius; above the lion, a tendril ending in a pointed leaf; beneath it, a bunch of herbage. (Page 207, Fig. 1.)

18. Another portion of the same bowl. Here the panel with the bestiarius is complete. Below him is a figure of a hound running to left, while beneath the lion a human body is being torn to pieces by a wild animal. The bestiarius occurs at Sulz, and also at Cannstatt on bowls bearing the stamp of the potter, BIRACILLUS, who belongs to Banassac.¹ (Page 207, Fig. 3.)

19. Fragment of a bowl (Dragendorff 37). Egg and tassel moulding; beneath

1 Déchelette, *Vases céramiques ornés*, tom. i. page 118.



it, a wreath. The surface is divided into panels. (1) Incomplete arrow-points arranged in pyramid. The angle filled in with parallel lines. (2) In a small medallion, figure of a couchant animal facing to right. (3) The cruciform ornament) a simpler form than No. 17. (Page 207, Fig. 2.)

20. Fragment of a bowl (Dragendorff 37). Egg and tassel moulding. Portions of three panels remain. (1) The cruciform ornament. (2) A combat between gladiators. One of them a Thrax stands in the attitude of victory. His small shield is raised alft in his left hand, in his right he bears his short sword. Both his legs are protected by ocreae. On the ground beneath are tufts of herbage. His adversary, fallen on his knee, holds up his left hand in an appeal for mercy. A twisted stem rising from the ground separates the two figures. The impressions are worn and poor. (3) Panel with tendril at the angle. The seated figure with a lyre doubtless represents Apollo. Below, three rows of arrow-points. (Page 207, Fig. 4.)

21. Bowl (Dragendorff 37). Largely restored. Egg and tassel moulding. A wreath, below which the surface is divided into panels. (1) Incomplete. Arrow-points in pyramid with the angle filled in with lines. (2) A lion galloping to right (Déchelette 747) over herbage; above it, a tendril ending in a pointed leaf. (3) A boar galloping over herbage to left (Déchelette 837). The two animals are separated by an object suggesting an incomplete form of the cruciform ornament. Lower still, a band of S-shaped ornament. La Graufesenque. (Plate XLI., Fig. 14.)

22 and 23. Fragments of a bowl (Dragendorff 37). A hound running to right. Beneath it on a label, the stamp FRONTINI. Lower down, a band of oval ornaments. (Page 209, Figs. 1 and 4.)

24. Fragment of a bowl (Dragendorff 37). Egg and tassel moulding. The bowl has been decorated with a double frieze. In the upper, a line of festoons and tassels. In the lower, probably foliage. (Page 209, Fig. 2.)

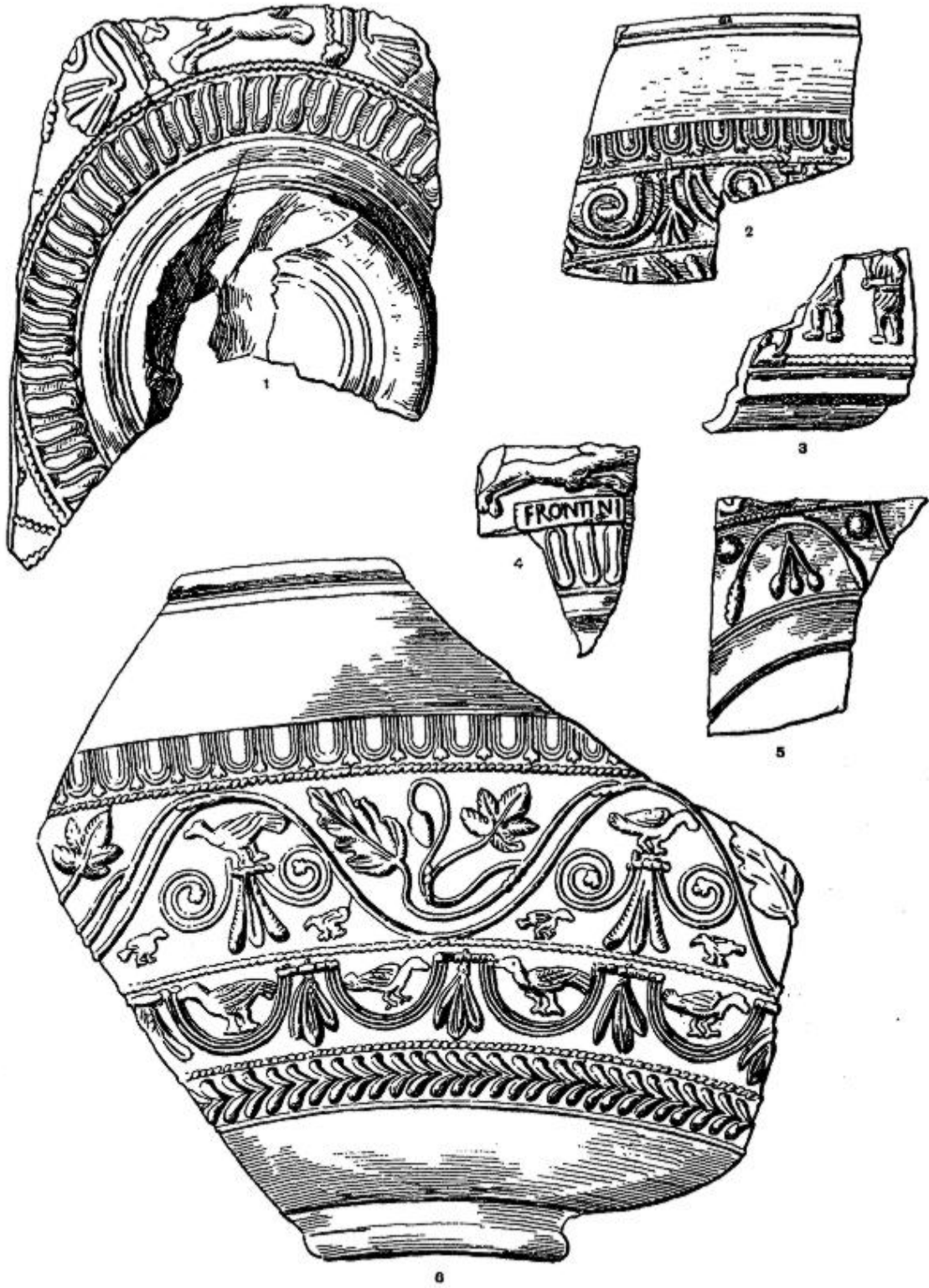
25. Small fragment of a bowl (Dragendorff 30). Portions of two figures, wearing short tunics, walking to left. One of them bears an object conical in outline but somewhat indistinct. Déchelette (577) recognises in this figure (which is of common occurrence) 'one of those bearers of cakes represented in scenes of sacrifice in the Hellenistic epoch.' La Graufesenque. (Page 209, Fig. 3.) See also page 215, Fig. 6.

26. Fragment of a bowl (Dragendorff 37). Curved stem, ending in long pointed leaves, beneath which hangs a stem branching into three and terminating in poppy heads. (Page 209, Fig. 5.)

27. Fragment of a bowl (Dragendorff 37). Egg and tassel moulding. The ornament below is arranged in a double frieze. In the upper, which is the wider, a scroll with leaves, resembling oak, and tendrils framing festoons with birds. In the lower frieze, a band of festoon and tassel, in which birds are introduced facing alternately right and left. Beneath it, a wreath. (Page 209, Fig. 6.)



PLATE XLIII. BOWLS OF TERRA SIGILLATA.
Pit XXII
Pit XV



B. Finds from Early Pits

28. PIT XV. Bowl (Dragendorff 37). Height, 4 inches. Diameter, $8\frac{3}{8}$ inches. Egg and tassel moulding. Decoration in panels. The cruciform design is repeated four times: the panel on the left of it is filled with a figure of Diana (Déchelette 63 *a*), and that on the right with a figure of Victory (Déchelette 481). The remaining panels are divided horizontally: in the lower half is the figure of a bird-catcher throwing a net over a small bird, resembling Déchelette 563 (cf. No. 20 *supra*), while in the upper half are the alternate figures of a lion and a boar. La Graufesenque or Banassac. (Plate XLIII., Fig. 2.)

29. PIT XVII. Fragment of a bowl (Dragendorff 30). Egg and tassel moulding. The cruciform ornament, also panel with head of a lion—both incomplete. (Page 211, Fig. 1.)

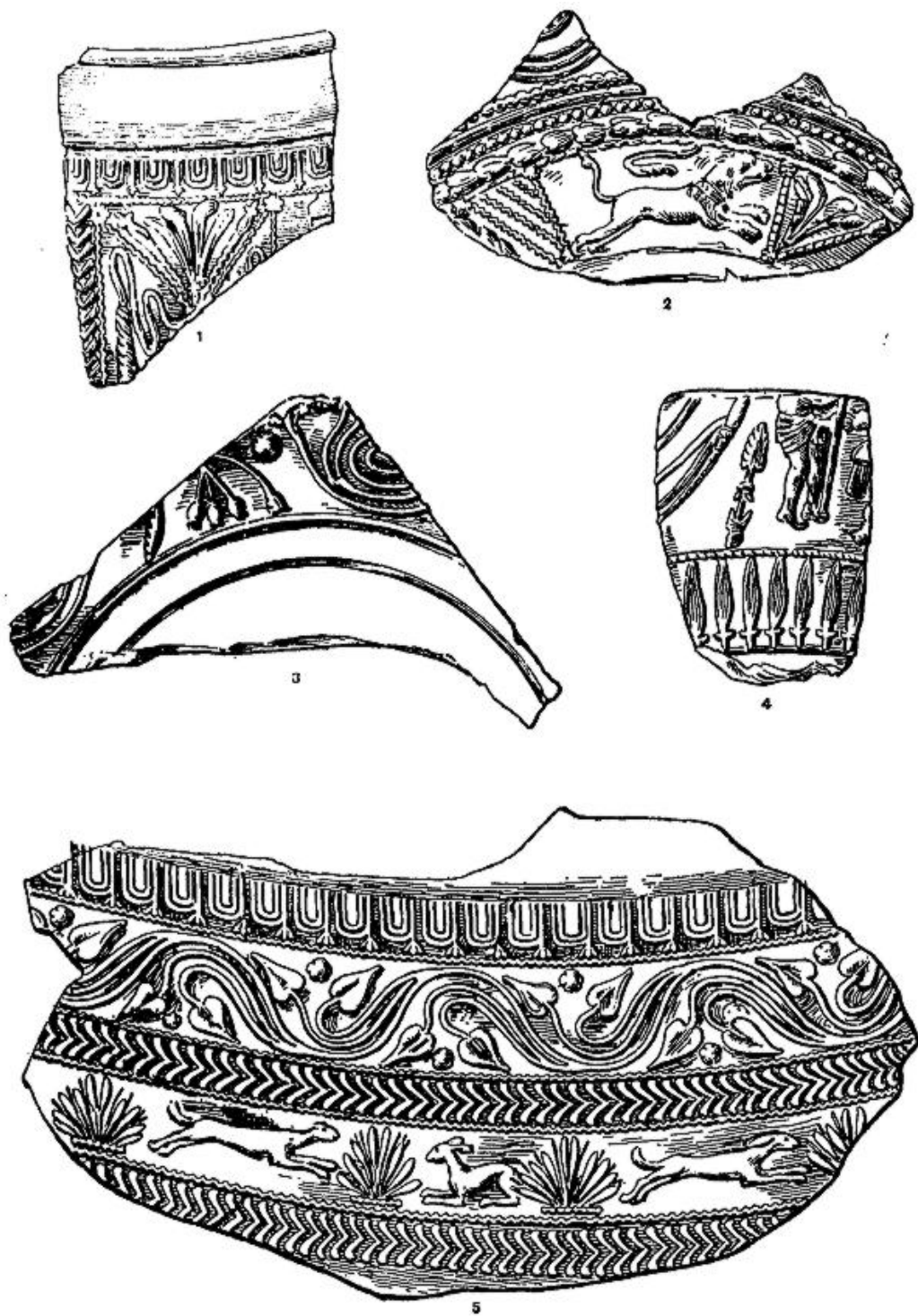
30. PIT XXI. Fragment of a bowl (Dragendorff 29). The design in two friezes separated by a moulding with a row of beads on either side; below it, a wreath of leaves. The upper frieze probably held a scroll. The lower is divided into panels. (1) Incomplete. Arrow-points in pyramid, and zigzag lines filling the angle. (2) A lion galloping to right, resembling Déchelette 747; above it, a floreated tendril. (3) A floral ornament. La Graufesenque. (Page 211, Fig. 2.)

31. PIT XXII. Bowl (Dragendorff 37). The sides partly restored. Height, $3\frac{1}{4}$ inches. Diameter, $6\frac{1}{2}$ inches. Egg and tassel moulding. The decoration consists of four small medallions with figures of Cupids facing alternately to right and left. The angles filled with tendrils with long pointed leaves. The alternate panels are divided horizontally. In the lower half, a boar facing to left. In the upper, arrow-points arranged in pyramid; the angles filled with raised lines (Plate XLIII., Fig. 1). (Cf. No. 8 *supra*; also Walters, *Catalogue of the Roman Pottery in the British Museum*, Plate XXV., M. 555.) La Graufesenque.

32. Fragment of bowl (Dragendorff 37). Portion of a scroll. A plant as in Walters, *Catalogue of Roman Pottery*, M. 536. A draped figure of a man holding a staff, turned to right, and part of another figure—both incomplete; below, a line of long pointed leaves with stems. (Page 211, Fig. 4.) Same pit.

33. PIT LIV. Fragment of lower portion of a bowl showing scrolls and poppy-head ornament. (Page 211, Fig. 3; cf. No. 26 *supra*.)

34. Fragment of a bowl (Dragendorff 37). Egg and tassel moulding. Double frieze divided by a wreath (chevron pattern), which also recurs below the lower frieze. In the upper, a scroll with tendrils ending in pointed leaves. In the lower, figures of animals separated by bunches of reedy foliage. La Graufesenque. (Page 211, Fig. 5.) Same pit.



35. PIT LVIII. Fragment of a bowl (Dragendorff 37). Egg and tassel moulding. Beneath it, a wreath (chevron pattern). Lower, (1) in a small medallion, a figure of an eagle with wings displayed (Déchelette 982); the angles of the panel are filled with tendrils ending in long pointed leaves. (2) The cruciform ornament. Two smaller fragments from the same pit, probably belonging to the same bowl) show portions of the last panel with a band of S-shaped ornament beneath it. La Graufesenque. (Page 213, Fig. 1.)

36 and 37. PIT LIX. Fragments of a bowl (Dragendorff 29). Two friezes divided by a moulding with rows of beads on either side. In the upper, a scroll with tendril ending in a pointed leaf and bud. In the lower, a scroll with feathery leaves and buds. La Graufesenque. (Page 213, Figs. 3 and 4.)

38. Small fragment of a bowl showing a scroll with leaves and tendrils and, below, vertical beaded lines ending in rosettes. (Page 213, Fig. 2.) The pit also contained the bottom of a globular vase (Déchelette 67). For the later pottery found at a higher level in this pit see Nos. 83 to 86. Same pit.

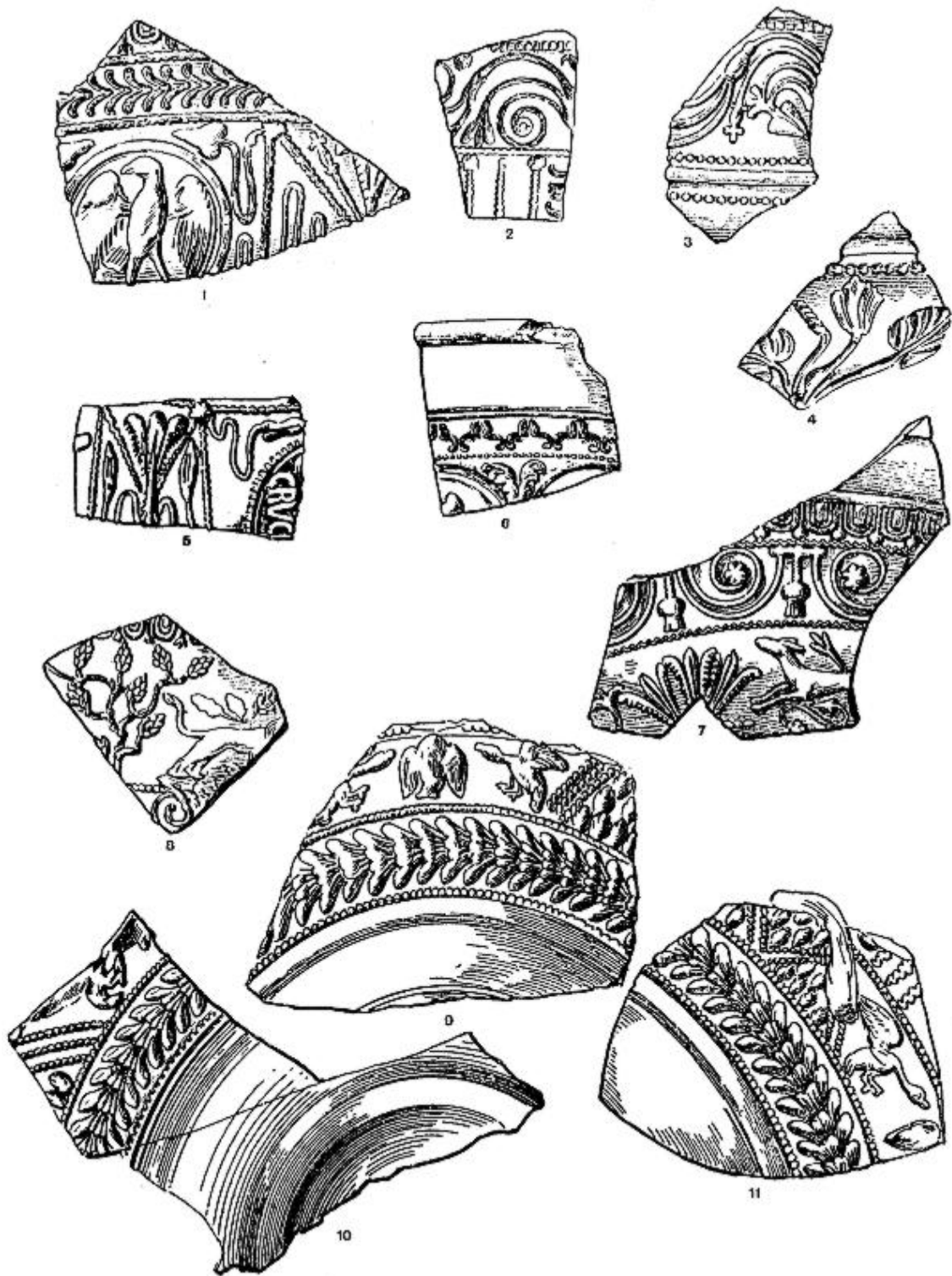
39. PIT LXI. Fragment of a bowl (Dragendorff 37). Portions of two panels. (1) The cruciform ornament. (2) Small medallion or arch, in which remains the incomplete stamp CRVC.... In the angle, a tendril ending in a long pointed leaf (Page 213, Fig. 5.) For this potter see Knorr, *Rottweil* xi. 1 and 2.

40. Small fragment of the upper portion of a bowl (Dragendorff 37). In place of the usual egg and tassel moulding, a border of scrolls. For a similar piece, probably from the same mould, see Walters, *Catalogue*, M. 1456. The complete design is one of arches with capitals and columns, filled in with floral ornament between. In one of the arches, a warrior with crested helmet (Déchelette 106), of which a vestige remains on our piece. Lezoux. (Page 213, Fig. 6.) Same pit.

41. PIT LXIII. Fragment of a bowl (Dragendorff 37). Egg and tassel moulding. Double frieze divided by zigzag line. In the upper, band of festoon and tassel ornament with spiral tendrils. Below, figures of a hound (Déchelette 931) and fan-tail foliage. La Graufesenque. (Page 213, Fig. 7.)

42. PIT LXIII. Small fragment of a bowl (Dragendorff 37). Egg and tassel moulding; beneath it, a tree with fruit; and beside it, part of the figure of a lion moving to right, with leaves above, in the style of the potter Germanus. (See Knorr, *Rottweil*, Taf. v. 1 and 5.) La Graufesenque. (Page 213, Fig 8.)

43–45. Fragments of the lower portion of a bowl (Dragendorff 37), which has been mended with a leaden clamp. The decoration has evidently been arranged in a double frieze, of which part of the lower remains. An eagle—the impression is very poor—is seen flanked on either side by geese with upraised wings and stretched out necks. This design alternates with three groups of leaves arranged in pyramid fashion, divided by dotted lines. Beneath the frieze, a wreath of broad leaves, as



in Walters, *Catalogue of Roman Pottery*, P1. XXXIII. (1). La Graufesenque. (Page 213, Figs. 9, 10 and 11.) Same pit.

C. Surface Finds of Early Pottery

46. Fragment of a bowl (Dragendorff 29). Portion of upper frieze, hound galloping to right) and fan-tail foliage. (Page 215, Fig. 1.)

47. Fragment of a bowl (Dragendorff 29). Upper frieze with floral ornament. Cf. type, Knorr, *Rottweil* Taf. iii. 2. (Page 215, Fig. 2.)

48. Fragment of a bowl (Dragendorff 29). Two friezes divided by a moulding and a double row of beads. In the upper frieze, a floral scroll. In the lower frieze, a scroll with ivy leaves framing panels. In the scroll, a small bird (Déchelette 1017); in a panel, a bird and hare. Principia. La Graufesenque. (Page 215, Fig. 3.)

49. Bottom and part of side of a bowl (Dragendorff 29), showing portion of scroll and scale pattern arranged in pyramid. On the bottom the stamp OF RUFENI. Retentura. La Graufesenque. (Page 215, Fig. 5.)

50. Fragment of bowl (Dragendorff 29). Upper frieze scroll, as in Walters, *Catalogue of Roman Pottery*, P1. XXXV. 3. (Page 215, Fig. 4.)

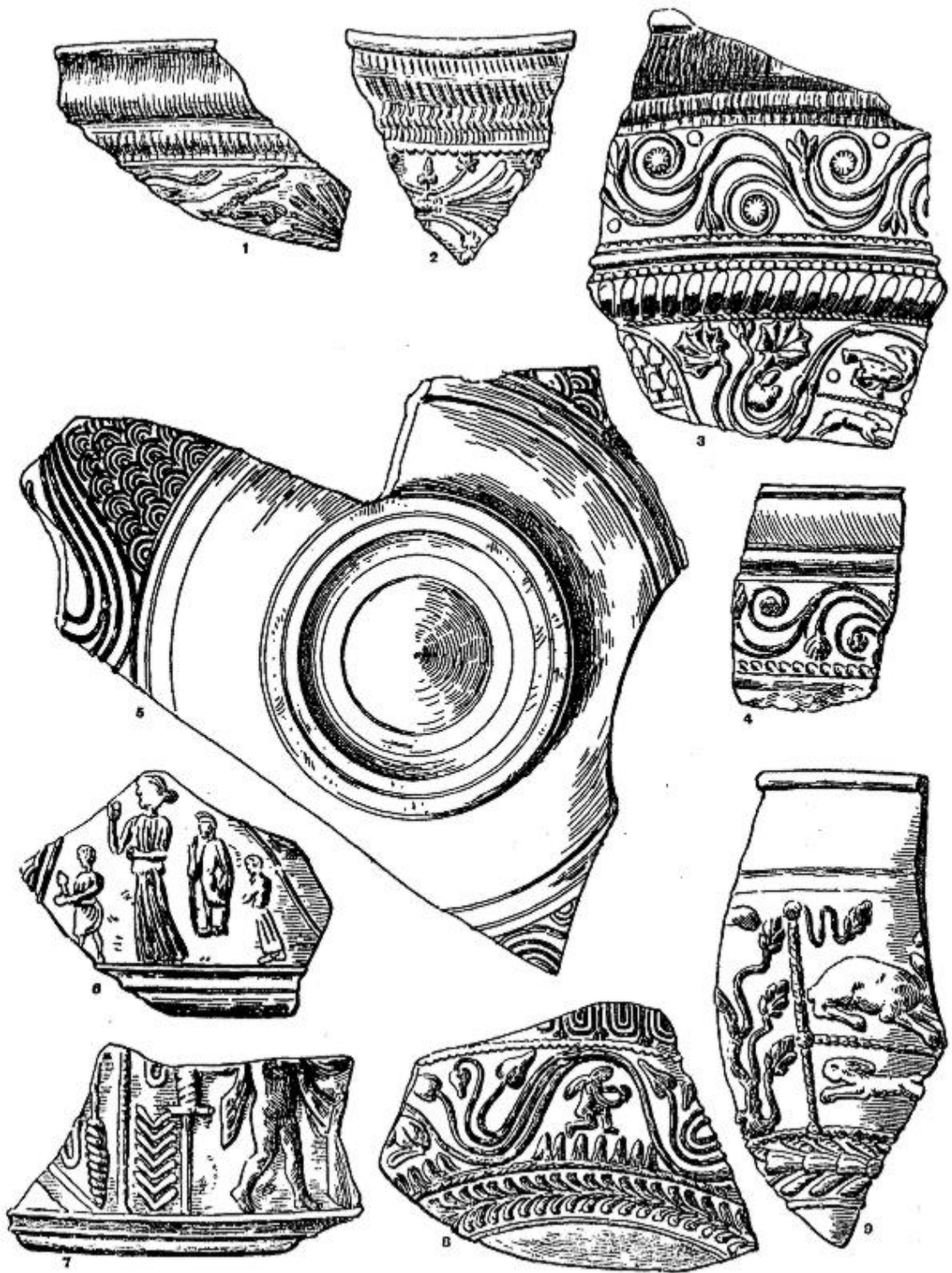
51. Fragment of a bowl (Dragendorff 30), showing figures and portions of a scroll. The four figures face to left, first a man in a short tunic bearing a conical object (Déchelette 577), followed by a draped female figure bearing something in her right hand; behind her, stands a warrior with a crested helmet, armed with a spear and long shield (Déchelette 105); behind him, a smaller draped female figure. La Graufesenque. (Page 215, Fig. 6.)

52. Fragment of a bowl (Dragendorff 30). Decoration in panels, all incomplete. (1) The cruciform ornament. (2) A wreath. (3) Figure (Déchelette 320) moving to right, striking a tympanum. Retentura, under south rampart. La Graufesenque. (Page 215, Fig. 7.)

53. Fragment of a bowl (Dragendorff 37). Egg and tassel moulding. Frieze. On the upper side, bunches of pointed leaves. On the lower, a figure of Cupid kneeling to right above a line of arrow points. In the next space, part of a couchant animal. Lower, a wreath of chevron pattern. Baths. (Page 215, Fig. 8.)

54. Fragment of a howl (Dragendorff 37). The usual egg and tassel moulding is replaced by a flat band, beneath which, portions of two panels. (1) Incomplete. A tree resembling the type used by Germanus (Déchelette 1136, var.). (2) Divided horizontally by zigzag line. In the upper part, a hare couchant, to right (Déchelette 941); above it, a tendril at the angle. Below, a hare running to left. A wreath terminates the decoration. Rutenian. (Page 215, Fig. 9.)

55. Fragment of a bowl (Dragendorff 37). In a rectangular panel a winged figure, the head incomplete. The panel to the left has been filled with arrow-point



decoration. This winged figure with a torch, and bearing a thyrsus on the left shoulder, occurs on a bowl bearing the stamp of Germanus at Rottweil (see Knorr, *Rottweil* Taf. vi. 1 and Taf. vii.), as well as at Okarben. It is also to be seen on a bowl from Heddernheim in the Museum of Frankfort on Main. (Page 217, Fig. 1.)

56. Fragment of a bowl (Dragendorff 37). In a small medallion, a nude winged figure, the head turned to the left. As will be seen from the last number, it carried a torch in the right hand. The angles are filled with tendrils and long pointed leaves. (Page 217, Fig. 2.)

57 and 58. Fragments of a bowl. A tree with leaves, recalling Déchelette 1136. A figure of Victory turned to the left (Déchelette 479). Another small portion of the same bowl shows a stag (Déchelette 865) feeding from the leaves of a tree. La Graufesenque. These fragments represent the only pieces of Terra Sigillata found in the large building to the west of the Baths. (Page 217, Figs. 3 and 4.)

59. Fragment of a small bowl (Dragendorff 37). Beneath an egg and tassel moulding, demi-medallions, formed by wreaths each encircling a tendril and leaf, and separated from each other by a floral ornament. Below a band of chevron pattern. See Hölder, *Römischen Thongefasse in Rottweil*, Taf. xiii. Fig. 6. (Page 217, Fig. 5.)

60. Fragment of a bowl (Dragendorff 37). Egg and tassel moulding. Figure of a lioness walking to left, with leaf of a tree and bunches of herbage. Below, a wreath. Probably from a bowl by Germanus. See Knorr, *Rottweil* Taf. V. 1 and viii. 1, where it occurs on bowls by this potter. La Graufesenque. For other fragments of this potter's work in the same style at Newstead, see *supra*, Nos. 14, 15, 41, 54, 55 and 56. (Page 217, Fig. 6.)

61. Small fragment of bowl (Dragendorff 37), showing part of a scroll with ivy leaf and ends. (Page 217, Fig. 7.)

D. Finds of Early Pottery from Inner Ditch of Later Fort, West Front

62. Fragments of a bowl (Dragendorff 29). Portions of the upper frieze alone remain; two panels—both incomplete. (1) Points of flame arranged in pyramid, framed by double zigzag lines. In the angle, figure of a long-necked bird, resembling Déchelette 1017. (2) A figure of Cupid kneeling, to right. In his hands he holds a mirror, which he is placing on a stand. (Page 217, Fig. 11.)

63. Fragment of a bowl (Dragendorff 29). The decoration has evidently been arranged in two friezes, of which only part of the lower remains. It consists of a row of small medallions, each containing a half-length figure; the medallion has been impressed after the figure, and in part covers it. (Page 217, Fig. 8.)

Nos. 62 and 63 were found in the black deposit of the ditch, with portions of undecorated vessels (Dragendorff, Types 18, 27, and 36) and a small piece of the neck of a globular vase of very thin hard material, with a bright glaze. All of these are probably early.



II. TERRA SIGILLATA OF THE ANTONINE PERIOD

E. Finds from Inner Ditch of Later Fort, West Front

64. Fragment of a bowl (Dragendorff 37). Egg and tassel moulding. Decoration in panels. (1) Foliage ornament incomplete. (2) In a demi-medallion, a bird. The whole treatment is very coarse, and is probably German. (Page 217, Fig. 9.)

65. Fragment of a bowl (Dragendorff 37). Egg and tassel moulding. The decoration is in panels. Figure of Perseus (Déchelette 146), the right arm uplifted, the head facing to right. In his left hand, which he holds against his thigh, he carries a short sword, from which hangs the end of some floating drapery. The figure appears upon the bowls of Cinnamus, as does also the reel ornament in the adjoining panel (Déchelette 1111). See Knorr, *Rottweil* Taf. xx. 4 and 15. Lezoux. (Page 217, Fig. 10.)

66. Fragment of a bowl (Dragendorff 37). The upper moulding is a degraded form of the common egg and tassel. The decoration is reduced to meaningless stamps, rosettes, and demi-medallions, most of which are to be found in Ludowici, *Stempel-Bilder aus meinen Ausgrabungen in Rheinzabern*, page 211, Figs. O. 26, 27, 62. See also Knorr, *Terrasigillata Gefässe von Cannstatt und Kongen-Grinario*, Taf. xxxvii. 2 and 3, where somewhat similar decoration is to be seen on a bowl bearing the stamp of the Rheinzabern potter Reginus, to whom our piece must be attributed. (Page 217, Fig. 12.)

Nos. 65 and 66 were found at the mouth of the large drain issuing from the fort above the ditch.

F. Finds from Inner System of Ditches, West Annexe

The following is a list of the finds from the inner system of ditches defending the West Annexe. These ditches obviously belong to the period of the reduction of the fort in size.

(1) The Inner Ditch

67. Fragment of a bowl (Dragendorff 37). In a panel beneath a demi-medallion is a nude figure of Venus with floating draperies. She stands with her left arm leaning on a column with a capital, her right hand extended (Déchelette 184). The figure occurs on the bowls of Cinnamus. On either side are incomplete panels with foliage patterns. Lezoux. (Page 217, Fig. 13.)

68. Fragment of a bowl (Dragendorff 37). Decoration in large medallions and panels. None of the figures of animals is complete. In the large medallion on the left there appear two figures which also occur on a bowl found at Camelon, bearing the stamp of the potter Divixtvs. See Anderson, 'Notice of the Pottery, etc., found at Camelon,' *Proceedings of the Society of Antiquaries of Scotland*, vol. xxxv. p. 380, fig. 13. (Page 217, Fig. 14.)

69. Small fragment of lower portion of a bowl (Dragendorff 37). The head and fore leg of a bear and part of a pigmy warrior are visible as well as the letters MI, part of the stamp CINNAMI, impressed retrograde, as is common with this potter. Lezoux. (Page 217, Fig. 15.)

70. Fragment of a bowl (Dragendorff 30). The decoration is in large medallions and panels. (1) In the angle below the medallion is the figure of a crane. The panel is divided horizontally, and in its upper part, in a wreath forming a demi-medallion, is an animal, resembling Déchelette 969 *ter*. In the lower is another, probably a boar. Lezoux. (Page 221, Fig. 5.)

(2) The Outer Ditch

71. Fragment of a bowl (Dragendorff 37), with coarse rim. Decorated with egg and tassel moulding. In a medallion is a figure of Cupid. Lezoux. (Page 221, Fig. 1.)

72. Fragment of a bowl (Dragendorff 37). Decorated with egg and tassel moulding. In a demi-medallion is a small medallion with a bird standing to right, turning back its head. (Page 221, Fig. 2.)

73. Fragment of a bowl (Dragendorff 37). Decorated with large and small medallions, separated by Caryatidae. The subject in the large medallion cannot be determined. In the small medallion beneath is a beardless mask, turned to right. Below the decoration are visible the letters X F, part of the stamp DIVIX F. (Page 221, Fig. 3.)

G. Finds from the Inner Ditch, East Annexe

The pottery here appeared to belong entirely to the later period. No early pieces were found near the bottom of the ditch, though two fragments of early bowls were picked up in filling in the material. The condition of the glaze in these indicated that they had not lain near the bottom.

74. Fragment of a bowl (Dragendorff 37), in fine preservation, showing egg and tassel moulding. The decoration is in the 'free' style. On the left a horseman gallops to right. From his shoulders floats a cloak, while in his right hand he carries a spear (Déchelette 158). He is surrounded by animals. In front of him, a bear walking to right (Déchelette 806). Small leaves are introduced between the figures. This piece lay near the bottom of the ditch. Lezoux. (Page 221, Fig. 4.)

75. Fragment of a bowl (Dragendorff 37), with coarse rim, showing egg and tassel moulding irregular and indistinct. A large panel contains two large leaves resembling those of the plane, with spiral stems added from another die. Above these a small ivy leaf issues from the dotted line beneath the egg and tassel moulding. To the right of the leaves an ornament composed of two objects

resembling a fleur de lys set base to base. A degraded form of the cruciform ornament, or possibly a thunderbolt. The panel terminates on the right with a beaded line, across which is set a reel ornament like Déchelette 1111. Beyond it is a stem, ending in a fleur de lys. On the left the panel terminates in a zigzag line. The panel beyond has in its upper part an incomplete demi-medallion in which appears an ivy leaf; beneath, between two columns, is a dancing satyr, resembling Déchelette 382. On the lower part of the side of the vase below the decorated band is a figure of a diminutive nude woman (Venus?) facing to front with right hand on head, the left indistinct. This figure, which is impressed horizontally, and which appears to be a very reduced copy of Déchelette 199, is also to be seen on a fragment in the British Museum—see Walters, *Catalogue of Roman Pottery*, p. 242, Fig. 198. It occupies on the present bowl a position in which a maker's stamp is frequently found. Possibly that may be its purpose here. The fragment was found at the bottom of the ditch. Lezoux, or possibly Rheinzabern. (Page 221, Fig. 6.)

76. Small fragment of a bowl (Dragendorff 37). Egg and tassel moulding of unusual pattern. Beneath it, part of a panel showing a late form of the cruciform pattern. The panel is divided diagonally by dotted lines into four triangles; in the upper one, a long leaf stands upright. In the side, a pelta. (Page 221, Fig. 7.)

77. Fragment of a bowl (Dragendorff 37). The surface is much decayed. Egg and tassel moulding. The decoration has been in panels and large medallions. (1) In a large medallion, figure of an animal facing to right, possibly a stag (Déchelette 847), beneath it an acanthus leaf (Déchelette 1160). Below the medallion, a bear running to left (Déchelette 820). (2) In a panel a nude figure, probably Perseus, with right hand uplifted (Déchelette 146). (3) A panel divided horizontally; upper part, in a small medallion, a beardless mask (Déchelette 696); below, a mask of Pan facing to left (Déchelette 675). (4) In a panel, figure of a bearded man (Déchelette 523). The body is draped, the shoulders uncovered. (5) The first medallion panel is repeated. The whole is in the style of Cinnamus. Lezoux. (Page 223, Fig. 1.)

H. Finds from Late Pits

78. PIT XXIII. Fragment of a large bowl. Beneath a narrow band of egg and tassel moulding, decoration in panels and large medallions. (1) In a panel, figure of Pan turned to right, resembling Déchelette 419. In a large medallion (incomplete) figure of Apollo. Lezoux. (Page 223, Fig. 2.)

79. PIT XL. Bowl (Dragendorff 37). Height $3\frac{1}{4}$ inches. Egg and tassel moulding. Decoration in panels and large medallions. In the medallions, a figure of a gladiator, his sword in his right hand, his shield in his left (Déchelette 614). On the right of each medallion, in an upright panel, the figure of a dancer. On the left: upper half, in a demi-medallion, a hare (Déchelette 950 *a*); in the angles below, on either side a ring, and between them a figure of an animal (Plate XLV.).



The colour of the bowl tends slightly to an orange red. Among the pottery found in the ditch of the earliest fort at the Saalburg, which must have been abandoned by the year A.D. 139, occur two fragments closely resembling the style and colour of our bowl. In both we have the same figure of the dancer. In one the gladiator recurs, and we have the same employment of rings to fill the angles beneath the demi-medallions. The parallel is interesting, because we are probably entitled to infer from it that this bowl was brought to Newstead early in the Antonine period. The style and decoration suggest that the bowl is the work of the potter Doeccus.

80. PIT XLV. Fragment of a bowl (Dragendorff 37). Egg and tassel moulding. Beneath it, scroll decoration with leaves, tendrils and birds. (Page 223, Fig. 4.)

81. Fragment of another bowl (Dragendorff 37) of a similar pattern. (Page 223, Fig. 5.) This is from the same pit.

82. PIT XLIX. Fragment of bowl (Dragendorff 37). Lower portion of panels. (1) Feet of a personage, probably Vulcan. (2) Mask of Pan, facing to left (Déchelette 675). (3) Beneath a ring, letters, doubtless the end of the stamp CINNAMI, impressed retrograde. (Page 223, Fig. 3.)

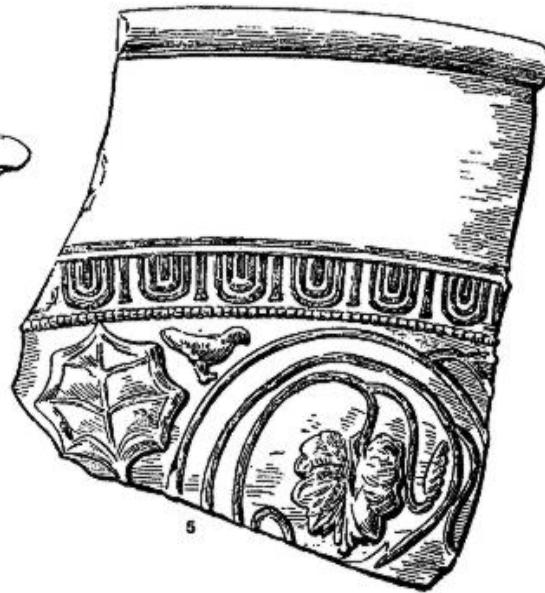
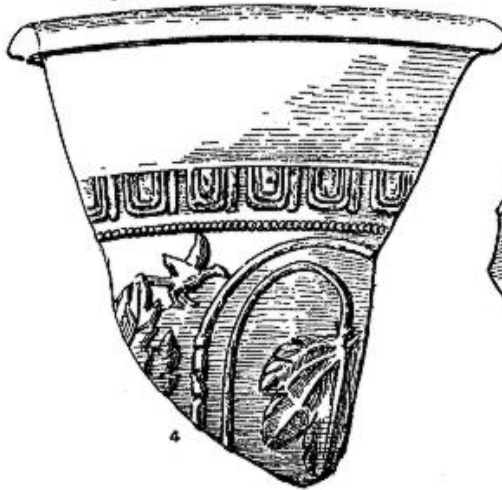
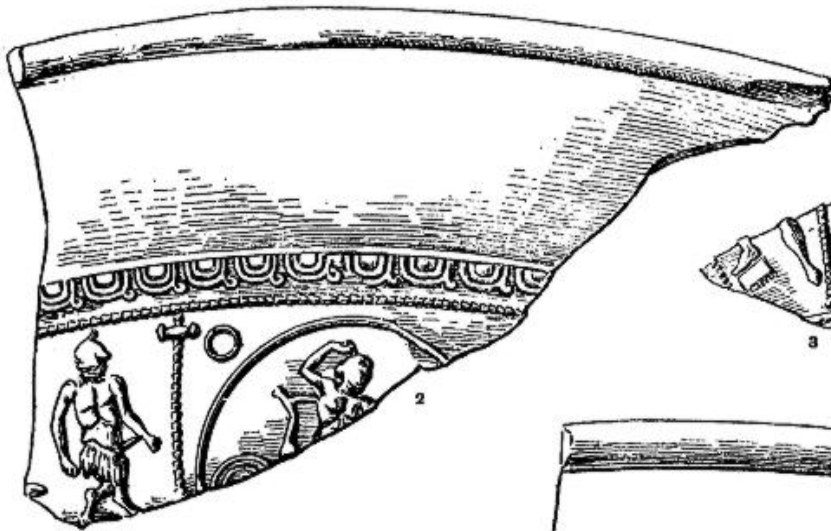
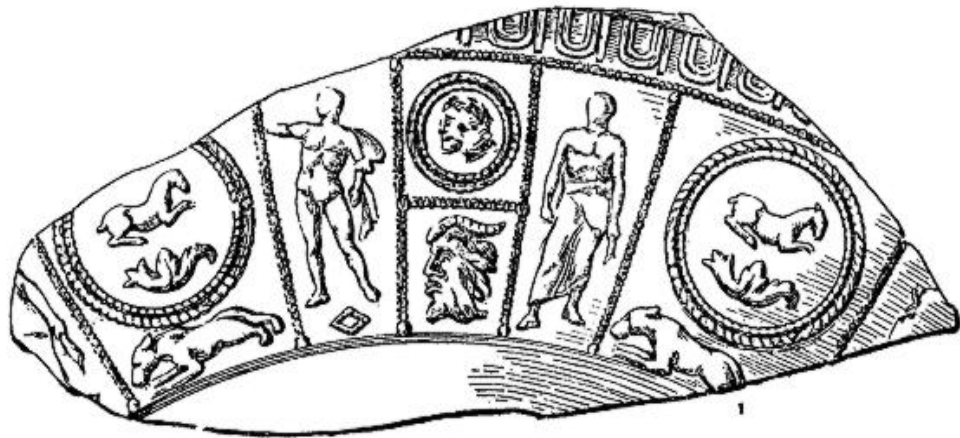
PIT LIX. At a depth of 12 feet a few pieces of later pottery were discovered, four of which are illustrated:—

83. Small fragment of a bowl (Dragendorff 37). Egg and tassel moulding. Large scroll decoration with bird. (Page 225, Fig. 1.)

84. Fragment of a small bowl (Dragendorff 37). Egg and tassel moulding. Decoration in two zones. Upper zone, in a festoon with tassels, a figure of bird turned to right, head looking backwards. Beneath it, a chase; a stag running to left, followed by a bear (Déchelette 818). Conventional rocks between. See Déchelette, *Vases céramiques*, vol. i. p. 226, fig. 132. A fragment of a similar bowl associated with late pottery was found in Pit LXXXV. (Page 225, Fig. 2.)

85. Another fragment from this Pit LIX is in the large wreath style of decoration. (Page 225, Fig. 3.)

86. Fragment of a bowl (Dragendorff 37). The surface divided into panels by conventional palm-leaf ornament. Ludowici, *Stempel-Bilder*, p. 60. In each panel a figure; both incomplete. (1) A figure of Venus holding up her left hand, with her right she grasps her draperies. (2) Part of the figure of a man; probably the figure is one blowing a flute, with a skin over his back. The fragment is in the style of Reginus, and is probably Rheinzabern. (Page 225, Fig. 6.) See Knorr, *Terra-sigillata Gefässe von Cannstatt und Köngen-Grinario*, Taf. xxviii. 1.



I. Surface Finds of Later Pottery

87. Bowl (Dragendorff 37). Found on the line of Barrack Block No. III. Praetentura. Height, 5¼ inches. Diameter, 9½ inches. Egg and tassel moulding. Decoration in large medallions and panels. A figure of Venus standing beside a column (Déchelette 184) occupies the centre of the medallions; on her right, an owl (Déchelette 1020); on her left a snake. To the left of the medallion, in a panel, figure of a dancer turned to right, holding a scarf (Déchelette 372 bis). On the left, figure of a bearded man (Déchelette 523). The remaining panel of the design is divided horizontally; upper half, figure of a bird (Déchelette 1038); lower half, figure of Cupid (Déchelette 236). In one panel the stamp of the maker, CINNAMI, retrograde, takes the place of a bearded man. (Plate XLIV.)

88. Fragment of a bowl (Dragendorff 37). Decoration with large scroll and leaves. On a label the stamp, incomplete, of Cinnamus, NNAMI. (Page 225, Fig. 4.)

89. Fragment of a bowl (Dragendorff 30). Egg and tassel moulding. In a large medallion, figure of a dancer (Déchelette 220). In the adjoining panel the remains of the letters CINNAMI. For a similar piece, see *Der römische Limes in Oesterreich*, Heft. iv. Fig. 5. (Page 225, Fig. 5.)

90. Fragment of a bowl (Dragendorff 37) found in excavating Building No. XVIII. In a volute framed by a leafy scroll, with birds, a horseman gallops to right, clad in a cuirass. A cloak floats from his shoulders; in his right hand he brandishes a lance (Déchelette 156); below him is the potter's stamp, CINNAMI, impressed retrograde) and lower still the figure of a stag galloping to right. (Page 225, Fig 7.) See also Nos. 69 and 82.

A portion of a bowl decorated with free figures and bearing the stamp of Cinnamus occurs at Camelon. *Proc. Soc. Antiq. Scot.* vol. xxxv. fig. 14. The stamp was noted several times at Bar Hill, and it also occurred at Rough Castle, while at Ardoch a portion of a bowl with a figure of Venus surrounded by a leafy scroll (*Proc. Soc. Antiq. Scot.* vol. xxxii. fig. 3) is probably by this potter. His work is common throughout France and England, but less so on the forts of the German Limes. He belongs to a period of great activity at Lezoux, but also to a time when the potteries on the Rhine had to some extent displaced the wares of the south. In Scotland we must associate his wares with the Antonine occupation.

91. Fragment of a bowl (Dragendorff 37). Egg and tassel moulding. The side of the bowl is covered with a lattice pattern of rope lines. In each diamond-shaped space, a rosette. The decoration is in the style employed by the potter Satto (see Knorr, *Rottweil*, Taf. xvii. 11); probably German. (Page 225, Fig. 8.)

92. Small fragment. A gladiator marching to combat, slight variant of Type Déchelette 586. Lezoux. (Page 225, Fig. 9.)



PLATE XLIV. BOWL OF TERRA SIGILLATA BY CINNAMUS.
Praetentura



93. Bowl (Dragendorff 37), Barrack Block II. Praetentura. Egg and tassel moulding. Decoration in large medallions and panels. Height, 3¼ inches. Diameter, 6¾ inches. The centre figure on the medallions appears on a bowl, bearing the stamp of the potter Divixtus, at Camelon. On the right, an upright panel with a figure of Pan holding his pedum (Déchelette 413). On the left, a panel divided horizontally. In the upper half is a demi-medallion of a bird. In the lower half, an ass. The figure of Pan occurs twice. On the opposite side of the bowl the panel is filled with the figure of a Bestiarius. Lezoux. (Plate XL., Fig. 14.) A fragment very closely resembling part of this bowl, with the same figures of the Bestiarius, bird, and ass, was found at Birrens.

94. Fragment of a bowl (Dragendorff 37). Egg and tassel moulding. Beneath it, figures of animals in 'free' style; in the centre, a female Centaur (Déchelette 431) pursues a boar (Déchelette 824). Beneath, a pigmy. Around it, various animal form. (Page 227, Fig. 1.)

95. Fragment of a bowl (Dragendorff 37). Figure of a man bearing a small shield, or possibly a discus springing to left. Cf. Déchelette 653. (Page 227, Fig. 2.)

96. Fragment of a bowl (Dragendorff 37). The decoration arranged in panels containing small medallions. In a medallion, incomplete figure of a bird to right. Mask of Pan (Déchelette 675) turned to left; below it, three rosettes. Below, a border with long pointed leaves and bunches of foliage arranged in pairs alternately. Stamped below the decorative band, AVENTINI·M. (Page 227; Fig. 3.)

97. Fragment of a bowl (Dragendorff 37). Egg and tassel moulding. Portions of two panels are to be seen in each. In a large medallion the figure of an eagle (Déchelette 981) holds a snake in its beak. In the larger panel a figure of Victory (Déchelette 475) offers a wreath to a nude figure (Déchelette 329); at the foot of Victory lies the head of a captive. Lezoux. (Page 227, Fig. 4.)

98. Fragment of a bottom of bowl (Dragendorff 37), showing on the lower rim the letters IX·F, part of the stamp of Divixtus. (Page 227, Fig. 5.)

99. Fragment of a bowl (Dragendorff 30). Panels alternating with large medallions. (1) On the left, a figure, incomplete, of Apollo seated, holding a lyre; beneath his seat, a dolphin and a lion couchant. (2) In a large medallion, figure of a dancer (Déchelette 220). (3) The design of No. 1 is evidently repeated. (Page 227, Fig. 6.)

Scattered up and down over the fort and its annexes there were picked up many pieces of pottery—about 120 in all—bearing the stamps of potters. Nearly all of the stamps were impressed on the bottom of cups of Dragendorff's Types 27 and 33, or on the platters of Types 18 and 31. In one or two examples of the older decorated bowls the stamp of the potter was placed



inside on the bottom. These must have belonged to the carinated type, and were rare. A few fragments of decorated bowls showed 'a stamp on the exterior, sometimes among the decoration. The name of the potter is frequently followed by F or FEC for *fecit* in which case the name is in the nominative, or by M for *manu*, in which case it is in the genitive, or preceded (or followed) by the letters OF for *officina*, which again requires the genitive. In almost every instance where OF or OFFICINA precedes, we can say that the potter belonged to the first occupation—Rufinus, Vitalis, Frontinus, Sabinus, Masculus, etc. A complete list of the stamps is appended to this chapter; they are reproduced in facsimile and treated in some detail.

The great majority of the stamps occurred only on undecorated ware. The names most frequently met with were AVITVS CINNAMVS and VITALIS, the first of these occurred seven times, the second five times. OFVITA, the stamp of Vitalis, was found six times. BELINICVS and MARCELLVS each occurred three times. A considerable number were found twice. ATTIANVS, AVENTINVS, CINNAMVS, DIVIXTVS, FRONTINVS, and RVFINVS appear on decorated ware. The following stamps can with certainty be attributed to the first century: FRONTINI, OF·SAB, OF·VITA, and the incomplete stamp SILV—all from the ditch of the early fort; DAGO, OF·COTTO, and OF·IVCVN—from Pit LIV; CRVC (doubtless CRVCVRO), from Pit LXI; O·FIRMON, SABINVS F and OF·MASCVLI, from Pit LXXVI; and CRISPI·M and O·SEVERI, from Pit LXXVIII.

To these we may add COSIRV, COCCIL·M, IVLLINI, OF·RVFINI, SECVNDI·OF.

The following may be classed as belonging to the second century: ADVOCISI·O, AVENTINI·M, AVITVS, BANOLVCCI, BELINICI·M, BITVNVS, BORILLI·OF, CARATILLI, CARVSSA, CASSIVS, CESORINI, CINNAMVS, CRACVNA, DIVICATVS, DIVIX·F, DRAVCI, FIRMVS·F, GEMINI·M, IASSVS, MACRINVS, MALLEDO·F, MARCELLI·M, METTI·M, MICCIO·F, PATER·F, PECVLIAR·F, PROBVS·F, QVINTI·M, REGALIS·F, REGINI·M, RVFFI·MA, SECVNDINVS, SENILA·M, SEVERVS, SVOBNI·M, TITTIVS·F, VEGETI·M.

The most important of the makers of decorated ware would appear to have been CINNAMVS. His name occurs not only on bowls of the large

medallion type of decoration, but also on those with wreaths. The stamp of this potter is found, though not at Newstead, on bowls with free decoration. A specimen occurs at Camelon. In addition to the pieces bearing his name, fragments showing his designs are common. Although the great majority of the bowls of CINNAMVS are of the hemispherical form, the cylindrical shape is occasionally met with. The potter DIVIXTVS appears to be a contemporary of CINNAMVS in Scotland, although Déchelette classes him as one of the chief potters of the second Lezoux period, dating from A.D. 80 to 110, while CINNAMVS is relegated to the succeeding period. In Scotland the wares of DIVIXTVS must have come north with the Antonine invasion. Here he appears as a maker of bowls with large medallions. The employment of Caryatidae is a feature of his style. His stamp occurs twice at Newstead—once in the inner ditches of the West Annexe, which must be post-Hadrianic, as a coin of Hadrian was found at the bottom of one of them. The stamp is imperfect, but the decoration of the fragment makes the identification certain. At Camelon the same stamp was found on a medallion vase, also with Caryatidae, and a similar example occurred at Birrens, where there do not appear to be any of the characteristic types of the first century. A good example in the style of this potter was found in the fort at Castlecary.¹ DIVIXTVS was a maker of cylindrical bowls as well as of the hemispherical shape, and in some examples of such bowls found in England hearing his stamp, a rather coarse reproduction of the patterns in vogue at the end of the first century may be noted. This may be seen in the well-preserved specimen of a cylindrical bowl, with metope decoration, preserved in the British Museum, as well as in a fragment of the same type recently discovered at Corbridge.² It is possible that these may belong to a somewhat earlier period of his output than the pieces found further north.

Sometimes in addition to the stamp of the potter, the dishes bore upon them the name of the owner or some simple mark of possession scratched with a knife-point. A few of the names so written are reproduced in Fig. 22. These, with the exception of No. 7, which was inscribed on a dish of coarse ware, were found upon platters of Terra Sigillata. No. 1, the name ATTO is on the earlier form (Dragendorff, Type 18), found in Pit LXXVI with early pottery. The others are scratched upon the later form (Type 31), and therefore probably all of them belong to the second century. No. 2 bears the name DOMITI; No. 3 cannot be deciphered with certainty, SIMVLIANI or

¹ *Proc. Soc. Antiq. Scot.* vol. xxxvii p. 63, Fig. 30.

² *Archaeologia Aeliana*, vol. v. p. 107, fig. 34.

perhaps > CAMILIANI; No. 4, MERCATOR, from Pit LXXXIX. No. 5, SILVINI; No. 6, TITI, from Pit LXXIV. On No. 7 a fragment of the rim of a

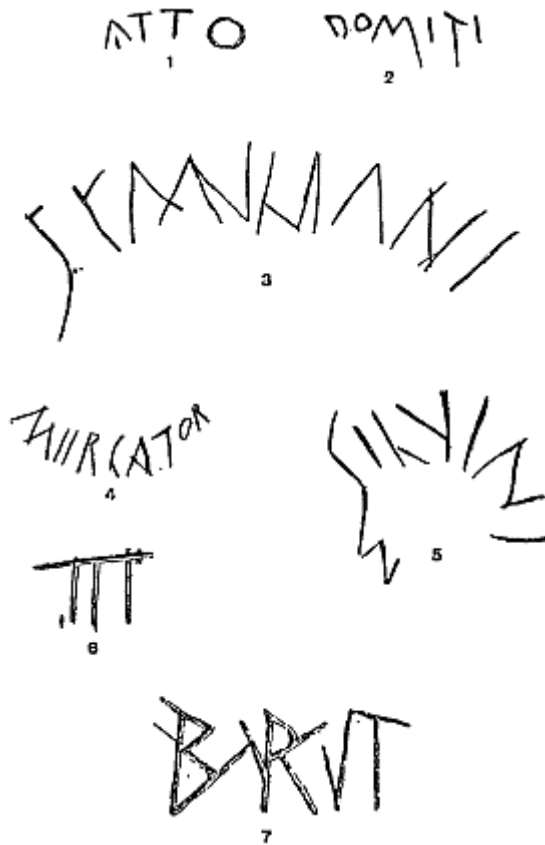


FIG. 22. OWNERS' NAMES
SCRATCHED ON DISHES

shallow bowl of black ware, the letters BRVT. On several dish-bottoms a cross or one or more incisions had been made on the projecting foot-ring to enable the owner the better to identify his property. Before leaving the glazed ware, two specimens call for notice. The first of these is a platter of Type Drag. 31, but made of a fine black glazed ware. The colour is so uniform that it can hardly Terra Sigillata blackened through accidental burning. It bears the stamp **CINT·VGENI** CINT·VGENI. It was found in the Praetentura. The stamp CINT·VGENI occurs on a fragment of Terra Sigillata found in London, now in the British Museum.¹

The second is a small fragment of a dish of whitish-grey ware, bearing on its surface, and particularly on the interior, a very high glaze of an olive green colour. This small fragment is interesting, because it is the

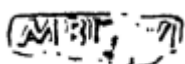
¹ Walters, *Catalogue of the Roman Pottery in the British Museum*, M. 1951.

LIST OF POTTERS' MARK ON TERRA SIGILLATA

The number employed throughout this list to distinguish the several types of dishes are those of Dragendorff



1. [AD]VOCISI O On bottom of a cup, ADVOCISI O. Is found at Silchester on forms of dishes similar to those from Pudding-pan Rock. R. A. Smith, 'List of Potters' Marks on Forms similar to those from Pudding-pan Rock, and approximately contemporary,' *Proceedings of the Society of Antiquaries*, 2nd ser. vol. xxii. p. 407. Second century.



2. AMBI[...]M. On bottom of platter, Type 31. Pit XXVI. South Annexe. Second century.



3. ATTIAN[O]. Retrograde on exterior of fragment of decorated bowl, probably Type 30. Building to west of Baths. Potter of Lezoux, probably of the middle of the second century; the name occurs at Pfunz, and at Weissenburg. Also on the exterior of a decorated Lezoux bowl, Type 37, at Corbridge.


4. AVENTINI M. (See page 227, Fig 3.) On exterior of decorated bowl, Type 37. Fort. The stamp occurs at Pfünz, also at Zugmantel. Potter of Lezoux. Second century.



5. AVENTINI M. On bottom of cup, Type 33. Inner ditch, East Annexe.



6. AVITVS F. On bottom of platter, Type 31. Above first occupation ditch, north side. Occurs at Zugmantel, flourished on the Limes about the time of Pius (Barthel, *O.R.L.* 'Kastell Zugmantel,' p. 119).



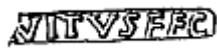
7. AVITVS. On bottom of platter, Type 31. Pit XLIX, in association with the stamps REGINI M, RVFFI·MA and IM [ANNI].



8. AVITVS F. On bottom of platter, Type 31.



9. AVIT[VS]. On fragment of a platter.



10. [A]VITVS FEC. On bottom of a platter. Pit VII. The stamp is surrounded by a circular band of 'engine turned' pattern. It was found in association with the dish, Type 22. The stamp differs from those immediately preceding it, and is probably that of an earlier AVITVS, a potter of La Graufesenque.



11. BANOL[V]CCI. On bottom of platter, Type 31. Pit XCVIII in association with the stamp REGINI·M and late pottery. Second century. The stamp occurs in London, *C.I.L.* viii. 1336, 133. Also at Silchester on a Pudding-pan Rock form, R. A. Smith's 'List of Potters' Marks.'



12. BELINICI M. Retrograde on bottom of cup, Type 33. Pit LXXX. This was a built well. The same stamp occurred with late pottery in Pit CV. It is also found at Bar Hill, and must belong to the second century. The stamp BELINICCVS occurs both at the Saalburg and at Pfünz.



13. [BE] LINICI M. Retrograde on bottom of cup, Type 33.



14. BELLVS F. On bottom of cup, Type 33. stamp occurs at Corbridge, also at Köngen.



15. BITV[NVS]. On bottom of platter, Type 31. Pit LXXXV, in which the pottery was of the later type. The stamp of Bitunus occurs at Pfünz, also at Zugmantel, where he is put down as a potter of Eastern Gaul of the first half of the second century. Barthel, *O.R.L.* 'Kastell Zugmantel,' p. 133.



16. BORILLI OF. On bottom of cup, Type 33. South Annexe. Potter of Lezoux, second century. BORILLI OFFIC occurs at Birrens, and at Camelon, also at Corbridge.



17. BORILLI OF. On bottom of cup, Type 33.



18. CARATIL[LI]. On bottom of cup, Type 33. South Annexe. Potter of Lezoux. Second century. CARATILLI M is found at Pudding-pan Rock. *Proc. Soc. Antiq.* 2nd Ser. vol. xxi. p. 281.



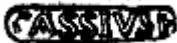
19. CA·RVSS[A]. The stamp occurs in London, Walters, *Catalogue of Roman Pottery*, M. 2069; also at Silchester on Pudding-pan Rock forms, R. A. Smith, 'List of Potters' Marks.'



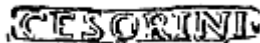
20. [C]A·RVSSA. On fragment of bottom of a dish.



21. CARR[VCA]LVS. On bottom of platter, Type 31. Field on north of Fort. Graffito on bottom DOMITI.



22. CASSIVS F. On bottom of platter, Type 31. Above ditch of early fort. First half second century. The stamp occurs in the ditch of the earthen fort at the Saalburg, also at Zugmantel. It has been suggested that he worked at Heiligenberg. Knorr, *Die verzierten Terra-sigillata-gefässe von Rottweil*, p. 58.



23. CESORINI. On bottom of cup, Type 33. Field on north of Fort. The stamp is no doubt that of CENSORINVS, a potter of Lezoux. Second century. The stamp occurs in both forms at Lezoux and on a number of sites in France. Déchelette, *Vases Céramiques*, vol. i. p. 260.



24. CINNAMI. Retrograde on bowl, Type 37, with large medallions. Barracks Praetentura. Potter of Lezoux. Second century. The stamp occurs at Bar Hill, also at Camelon. The wares of this potter are very widely distributed throughout France and elsewhere in Western Europe. He must have belonged to a period of great activity at Lezoux, and certainly must have been at work in the time of Pius.

25. CINNAMI. (See page 225, Fig. 7.) Retrograde on fragment of bowl, Type 37, large wreath decoration.

26. [CI]NNAMI. (See page 225, Fig. 4.) Retrograde on fragment of bowl, Type 37.

27. [CINNA]MI. (See page 217, Fig. 15.) Retrograde on fragment of bowl, Type 37. Inner ditches, West Annexe. On fragment of bowl, Type 37.

28. [CINNA] MI. (See page 223, Fig. 3.) Retrograde on fragment of bowl, Type 37, Pit XLIX, in association with the stamps REGINI·M, AVITVS and RVFFI·MA.



29. COCCIL·M. On bottom of cup, Type 33. South Annexe. First century. Probably a potter of Banassac,—the stamp occurs on Type 18 at Rottweil. Knorr attributes him to the time of Vespasian. Knorr, *Rottweil*, p. 59.



30. [C]OSIRV. On bottom of platter, Type 18. Probably COSIVS RVFINVS. End of the first century, La Graufesenque. The stamp is to be found in a number of sites dating from the period, such as Novaesium and Wiesbaden.



31. OF COTTO. On fragment. Pit LIV, in association with the stamps DAGO and OF IVCVN. End of first century. It occurs at Caerleon, also at Heddernheim (*C.I.L.* xiii. 678).



32. CRACVNA·F. On fragment. Pit LXXII, in association with the stamps RVFFI·MA, SVOBNI·M and SEVERVS. Second century. The stamp occurs at Castlecary. The potter appears to have worked on the Moselle (Barthel, *O.R.L.* 'Kastell Zugmantel,' p. 136).

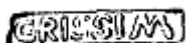


33. CRACV[NA]. On fragment. Inner ditches, West Annexe.



34. [C]RISPI·M. On bottom of cup, Type 33. Pit LXXVIII, in association with the stamps IVLII

and O·SEVERI, and early pottery. This stamp is no doubt that of the potter CRISPVS, which occurs at Novaesium, and also probably at Hofheim. First century.



35. CRISSI M. On bottom of a cup CRISSI O occurs at Zugmantel, also at Rheinabern. Ludowici, *Urnen-Gräber*, p. 156.

36. CRVC[VRO]. (See page 213, Fig. 5.) On fragment of bowl, Type 37. Pit LXI. First century. The stamp occurs at Rottweil. Knorr (Taf. xi. 1 and 2) suggests that he is probably a potter of Banassac, of the time of Vespasian.



37. CVCCILL M. On fragment.



38. CVDI·M. On bottom of platter, Type 31. Baths.



39. DAGO. probably DAGOMARVS. On bottom of cup, Type 27. Pit LIV. For association see OF COTTO *supra*. First century. The stamp occurs on a cup of the same type found in London, Walters, *Catalogue of Roman Pottery*, M. 1631. DAGOMARVS occurs at Wiesbaden, at Ober-Florstadt, and also on dishes of Form 18 found in London. Probably Lezoux.



40. DIVICATVS. On bottom of cup, Type 27 or 33. Retentura. The stamp occurs at Bar Hill and at Corbridge, also at Silchester on a Pudding-pan Rock form (R. A. Smith, 'List of Potters' Marks'). Second century.

41. [D]IVIX. F. (See page 227, Fig. 3.) On exterior fragment of decorated bowl, Type 37. Potter of Lezoux. Second century. He must have been working as late as the Antonine period. DIVIX. F. occurs at Camelon [DIV]IX. F. at Birrens, also at Corbridge, South Shields, Silchester and London.

42. [DIVI]X. F. (See page 221, Fig. 3.) On exterior fragment of decorated bowl, Type 37. Inner ditches, West Annexe.



43. DRAVCI. On bottom of cup, Type 33. Inner ditch, East Annexe. Probably Gaulish, of the second century. The stamp occurs at Corbridge and on various sites in France and Holland. *C.I.L.* xiii. 111. 100010, 820.



44. O-FIRMON. On bottom of platter, Type 18. Pit LXXVI, in association with the stamps OF·MASCVLI and SABINVS·F. First century.



45. FIRMVS·F. On bottom of cup, Type 33. Probably Rheinzabern. The stamp occurs at Zugmantel and on the outer Limes at Öhringen; it is therefore of the second century.

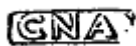
46. FRONTINI. (See page 209, Fig. 4.) On side of decorated bowl, Type 37. Ditch of the early fort. Potter of La Graufesenque. First century. The stamp occurs at Rottweil, and is there assigned to the period from Vespasian to Domitian. Knorr, *Rottweil* p. 60.



47. OF FRONTINI. On bottom of a platter. No doubt the same potter as the immediately preceding. In this form the stamp occurs at Novaesium. It also occurs in Spain (*C.I.L.* ii. 204 c).



48. GEMINI·M. On bottom of cup, Type 33, Pit XCV, in association with a coin of Trajan. Second century.



49. GNA[TIVS]. On bottom of platter, Type 31. Graffito on outside (Fig. 23 *supra*, No. 3). The stamp GNATIVS occurs at Cirencester, also at York.



50. IANVARIS. On bottom of a platter. Probably a potter of La Graufesenque. First century. The stamp IANVARIVS occurs at Novaesium.



51. IASS[VS] F. On bottom of platter, Type 31. Graffito on outside the period EBVRI·F... IASSVS belongs to of the outer Limes forts in the second

century. The stamp is found at Öhringen and Mainhardt, Zugmantel and Cannstatt. He appears to have worked at Rheinzabern.



52. OF IVCVN. On bottom of cup, Type 27. Pit LIV, for association see OF COTTO *supra*. A potter of La Graufesenque. The stamp occurs in Spain (*C.I.L.* ii. 243), and at Novaesium. IVCVNDVS occurs at Hofheim. The stamp OF IVCVN is common at Rottweil. He would appear to have been working as early as the reign of Vespasian.



53. IVLII.? On the bottom of cup, Type 27. Pit LXXVIII, for association see CRISPI·M *supra*. First century. The stamp is poorly impressed.



54. IVLLINI. On bottom of platter, Type 18. Pit LVII. Baths. Probably a potter of Lezoux. End of the first or early second century.



55. MACRIA. On bottom of cup, Type 33. The stamp occurs at Pfünz. Second century.



56. MALLEDO. F. On bottom of cup, Type 33. MALLEDV·F occurs at Colchester on a Pudding-pan Rock form. R. A. Smith, 'List of Potters' Marks.' Second century.



57. MAMMI. On bottom of a cup. Potter of Lezoux. The name is probably MAMMILIVS. The stamp occurs at Corbridge and at Camelon.



58. MARCELLI M. On bottom of platter, Type 31. South Annexe. Potter of the period of the outer Limes. Occurs at Öhringen. Second century.



59. MARCELLI M. On bottom of platter, Type 31. Pit LXXIV.



60. MARCELL[I]. On bottom of platter, Type 31. South Annexe.

61. MARC. On bottom of a platter, Type 31. Inner ditch, East Annexe.

62. OF MASC VLI. On bottom of a platter, Type 18, Pit LXXVI, for association see O·FIRMON supra. For many examples of the stamp of this potter from early sites see *Bonner Jahrbücher*, xcvi. and xcvi. 963. Rutenian, possibly Banassac. First century.

63. MATTI·M. On bottom of cup, Type 33. South Annexe.

64. METTI·M. On bottom of a cup. The stamp is found in the ditch of the early earthen fort at the Saalburg. This potter must therefore have been working in the second century before A.D. 139.

65. METTI·M. On bottom of a large bowl.

66. M[ICCI]O·F. On bottom of platter, Type 31. Early second century. The stamp MICCIO is in the ditch of the earthen fort at the Saalburg, also on the outer Limes at Miltenberg and Osterburken, as well as at Zugmantel.

67. MIMO. On fragment of dish of uncertain form.

68. OPIL.... On bottom of a dish, probably Type 31.

69. PATER·F. On bottom of cup, Type 33. East Annexe. Early second century. The stamp occurs in the ditch of the earthen fort at the Saalburg, also at Séron with coins of Hadrian. *Annales de Namur*, iv. p. 13.

70. PATRICIVS·F. On bottom of dish, probably Type 31. South Annexe, also at Corbridge.

71. PAT.... On bottom of cup, Type 27.

72. PECVLIAR·F. On bottom of cup, Type 33. Probably Antonine. The stamp occurs at Corbridge on Tyne, also at Camelon and Bar Hill.

73. PRIMIGENI·M. On bottom of platter, Type 31.

74. PROBVS·F. On bottom of cup, Type 33. Pit I, Principia.



A potter of the second century, probably Rheinzabern. Found at Osterburken on the outer Limes, also at Pfünz and Zugmantel. Barthel, *O.R.L.* 'Kastell Zugmantel,' p. 145. The stamp also occurs at Corbridge.



75. Q. IV... On bottom of bowl, form uncertain but probably Type 29. Ditch of early fort.



76. QVINTI·M. On fragment of dish. South Annexe. A similar stamp has been found at Pudding-pan Rock, also at Corbridge. Second century.



77. QVINT. On fragment of a dish.



78. Q·V·O. On bottom of a cup, Type 27. South Annexe.



79. REGALIS·F. On bottom of a platter, Type 31. Second century, probably Rheinzabern. Found on the outer Limes forts at Walldürn and in the east fort of Welzheim dating from Commodus, also at Pfünz in a grave with a coin of the elder Faustina, also at Zugmantel, Gross Krotzenburg and Buch. Barthel, *O.R.L.* 'Kastell Zugmantel,' p. 146.

80. REGINI. M. On bottom of a platter, Type 31. Pit XLIX. South Annexe, for association see [CINNA]MI *supra*.

Second century. Probably between the years A.D. 130 and 170. The stamp occurs in the ditch of the earthen fort at the Saalburg, and on the outer Limes at Osterburken. Reginus appears to have worked at Heiligenberg, Rheinzabern and Kraherwald. See Barthel, *O.R.L.* 'Kastell Zugmantel,' p. 124. The same stamp also occurred on bottom of a cup, Type 33, in Pit XCVIII, in association with the stamp BANOL[V]CCI.



81. RIIGNI. On bottom of small vessel.

82. RVFFI·MA. On bottom of platter, Type 31. Pit LXXII, for association see CRACVNA *supra*. The stamp RUFFI·MA occurs at Cappuck. Probably Antonine.

83. [RV]FFI MA. On bottom of cup, Type 27. Pit XLIX. South Annexe, for association see AVITVS *supra*.

84. OF RVFINI. On bottom of a decorated bowl, Type 29. Retentura. Potter of La Graufesenque. First century. His stamp occurs at Hofheim, also in Spain. *C.I.L.* ii. 490. He must have been working as early as the time of Vespasian.

85. OF RVE. On small fragment. Block XIII.

86. SABINVS F. On bottom of platter, Type Plate XXXIX., Fig. 2. Pit LXXVI, for association see O·FIRMON *supra*. End of first century.

87. OF SAB. On bottom of a platter, Type Plate XXXIX., Fig. 2. Ditch of the early fort. Potter of La Graufesenque. First century. SABINVS is among the potters whose wares are found at Pompeii. The stamp is also found in Spain. *C.I.L.* ii. 450.

88. [S]ACIRO·F. On bottom of platter, Type 31. Probably second century. SACIRO is found at Zugmantel, at Marienfels and Schlossau.

89. SAMILLI·M. On bottom of cup, Type 33. Pit XLII. South Annexe, probably Antonine.

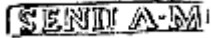
90. SECVNDI OF. On bottom of a cup.

Potter of the first century. La Graufesenque. The stamp is found at Hofheim. Secundus was probably working as early as the time of Vespasian. His stamp occurs at Rottweil.

91. [OF S]ECVN. Retrograde. On bottom of a cup.

92. SECVNDINVS. On fragment of dish of uncertain form. Baths. Potter of Lezoux. First half of the


second century. The stamp occurs on the outer Limes at Osterburken. The stamp SECVNDINI·M. is found in the ditch of the earthen fort at the Saalburg.



93. SENILA·M. On bottom of a cup, Type 33. The stamp occurs in London and at Suchester on Pudding-pan Rock forms. R. A. Smith, 'List of Potters' Marks.' Second century.



94. O SEVER [I]. On bottom of a platter, Type 18. Pit LXXVIII. For association see CRISPI M *supra*. Potter of the first century. OF SEVER. occurs at Rottweil, where it is classified as probably from La Graufesenque of the time of Vespasian. Knorr, *Rottweil*, p. 66. The stamp also occurs at Novaesium.



95. SEVERVS. On bottom of a cup, Type 33. Pit LXXII. Probably Antonine. For association see CRACVNA·F *supra*.



96. SI[LV]ANI. On bottom of a platter, Type 18.



97. SIL[VA NI]. On bottom of a platter, Type 18. Ditch of the early fort. First century. The stamps of SILVANVS and SILVINVS occur at Rottweil, where both are attributed to potters of La Graufesenque of the time of Vespasian. Knorr, *Rottweil*, p. 66.



98. SVOBNI·M. On bottom of platter, Type 31. Pit LXXII. Second century, probably Antonine. For association see CRACVNA·F *supra*.



99. SVOB. On bottom of cup, Type 27. The stamp SVOBNILLVS occurs on a dish in the British Museum, Walters, *Catalogue of Roman Pottery*, M. 2178. SVOBNEDOF occurs on a Pudding pan Rock form at Colchester (R. A. Smith, 'List of Potters' Marks'), also at Corbridge.



100. TITTIVS F. Fragment of dish, form uncertain. East Annexe. The stamp TITTIVS occurs on a Pudding pan Rock form in the British Museum. R. A. Smith, 'List of Potters' Marks.'



101. TIT OFFIC. On bottom of cup, Type 33. Baths.



102. TVLLVS F. On bottom of cup, Type 33.



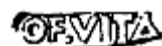
103. TVLLVS F. On bottom of cup, Type 33.



104. VEGETI·M. On bottom of a cup. Filling of inner ditches, West Annexe. Potter of Lezoux. Second century.



105. VESPONI. On bottom of cup, Type 33. Baths. The stamp occurs at Cannstatt, where it is attributed to a Gaulish potter of the first half of the second century.



106. OF VITA. On bottom of a platter, Type [Plate XXXIX, Fig. 2](#). Ditch of the early fort. First century. Potter of La Graufesenque. The stamp VITALI occurs at Hofheim, from which it would appear that he was working as early as the reign of Vespasian, OF VITA at Novaesium and at Rottweil.



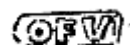
107. OF VITA. On bottom of platter, Type 18. Pit LVI.



108. OF VITA. On fragment. Block XIII.



109. OF VITAL. On bottom of platter, Type 18. Pit LXI.



110. OF V[ITA]. On bottom of platter, Type 18. Pit XVII.



111. OF V[ITA]. On bottom of cup, Type 27. South Annexe.



112. A Palm Branch. On bottom of a platter, Type 33. The stamp was noted more than once; it probably belonged to the second century.



113. A Rosette. On bottom of the platter, [Plate XL, Fig. 23](#). The stamp occurs upon dishes of the same type in the Plique Collection in the Museum of St. Germain-en-Laye. Lezoux. Second century.

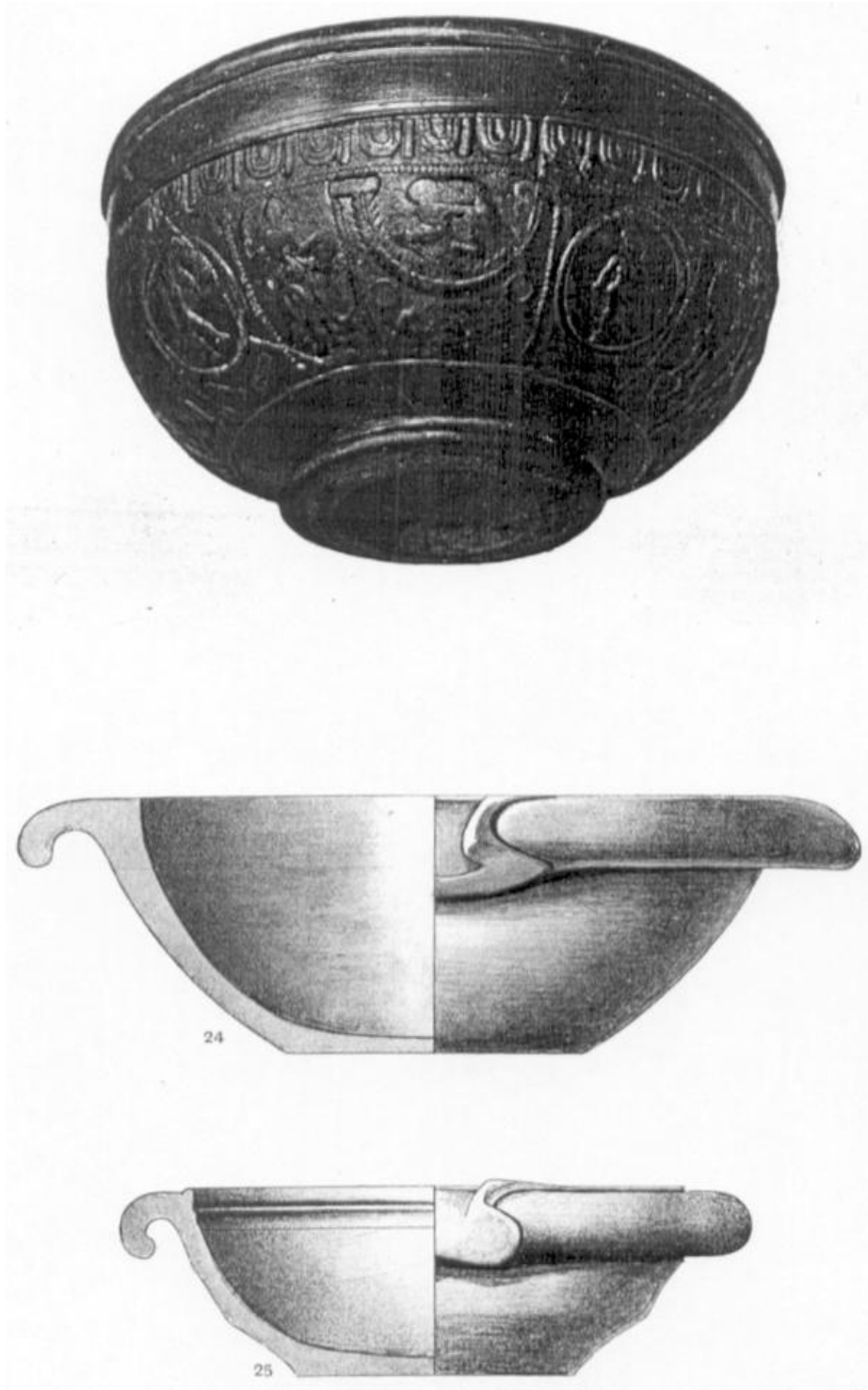


PLATE XLV. BOWL OF TERRA SIGILLATA, PIT XL; TYPES OF MORTARIA

CHAPTER XII

Unglazed Pottery, Glass Vessels of Bronze

THE unglazed vessels, exhibiting as they do a much greater diversity of form, colour and material, are more difficult to classify than those of Terra Sigillata. While not a few of them are made of fine ware, the majority are of coarse material and must have served as water jars and vessels for storage or culinary purposes. The varieties employed doubtless come from many sources, and as yet we know too little of Roman provincial ceramics to group them according to potteries. Of the recognised British groups, some of the black ware probably comes from Upchurch, while the Castor or Durobrivian ware also occurs more or less frequently. The distinct type known as New Forest ware is not represented in the collection, nor can we with confidence allot many, if indeed any, of the fragments to definite continental groups. On the whole, therefore, it has seemed best to classify the unglazed vessels according to their shapes, dealing first in each category with those which, from the place where they were discovered, or from other indications, may be considered as belonging to the early period. Speaking generally, the vessels of coarse ware of this period exhibit distinct characteristics which separate them from those of the later period, suggesting that they were for the most part drawn from different sources of supply.

Very few of the vessels illustrated were found complete. Usually they were scattered in fragments among the soil or at the bottom of pits and ditches, when it was only by patient and often long-continued search that the pieces were recovered. In many cases the fragments were insufficient to admit of the whole being reconstructed, and one or two examples which represent distinct types have been reproduced in outline with the help of specimens found elsewhere. As in the case of the Terra Sigillata, a series of sectional drawings are given illustrating some of the more typical forms (Plates XLV., XLVI., XLVII. and XLVIII.). Practically all these types can be assigned with some

certainty to the early or to the later period. The actual vessels found are also shown in , L. and LII.¹

URNS, COOKING-POTS, BEAKERS, BOWLS AND PLATES

I. EARLY, APPROXIMATELY FLAVIAN, POTTERY

Early Pottery. Types 26 to 39

The largest class of vessels of thinner ware may be described generally as urns. They are of ovoid form with slightly bulging sides, narrowing somewhat to the mouth, and are rarely furnished with handles. To this shape belong many which were probably used either as water jars, or for cooking, or as drinking cups. The term 'Urns' may conveniently be reserved for the larger among them, those of medium size and comparatively thick material being classed as 'Cooking-Pots,' while the smaller and finer types may be called 'Beakers.' The term 'Bowl' is employed to describe those vessels in which the orifice is not contracted as it is in the preceding group, while under the word 'Plate' are grouped the shallower vessels of this class, together with a few specimens which are closely akin to the modern saucer. Urns, cooking-pots and beakers, bowls and plates, all occur in many different colours. Black ware on the whole predominates, but there are specimens of grey, of yellow, of brown and of pinkish red.

I. URNS Type 38

Plate XLVII., Type 38, also Plate XLIX. (A), Fig. 1. The largest specimen of this class measures 11¼ inches in height. It is made of thin black material, having in places a slightly metallic appearance on the surface. Round the upper part of the shoulder is a narrow band of lattice pattern executed with a broad point on the wet clay. The vessel belongs to the early period; it came from Pit XVI. A small portion of the rim of a similar vessel came from the ditch of the early fort, and a larger fragment from the early outer ditches of the West Annexe (Fig. 25, No.15). In the specimen last mentioned the band of lattice work round the shoulder, though somewhat faintly executed, is still quite visible.

Type 35

Plate XLVII., Type 35, also Plate XLIX. (B), Fig. 5. This vessel measures 9⅞ inches in height. It is 4 inches in diameter at the mouth, and is of close-textured grey ware with a smooth surface. On either side of the neck is placed a handle, while midway between these handles on either side there is fixed a small spout-like attachment.

¹ The numbers employed throughout this chapter to distinguish the several types of unglazed ware—24 to 49—correspond with the figures in Plates XLV., XLVI., XLVII. and XLVIII.

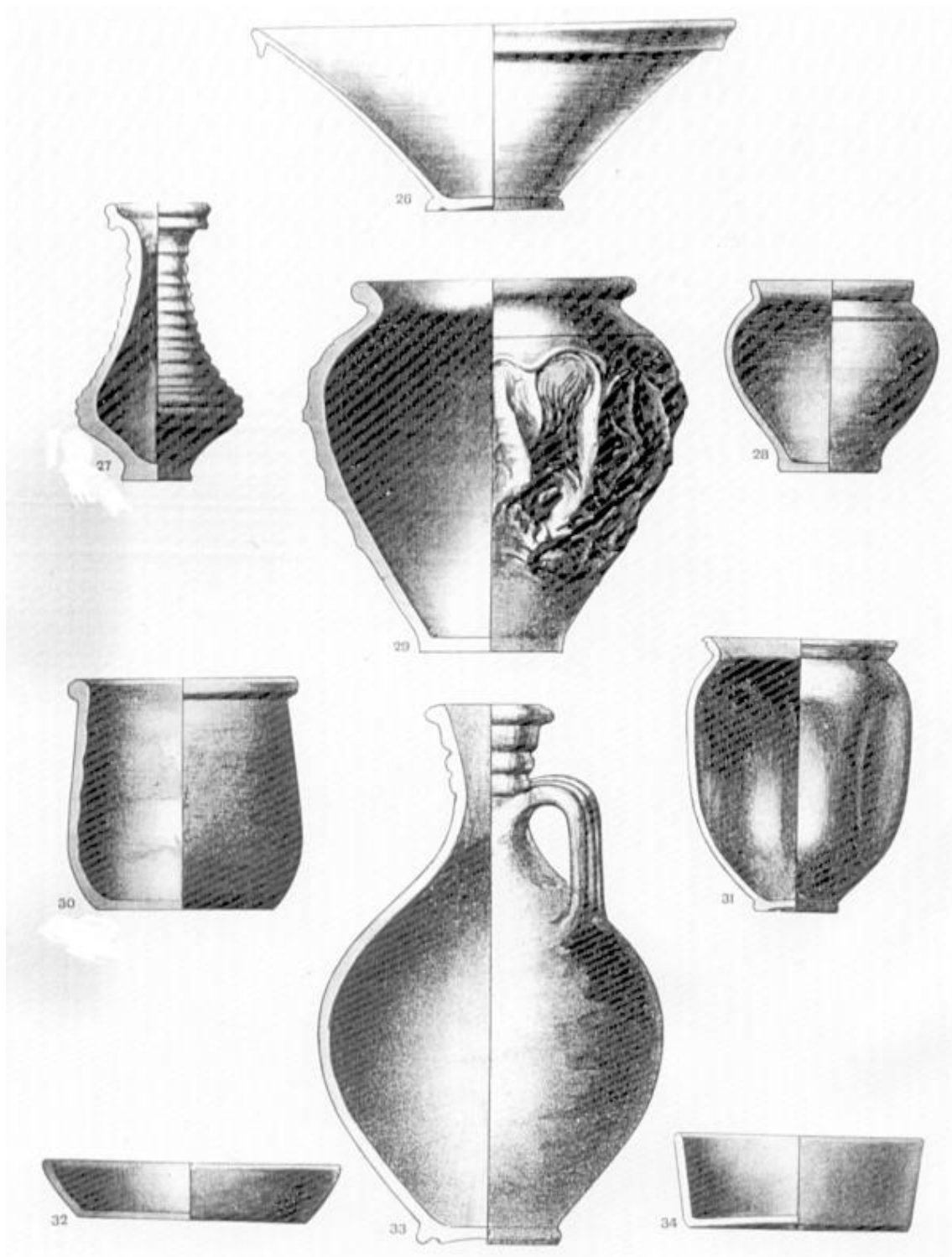


PLATE XLVI. TYPES OF VESSELS, UNGLAZED WARE.

The attachments are hollow in the upper part, but become solid at the base, so that they do not communicate with the interior. The Vessel came from Pit LXXVI, where it was found unbroken with three vessels of Terra Sigillata. Its early character is proved not only by the shapes and quality of the Terra Sigillata with which it was associated, but also by the occurrence in the pit of ware bearing the stamps $\overline{\text{O}}\cdot\text{FIRMON}$, $\text{OF}\cdot\text{MASCVLI}$, and $\text{SABINVS}\cdot\text{F}$, all of which have been met with on early sites. The small spout-like attachments are unusual. Spouts, two or three in number, somewhat larger in size have been met with on the rims of vessels on the German Limes; these are usually of the type known as the *Gesichtsurne*, so-called from a grotesque human face moulded in relief upon the side, but the actual purpose for which such vessels were employed appears to be uncertain. Specimens may be noted at Cannstatt, Holzhausen, Walheim, Faimingen and Rheinzabern.¹

The fragment here illustrated (Fig. 23) belongs to a large urn of somewhat coarse hard material of a pinkish-red colour. The diameter at the mouth must have been about $7\frac{3}{4}$ inches. Its flat rim, about $1\frac{1}{4}$ inches in width, is peculiar.

The fragment came from the ditch of the early fort, and should therefore belong to the first century. This is confirmed by the occurrence of a few pieces of similar urns at Hofheim.² Professor Ritterling notes that such vessels occur sporadically towards the



FIG. 23.



FIG. 24

end of the first century, and that they were in use during the Flavian period at all events. Only one fragment was found at Newstead. The illustration of the complete vessel here given (Fig. 24) is from a specimen in the Provincial Museum of Trier.

1 *Der Obergermanisch-Raetische Limes* Lief. 28, Kastell Cannstatt, Taf. vi. Fig. 8. *Ibid.* Lief. 22, Kastell Holzhausen, Taf. V. Fig. 22. *Ibid.* Lief. 8, Kastell Walheim, Taf. iii. Fig. 16. *Ibid.* No. 66, c, Kastell Faimingen, Taf. xi. Fig. 34. Ludowici, *Urnen-Gräber in Rheinzabern*, p. 260, Fig. u, 18.

2 Ritterling, *Das frühromische Lager bei Hofheim*, p. 92, Fig. 47.

2. COOKING-POTS

No complete specimen of the early type of cooking-pot was recovered from the ditch of the early fort, but it yielded a number of fragments of the rims of such vessels, which are given in section in Fig. 25 (Nos. 1, 2, 3 and 5). With these are grouped the outlines of a number of fragments of similar

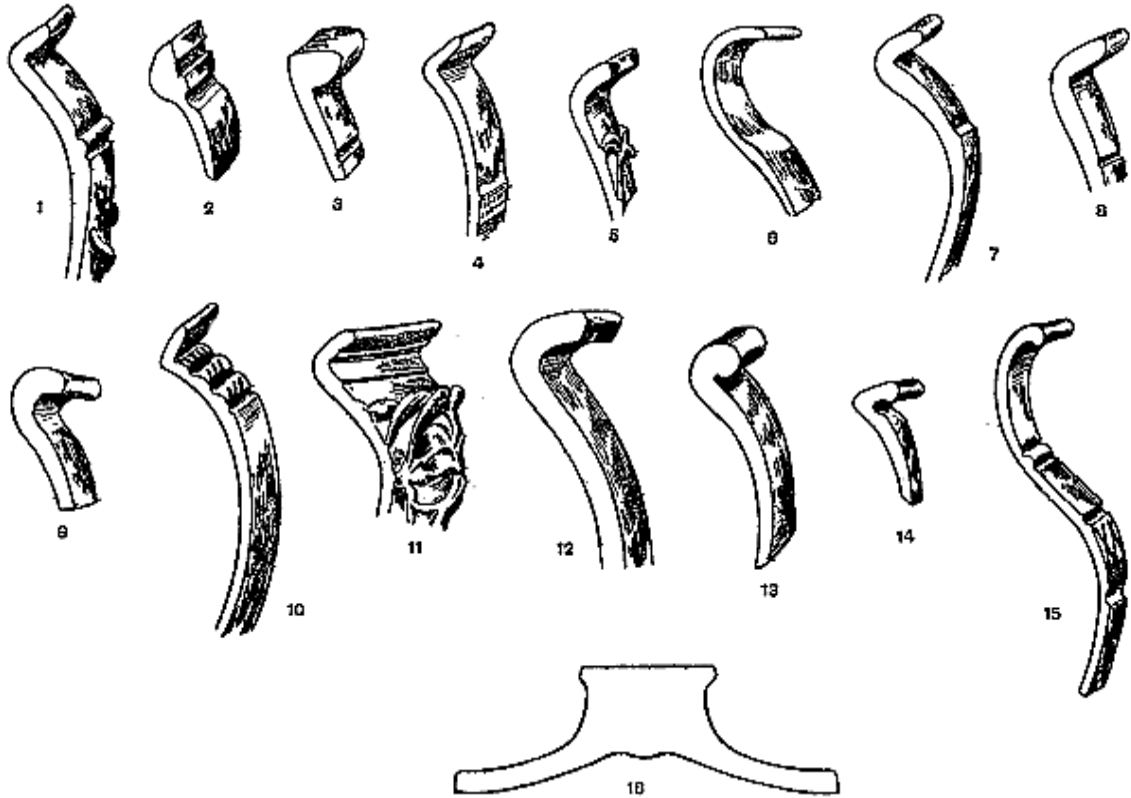


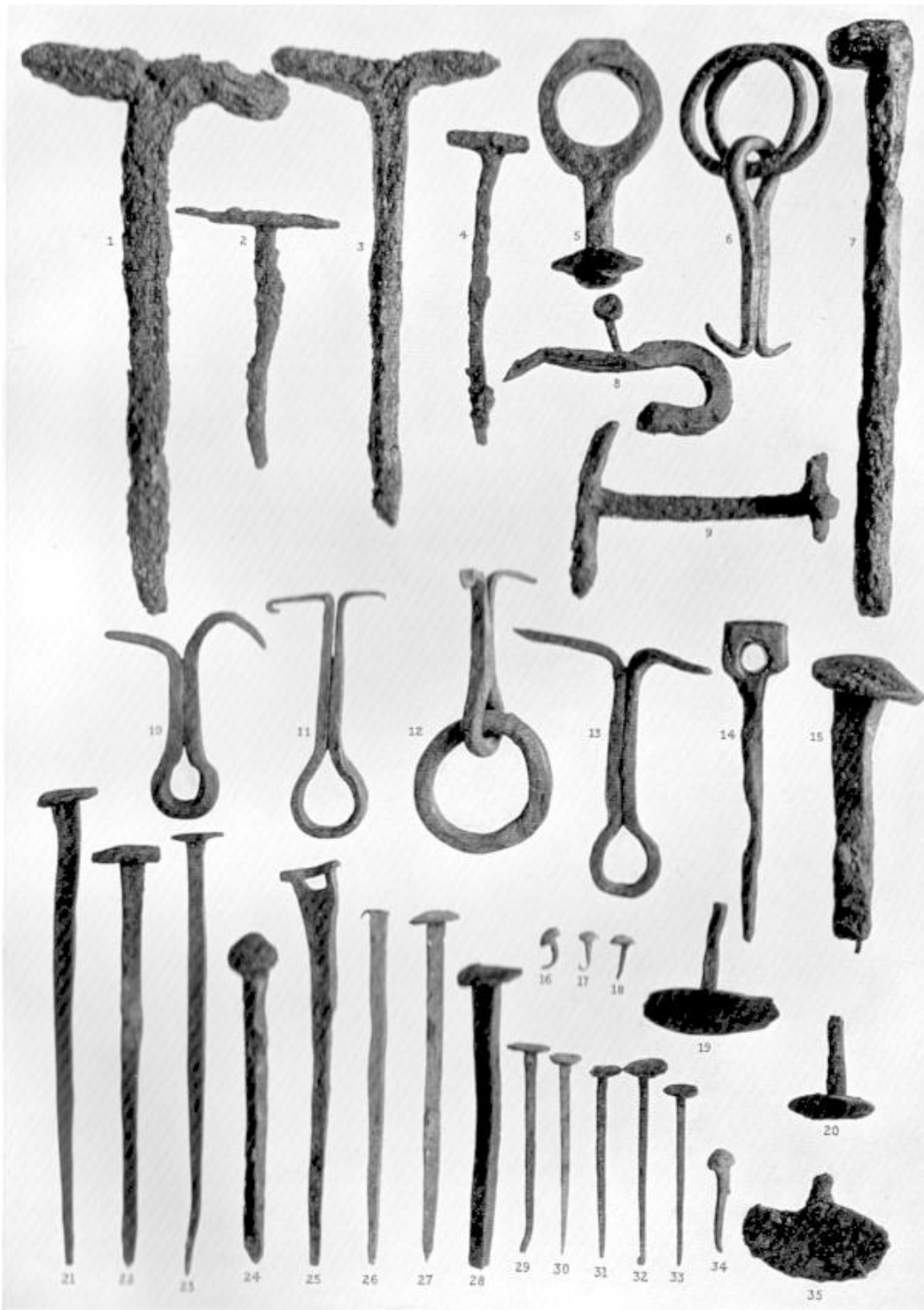
FIG. 25. SECTIONS OF RIMS OF COOKING-POTS AND BEAKERS
 NOS. 1, 2, 3, 4, 5 AND 6, DITCH OF THE EARLY FORT. NOS. 7 AND 8, PIT LIV.
 NO. 9, PIT LVIII. NO. 10, PIT LIX. NO. 11, PIT LXIII. NOS. 12, 13, 14 AND 16, PIT
 LXV. NO. 15, OUTER DITCHES, WEST ANNEXE

vessels from early pits (Nos. LIV, LVIII, LIX, LXIII, and LXV). With the exception of No. 6, which, with Nos. 4, 10 and 14, belongs rather to the category of beakers, all show a considerable similarity in outline. The rim is short and compact, and its general outline differs markedly from the rims of the cooking-pots taken from the later pits and ditches. The material is in nearly every case close and hard-baked. There are considerable differences in colour, and in some there is a slight element of decoration.

PLATE LXVII. HOLDFASTS AND NAILS

	PAGE
1, 2, 3 and 4. T-shaped clamps employed for fastening tiles against a wall. Baths.	289
5. Bolt with loop for attaching to woodwork. Pit LV.	289
6. Loop with ring for attaching to woodwork. Pit LV.	289
7. Bolt.	289
8. Hook.	289
9. Tie.	289
10 to 13. Loops for attaching to woodwork.	289
14. Pin with perforated head.	289
15. Bolt. Pit LVII.	289
16, 17 and 18. Shoe nails.	289
19, 20 and 35. Flat-headed iron studs.	289
21 to 34. Nails of different patterns.	289

All the objects figured are of iron.



Nos. 2, 3, 5, 9, 11, 13 and 14 are grey, 8 is red and 4 and 12 are buff, the last being furnished with a lid (No. 16). The remainder are black. Nos. 1, 5 and 11 are distinguished from the rest by the treatment of the surface. After the bowls had been turned on the wheel and to some extent hardened, there had been applied to the sides a dressing of clay, usually moulded, so as to produce the effect of a layer of strong spiny leaves. It is probable that the object of this device was more to prevent the vessel slipping than to decorate it. For want of a better name, pottery so treated is here referred to as 'rustic ware.' Plate XLVI., Type 29, also Plate XLIX. (A), Fig. 3, reproduces a specimen found in Pit LXIII. It is black in colour and of hard and close texture. The height is 7¼ inches, and the diameter at the mouth 4½ inches. The vessel is to some extent restored.

Type 29

Rustic ware appears to be characteristic of the first century occupation of the fort. It was never found upon the surface nor in association with the later types of Terra Sigillata. On the other hand, it occurred in the ditch of the early fort, and beneath the clay of the later rampart filling the ditch. A specimen came from the bottom of the overlapping ditch on the north side, and also from that on the west side. Others were recovered from Pits XVI (Plate LI., Fig. 2), LIV, LVIII (Plate XLIX. (A), Fig. 3), LXIII (Plate LI., Fig. 1) and CII. The first of these pits contained no Terra Sigillata at all. In each of the remaining four the pottery was of an unmistakably early character. One example was of a yellow colour, while the others were either grey or black. As a rule, the band of rough decoration is about 4 inches wide, the lower part of the vessel being quite plain.

A similar method of treatment is to be seen on the small cups, often of a brown colour, which come from sites on the Rhine, dating from the early first century. The material of these, however, is very fine and thin. The rustic ware would seem to be purely British. It is common at York, where the Museum possesses a number of specimens. A complete cooking-pot from Lincoln is now in the British Museum. A vessel with a raised surface analogous in its technique is at Carlisle. Recently the ware has been met with in association with first-century pottery at Corbridge. On the other hand, it seems to be unknown in the south. It does not occur at Silchester or Colchester, nor apparently in the kilns of Northampton or Kent. The inference is that it was probably produced in the North of England.

Type 36

Plate XLVII., Type 36, also Plate XLIX. (A), Fig. 5, is a cooking-pot of yellow-brown colour, hard-baked, of medium fineness (height 6 inches, diameter of opening at mouth $3\frac{7}{8}$ inches). It came from Pit XI, where it was found in association with a flat saucer-like platter, the interior of which was coloured with a thin pink slip (Plate L. (B), Fig. 8). There was nothing in the position of this pit to fix its period. But the quality of the ware—a specimen of which is also to be noted from Pit LIV—and the outline of the rim, which is not found in similar vessels from the later pits, together with the characteristics of the dish found in association with it, appear to justify its being allotted to the earlier period, and it has been figured as the type of the early cooking-pot. Before leaving these vessels, it may be noted that they were much less common in the early pits than was the corresponding dish in the later series. It is probable that in an expeditionary force metal cooking-pots were more commonly employed than those of earthenware. That it was so at Newstead is perhaps borne out by the fact that all the metal cooking-pots found came, with possibly one exception, from the early pits or ditches.

3. BEAKERS

The ditch of the early fort produced one example of this type sufficiently complete to permit of its restoration (Plate XLIX. (A), Fig. 9). It is a vessel of a hard reddish-brown ware, 5 inches high. The surface is roughened by the application of small particles of pottery. The interior shows a metallic lustre. Fragments of two other beakers from the same ditch must also be noted. The first is of fine buff-coloured ware (Fig. 25, No. 4), showing some traces of a band of decoration produced by slight indentation of the surface. The other (Fig. 25, No. 7) is of fine, thin, black ware, highly polished on the exterior. The same texture, colour and surface were observed in a beaker from Pit LIX (Fig. 25, No. 10). This vessel was decorated by three lines of moulding round the shoulder, the surface of each broken by a series of vertical incisions (see also LI., Fig. 5).

Type 31

Plate XLVI., Type 31, also Plate XLIX. (B), Fig. 6, is a beaker of thin, hard, grey ware, with vertical depressions in the sides. Its height is $5\frac{1}{4}$ inches, diameter of opening at mouth $3\frac{1}{2}$ inches. The whole surface is granulated. It has been suggested that such vessels were specially designed to contain unguents, the roughened surface making it more easy for oily fingers to hold them. The interior shows a metallic glaze.

Type 28

Plate XLVI., Type 28, also Plate XLIX. (A), Fig. 4. Beaker of somewhat coarse, pale orange-red ware. Height, $3\frac{7}{8}$ inches. At the mouth it has a diameter of 3 inches, contracted at the bottom to 2 inches. The pear-shaped outline and upright rim are possibly indications of its descent from earlier Celtic types. It was found in Pit IX, which, as it lay beneath the east wall of Block XIV, must belong to the first century.

Plate XLIX. (A), Fig. 7. Beaker. Height $4\frac{3}{4}$ inches, diameter at the mouth $2\frac{7}{8}$ inches. The vessel is of a grey ware, somewhat soft in texture, with a black surface. This has the same pear-shaped outline that was noted in the last specimen. It came from Pit LXV, where it lay between a denarius of Galba and a denarius of the Republican period.¹ The pit also contained some small fragments of early Terra Sigillata, and may safely be attributed to the first century.

Plate L. (A), Fig. 4. Beaker of pale buff ware rather fine in quality. Height about 5 inches, diameter $3\frac{1}{4}$ inches. Round the side is a band of ornament $1\frac{3}{8}$ inches wide, composed of vertical lines produced by applying the wheel. Fragments closely approaching the material of this vessel and having the same decoration came from the ditch of the early fort. The period is uncertain, but it is probably of early date.

4. BOWLS

Type 37

A common type in the ditch of the early fort and the pits of the early period was a small bowl with a flat rim more or less rectangular in section (Plate XLVII., Type 37). The type was represented only by fragments; but it is here illustrated with the help of a specimen from Trier. The outlines of a number of rims are also given in Fig. 26. Of the fragments found, the best (No. 1) is of a hard-baked reddish-brown ware, showing traces of fire on the outside. It came from the ditch of the early fort, and indicates a vessel with an opening of about $5\frac{5}{8}$ inches in diameter, having a bulging side which narrows somewhat rapidly to a solid footstand. Two horizontal lines are usually drawn round the body. The vessel was also made in coarse, strong, grey ware as well as in a very light, thin, brown ware (Nos. 12 and 13). Both of these are from Pit LXV. Nos. 1, 2, 3, 4 and 5 came from the ditch of the early fort. Other examples are from Pits LIV, LVII and LX. The form was never associated with later second-century finds. On the Continent it has been found at Wiesbaden,² and it

1 Gens Cordia, B.C. 46.

2 Ritterling, *Das Kastell Wiesbaden*, Taf. xiii. Fig. 27.

probably remained in use for a considerable time. There is reason to believe that, at Newstead, continental types were more common in the early than in the later period. This would be most naturally explained by supposing

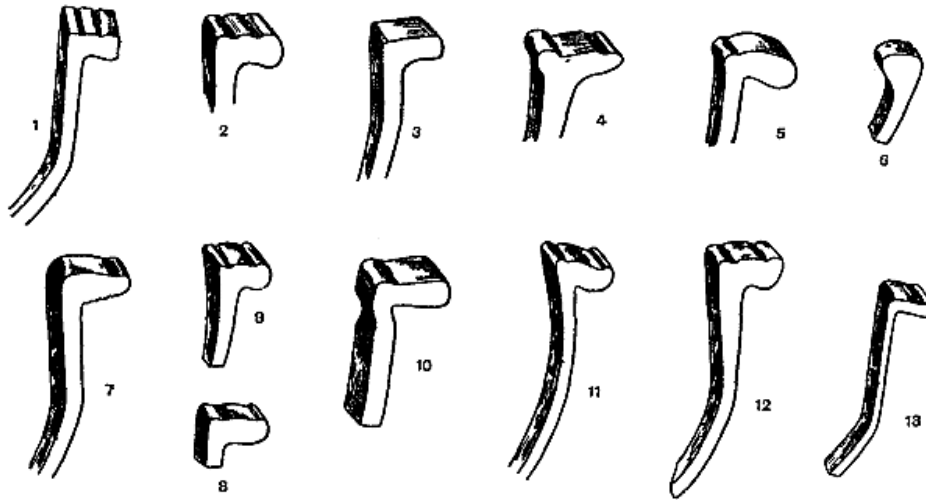


FIG. 26. SECTIONS OF RIMS OF BOWLS

NOS. 1, 2, 3, 4 AND 5, DITCH OF THE EARLY FORT. NOS. 6, 7 AND 8, PIT LIV.
NOS. 9 AND 10, PIT LVII. NO. 11, PIT LX. NOS. 12 AND 13, PIT LXV

that in the Antonine period, with more settled conditions, the bulk of the coarse ware used would be supplied by potteries established in Britain.

Type 26

Plate XLVI., Type 26. Bowl of fine hard-textured grey ware. Height about 3½ inches. This type is illustrated from the incomplete fragments of a single bowl found with early vessels in Pit LXXVIII. The outline of the bowl expanding from a comparatively small foot-stand is graceful, as is also the curve of the overhanging rim. The same type is illustrated among the finds at Gellygaer,¹ where several specimens in red ware and one in 'dingy black ware' were found. The type of vessel is certainly not of common occurrence, if indeed it is to be met with, on the Rhine.

Type 39

Plate XLVIII., Type 39. Shallow bowl of hard fine-textured yellow-grey ware. Height 2¼ inches, diameter 7⅞ inches. The whole of the interior is coloured by means of a fine white slip. The drawing is made from the half of one of these dishes found in Pit LXXVIII, associated with Terra Sigillata of early type. Fragments of at least three other

¹ Ward, *The Roman Fort of Gellygaer*, plate x. figs. 6 and 7.

dishes of the same type were also found in the pit, but in these the white colouring of the interior was replaced by a pinkish red. The only other pits in which this pottery, coloured on the interior, was noted, were No. LXXVI, which also contained early Terra Sigillata, and No. XI. It is interesting to compare the outline of vessels of Type 39 with that of Type 49, a type of dish most commonly met with in the later pits and ditches.

It is probable that in this coloured pottery we have a variety imported from the Continent. It occurs on the Rhine, and may be seen both at Mainz and in the Kam Collection at Nymwegen. The common shape of the dishes is that of Type 39. The exterior being of a grey colour, the interior red, the pottery showing a black colour in the break. On the Rhine, such red coloured pottery probably begins as early as the first half of the first century.

Type 34

Plate XLVI., Type 34; also Plate XLIX. (B), Fig 9. Small shallow bowl of grey ware, somewhat coarse. Height $1\frac{3}{4}$ inches, diameter $4\frac{3}{4}$ inches. It is without any decoration. On the bottom the marks of the cord employed to separate it from the mass of clay are distinctly visible. It was found in Pit LXXV, in association with fragments of a bowl and cup, Dragendorff's Types 29 and 27, and the typical early broad-rimmed mortaria.

Type 30

Plate XLVI., Type 30; also Plate L. (A), Fig. 6. Cylindrical bowl of somewhat coarse, thick, yellow-grey ware with rather flat rim. Height $4\frac{1}{2}$ inches, diameter at the mouth $3\frac{3}{4}$ inches, showing traces of fire. Pit LVII, at the Baths. Probably first century.

5. PLATES

Type 32

Plate XLVI., Type 32; also L. (B) 8. Plate of yellowish-grey ware with a pink colouring in the interior. The quality is of moderate fineness. Height $1\frac{1}{8}$ inches, diameter $6\frac{1}{8}$ inches. Found in Pit XI, in association with the cooking-pot, Type 36. A plate of what appears to be the same material, and showing the same colouring in the interior, is to be seen in the Kam Collection at Nymwegen.



Fragments of plates resembling the specimen in shape but without the colouring in the interior were found in the ditch of the early fort and in Pit LXII (Fig. 27, Nos. 1 and 2).

FIG. 27. No. 1,
DITCH OF
THE EARLY
FORT. No. 2,
PIT LXII

6. MISCELLANEOUS VESSELS

Type 27

Plate XLVI., Type 27, shows a miniature amphora of soft yellow-brown ware, of height $5\frac{7}{8}$ inches. Such vessels were not common. Only three or four were noted. The short projecting foot is a characteristic of this class, and suggests that they were inserted upright in the ground. Possibly they were used to hold oil in small quantities with which to replenish a lamp. The specimen illustrated was found beneath the clay of the south rampart, and therefore probably belongs to the first century. The occurrence of a portion of a similar vessel of an orange-yellow ware in Pit XCVIII with pottery of the later period indicates that the type was probably in use for a long period. These vessels are of very common occurrence in the South of France. There are, for instance, many of them in the collection of the Maison Carrée at Nîmes. It is to be noted that in these, as in the early Newstead Specimen, the surface of the soft white clay is easily removed.

A portion of a frilled tazza or incense-cup was found in Pit LVIII. A second fragment is from Pit LXXII. These vessels are common at Colchester, where they are attributed to the first century. They were rare at Newstead. The fragment from Pit LVIII was found in association with a portion of a bowl of Terra Sigillata (Dragendorff 37), having a design from La Graufesenque (Déchelette 982), and portions of a bowl of rustic ware. It must therefore belong to the first century. The fragment from Pit LXXII was found in association with Lezoux and possibly Rheinzabern pottery of the second century. It was somewhat thicker than the specimen from the earlier pit.

II. LATER, APPROXIMATELY ANTONINE, POTTERY

1. URNS

Later Pottery. Types 41 to 49

When we pass from the early vessels to those of later date the most striking characteristic appears to be that the ware employed is generally rather poorer in quality. There also appears to be less variety.

Urns

The most complete specimen of an urn of the later period came from Pit LXXX, where it was associated with the bottom of a cup bearing the stamp BELINICI·M. It stands 10 inches in height and is made of a grey ware of moderately hard texture, orifice about $3\frac{1}{2}$ inches (Plate XLIX. (B), Fig. 7). The surface is slightly rough and somewhat metallic. The urn is rather irregular in outline as though it had been pressed out of shape in removing it from the wheel. Around the upper part three horizontal lines

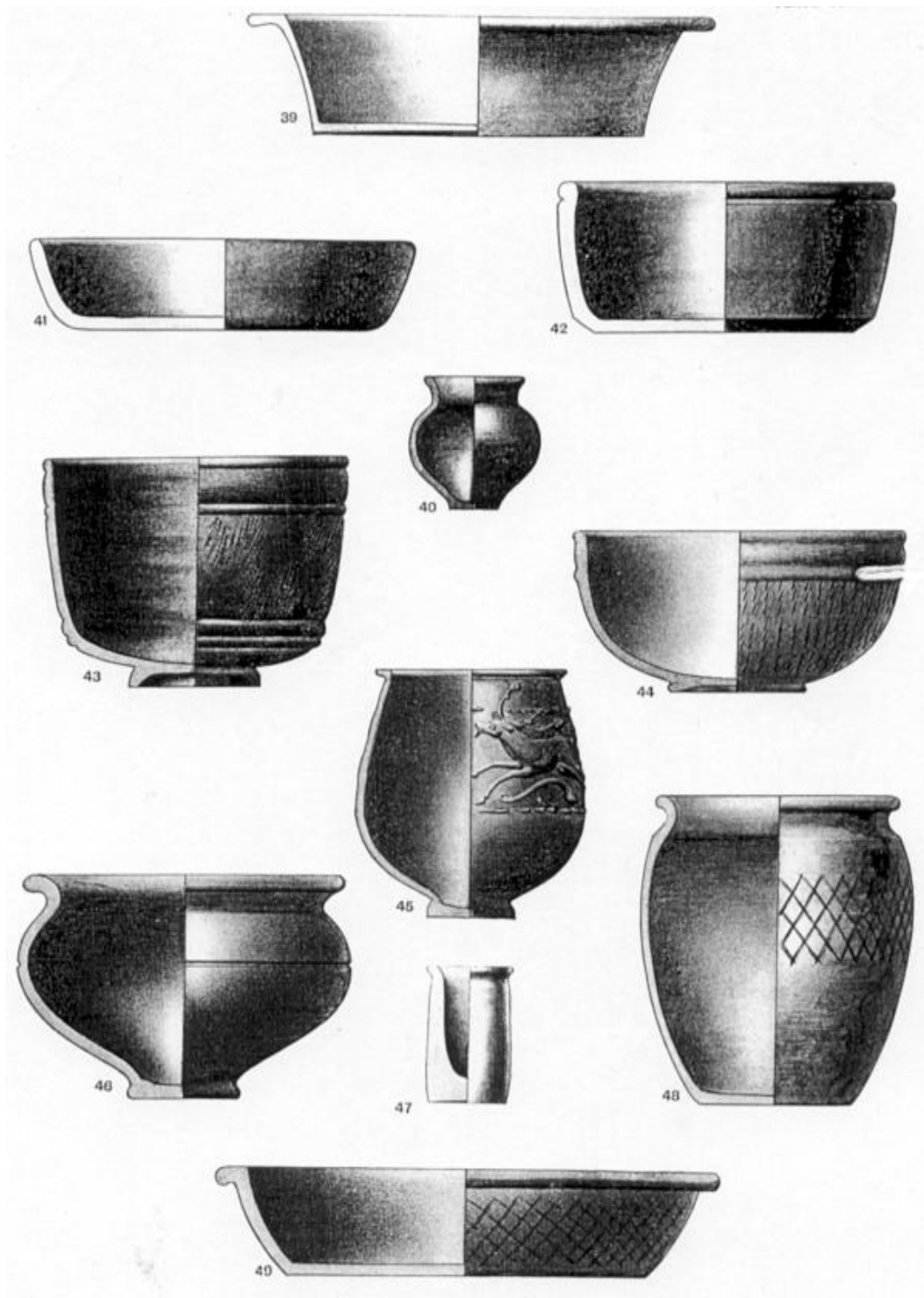


PLATE XLVIII. TYPES OF VESSELS, UNGLAZED WARE.

are slightly impressed on the surface, and around the neck the surface between two of these lines is marked by vertical lines lightly marked as though with a blunt piece of wood. Its execution is inferior and the shape is less elegant than that of the earlier urn (Type 38) already described. It is also to be noted that rather hard grey ware, with slightly metallic-looking surface, very similar to that of which it is composed was found in the ditch of the early fort as well as in a number of the late pits, possibly indicating that this class of vessel at least may have been produced in Britain. The urn illustrated in Plate L. (A), Fig. 3, from Pit XXV probably also dates from the second century. The objects associated with it did not sufficiently supply evidence of its period, but fragments of an urn of the same material and nearly approaching it in type were found in Pit XCIX with pottery of the later period. The urn is 11 inches in height; it is somewhat restored. The vessels shown in Plate L. (B), Figs. 1 and 2, both belong to the same class, but are unfortunately incomplete.

2. COOKING-POTS

Cooking-pots. Type 48

Plate XLVIII., Type 48; also Plate L. (A), Fig. 2. Height 6 inches; diameter at mouth 4 inches. Barrack Block No. 11, Praetentura. This may be taken as the type of the later cooking-pot. It is made of somewhat coarse black ware, and is decorated with a band of lattice-work pattern drawn on the surface with a blunt point. Soot adhered to the sides, as it did in many of these vessels. The type was almost invariably present in the later pits and ditches.

In Fig. 28, on the next page, there are brought together a number of sections of similar vessels taken from later sites: the inner ditch of the East Annexe, the inner ditches of the West Annexe, the inner ditch of the enlarged fort, west front, and Pit XLV. They were also numerous in Pits LXXII and LXXIV, in association with Lezoux pottery. All of these are either black or dark grey in colour and many are decorated with lattice work, a style of ornamentation much more common on the later than on the early pottery. These dishes did not appear in the ditch of the early fort, and a comparison with them and the sections of early fragments in Fig. 25 will show how distinctly in most cases they differ in outline. The section No. 11 of Fig. 28 belongs to a very coarse dish of a reddish-brown colour.

Plate L. (B) Fig. 3. Height 9 inches; the opening at the mouth 4½ inches. This example has already been illustrated in Plate IV. Although employed as a cinerary urn, the vessel is one which might equally well have

been used as a cooking-pot. It is of a dark-grey colour, showing a band of lattice-work pattern round the side. The material is soft. The curve of the rim associates it with the later vessels, and the same ware occurs in the inner

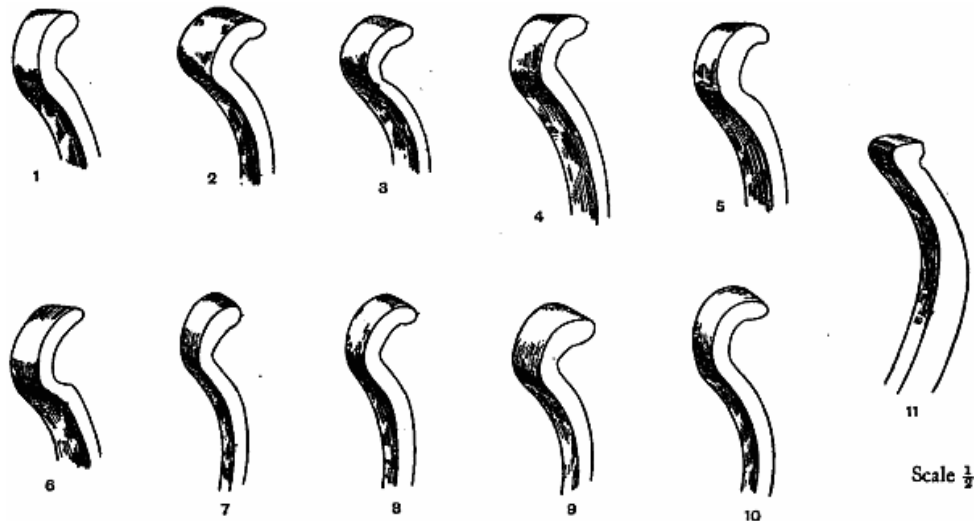


FIG. 28. SECTIONS OF RIMS OF COOKING-POTS NOS. 1, 2 AND 3, INNER DITCH, EAST ANNEXE. NOS. 4 AND 5, GREAT DITCH, WEST FRONT. NO. 6, INNER DITCH SYSTEM, WEST ANNEXE.

NOS. 7, 8, 9 AND 10, PIT XLV. NO. 11, PIT XLIX

ditches of the West Annexe, all of which circumstances, combined with the find-spot, appear to indicate that it belongs to the Antonine period.

3. BEAKERS

Beakers. Type 45

Plate XLVIII., Type 45; also Plate L. (A), Fig. 7. Beaker of thin white ware, covered with a black engobe and decorated with figures of animals in barbotine, commonly known as Castor ware. Height $4\frac{3}{4}$ inches, diameter at mouth $3\frac{3}{4}$ inches, narrowing at the foot to $1\frac{3}{4}$ inches. The decorative band is about $2\frac{1}{8}$ inches deep. The animals represented are a



FIG. 29. DESIGN FROM BEAKER OF CASTOR WARE

stag pursued by a great-jawed hound, and a hind followed by a second hound (Fig. 29). The hounds have collars round their necks. The decorative

PLATE XLIX. VESSELS OF UNGLAZED WARE

		PAGE
A. 1. Urn. Pit XVI.	Type 38	244
2. Jug, the handle wanting. Ditch of early fort	Type 33	261
3. Cooking-pot of 'Rustic ware.' Pit LXIII.	Type 29	247
4. Beaker. Pit IX.	Type 28	249
5. Cooking-pot. Pit XI.	Type 36	248
6. Mortarium of early type. Pit X.	Type 24	263
7. Beaker. Pit LXXV.		249
8. Miniature amphora.	Type 27	252
9. Beaker with granulated surface. Ditch of early fort		248

All the vessels illustrated belong to the early period.

		PAGE
B. 1. Two-handled jar. Pit LXXVIII.		267
2. Jug. Pit LXXVIII.		261
3. Jar. Pit LXXXVI.		267
4. Jug. Pit LXXVIII.		261
5. Urn. Pit LXXXVI.	Type 35	244
6. Beaker. Pit XII.	Type 31	248
7. Urn. Pit LXXX.		252
8. Bowl. Pit LXXXII.	Type 43	257
9. Bowl. Pit LXXXV.	Type 34	251

The vessels illustrated belong to the early period with the exception of Nos. 7 and 8, which are probably Antonine.



A

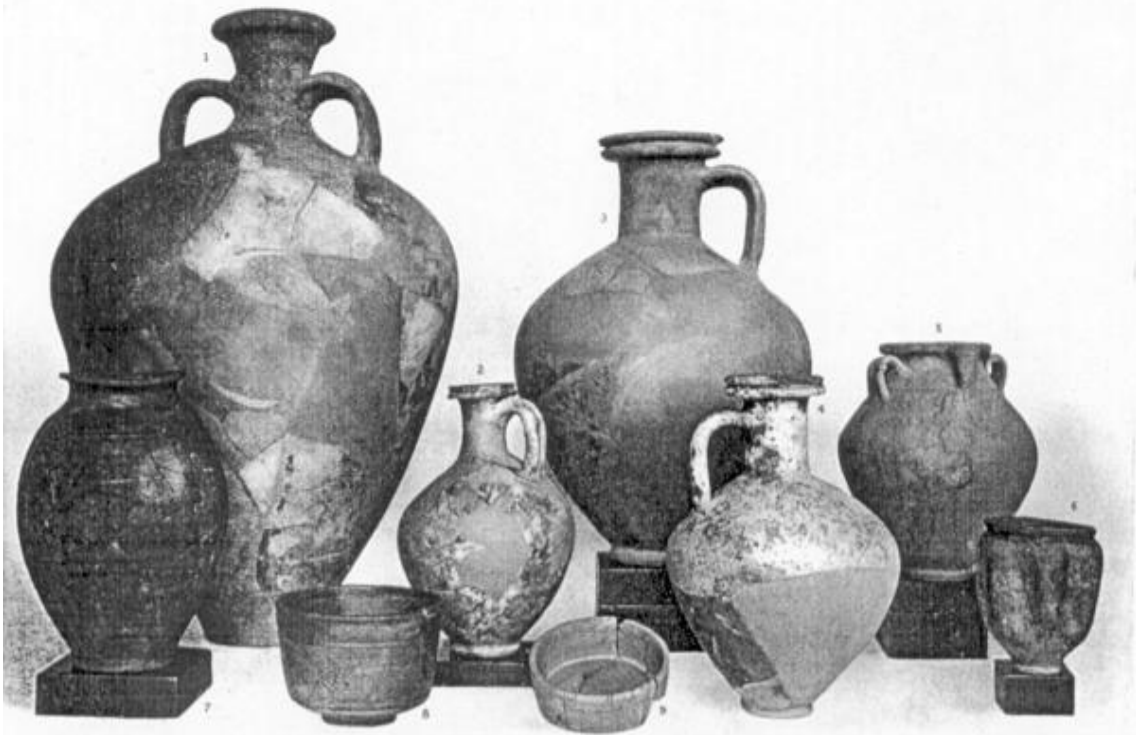


PLATE XLIX. VESSELS OF UNGLAZED WARE

frieze is defined by rows of small dots, while here and there, as though to suggest a woodland background to the chase, there are introduced long sinuous stems, terminating at one end in a leaf or bud and at the other in a returning curve. South Annexe: surface find.

Fragments of Castor ware were not uncommon at Newstead. Pieces representing some eight or ten such vessels were noted. All of them with one exception were black on the surface. A single piece of brown colour came from Block XIII. The decoration of most of the pieces appeared to consist of animal forms. One fragment from the inner ditches of the West Annexe, however, showed phallic emblems. A small piece occurred practically on the Roman surface-level, above the early pit, No. XVI. But no pieces were found in any of the pits themselves or in association with the early types of pottery. On the other hand, examples were procured in the inner ditches of the West Annexe and in the inner ditch of the East Annexe, in all of which the Terra Sigillata appears to be exclusively Antonine. We must therefore assign the Newstead specimens to the second century.

The name Castor ware has been given to this class of pottery from Castor on the Nen near Peterborough,—the site of the ancient DUROBRIVAE,—where there have been discovered kilns with many remains of vessels in process of manufacture. It is, however, probable that it originally came to Britain from the Rhine. It is common in the museums along the Rhine, and is generally believed to have been largely made at Cologne in the second century. The earlier stages of its characteristic ornament are to be seen at

Xanten early in the first century—where the larger urns are decorated with long, pointed leaves in barbotine on a hard grey ware. The band of decoration has an edging of raised dots. A cup found in 1895 in the Münstergasse, Mainz, shows the same pointed leaves. It dates from the Claudian period. The same form of ornament also occurs at Hofheim, and is



FIG 30. BEAKERS WITH BARBOTINE DECORATION FROM TRIER

common on the early cups in the Kam Collection at Nymwegen. It is just this leafy decoration which, both in Germany and in Britain, is employed for the background of the vessels with animal forms. In these it seems to represent the survival of

an earlier pattern which has been displaced by a newer design, an evolutionary movement analogous to that which took place in the case of many northern fibulae. Two small beaker urns which are here illustrated (Fig. 30, Nos. 1 and 2) come from Trier, and date from the end of the first century. Both are of hard grey ware with decoration in barbotine. One has simply a wreath of pointed leaves. In the other, animal forms are beginning to show themselves among the foliage.

Many of the German examples of the so-called 'Castor ware' show a harder and more vitreous surface than appears on any found at Newstead. But in Germany it has been noted that the use of a softer material in which the dark-coloured surface wears off; leaving the white clay behind, indicates a decadence in the manufacture which belongs to the second century. The colouring matter has been applied without being sufficiently diluted, and therefore it has not sunk into the clay.

Plate L. (A), Fig. 9. Beaker. This small vessel of grey ware stands 4½ inches high. The outer surface is smooth, showing horizontal lines made by the potter's fingers as it was turned on the wheel. Large ditch, west front, near drain outlet.

Type 40

Plate XLVIII., Type 40, Plate L. (A), Fig. 12. Very small beaker of white ware covered with a black engobe resembling Castor ware. Height 2½ inches, diameter at mouth 1⅞ inches. From cellar on south side of Block XIII. This would appear to be a relic of the last occupation, and should therefore probably be put down as belonging to the second half of the second century. These small vessels may be noted at Namur, where they date from the second century. Specimens have been found in the cemeteries of Bossières, St. Gerard, and Waucennes near Beauraing.

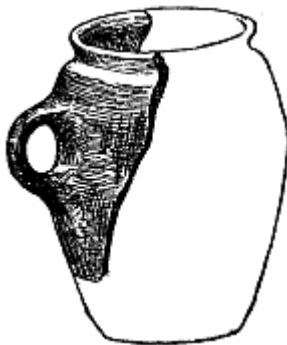


FIG. 31
BEAKER WITH
HANDLE

Beaker urn with a single handle. This type was only noted twice. One fragment (Fig. 31) came from the surface, while several pieces of a second vessel were found in Pit CV, which contained a number of late fragments, one bearing the stamp BELINICI·M.; both beakers were made of a dark grey ware, with a single handle attached to the side. A similar vessel, the height of which is about six inches, is to be seen in the museum at Carlisle.

PLATE L. VESSELS OF UNGLAZED WARE

		PAGE
A. 1. Bowl. Pit XXVIII.	Type 46	258
2. Cooking-pot. Block II. Praetentura.	Type 48	253
3. Urn. Pit XXV.		253
4. Beaker. Block II.		249
5. Bowl. Pit XXXIX.	Type 42	259
6. Bowl. Pit LVII.	Type 30	251
7. Beaker of castor ware.	Type 45	254
8. Mortanum. Block 11.		265
9. Beaker. Large ditch, west front.		256
10. Pot. Praetentura.	Type 47	260
11. Plate. Block II.	Type 41	259
12. Beaker. Block XIII.	Type 40	256

The vessels illustrated belong to the Antonine period with the exception of Nos. 4 and 6, which are probably of the Flavian period.

B. 1. Urn, imperfect. Surface find.		253
2. Urn, imperfect.		253
3. Cooking-pot, used as a cinerary urn.		253
4. Beaker of castor ware. Surface find.		255
5. Mortarium. Pit XLVI.	Type 25	265
6. Bowl. Pit XXXIX.	Type 49	258
7. Cooking-pot of 'rustic ware.' Pit LXIII.		247
8. Plate. Pit XI.	Type 32	251

The vessels illustrated belong to the Antonine period with the exception of Nos. 7 and 8, which are of the Flavian period.



PLATE L. VESSELS OF UNGLAZED WARE

The type also occurs at Corbridge, at Newstead it belongs to the second century.

4. BOWLS

Bowls. Type 43

Of the later vessels embraced under this heading, one of the most interesting is the bowl of black ware (Plate XLVIII., Type 43; also Plate XLIX. (B), Fig. 8). It stands 4 inches high and has an interior diameter of 5½ inches. The material is of fine texture, showing small particles of mica. In the interior, the marks of the potter's fingers, that moulded it as it turned on the wheel are very distinct. On the exterior, the surface seems to have been highly polished. The footstand too is neatly formed. The most interesting feature of the bowl, however, is that its whole outline suggests that it has been copied from a bowl of Terra Sigillata of Type Dragendorff 30. The moulded figures of the decorated original were, however, probably outside the craftsman's range, and in places the surface of the bowl is covered with a species of ornament recalling the letter Z, rudely executed, impressed with a blunt point. The bowl was found in Pit LXXII, where it was associated with a number of fragments of late decorated bowls and the potters' stamps, CRACVNA F, RUFRA MA and SVOBNI M. It should therefore be put down as belonging to the second century, and is probably Antonine. Possibly it comes from the Upchurch potteries.

Type 44

Plate XLVIII., Type 44. The vessel here figured is, like the last specimen, obviously a copy from a bowl of Terra Sigillata. It stood 3½ inches high, and had a diameter of 6 inches. The material is somewhat soft in texture, of a strong yellow colour. The fragments, from which about half of the bowl could be put together, were found near the surface above Pit LXXXV, which contained late pottery. A small fragment of a similar bowl of the same material, illustrated in Plate LI., Fig. 13, was found just beneath the cobbling placed above Pit LVII at the Baths. It is plain that we have here, as in the last specimen, a dish the outline of which is taken from a bowl of Sigillata (Type Dragendorff 37), the lines of small vertical incisions on the surface taking the place of the moulded decoration which it was beyond the skill of the potter to reproduce. Two other fragments of vessels, evidently copied from Terra Sigillata, may be mentioned here. One has the everted outline of Type Dragendorff 29, while the surface is hatched for decoration (Plate LI., Fig. 8). The other has an overhanging rim, and is evidently a copy of a vessel in the style of Type Dragendorff 38

(Plate LI., Fig. 10). Both of these fragments are of a somewhat hard, buff material.

Type 46

The occurrence of Type 43, associated with the later types of Terra Sigillata, probably affords us an indication of the chronological position of a bowl found in Pit XXVIII, which lay to the south of the railway in the South Annexe. This pit, like Nos. XL, LXXXII, LXXXVIII and XCI, all containing late pottery, was a built well. In none of the wells lined with masonry was any early pottery observed. The bowl is illustrated in Plate XLVIII., Type 46, Plate L. (A), Fig. 1. It is made of fine, smooth, black ware. Height $4\frac{3}{8}$ inches, with a diameter of $6\frac{1}{4}$ inches at the mouth. The only decoration is a single line lightly incised round the body. The shape shows a relationship to some of the earlier pedestal urns of late Celtic origin. The material very closely resembles that of Type 43 the clay has the same micaceous character. In both, the footstand is neatly formed. The two are probably of the same period and the product of the same potteries. Similar bowls occur at Colchester.

Type 49

Of the later vessels coming under the heading of bowls the forms of most frequent occurrence are represented in Plate XLVIII., by Types 41, 42 and 49.

Type 49 (see also Plate L. (B), Fig. 6) is a shallow bowl of slatey-grey ware with overhanging rim, having a height of $2\frac{3}{8}$ inches and a diameter at the mouth of $9\frac{7}{8}$ inches. The surface of the vessel is smooth, while the exterior, including the bottom, is covered with a lattice-work pattern, the lines being drawn with a blunt point. The bowl was found in Pit XXXIX, with a dish of coarse black ware (Type 42) and a cup of fine Terra Sigillata (Type, Dragendorff 33) without maker's stamp. Many pieces of similar vessels were caked with soot, and were no doubt used for culinary purposes.

As a rule, this type was absent from the pits containing early Terra Sigillata. On the other hand, it was found in Pits XLV, XLIX, LXX, LXXII, LXXXV and LXXXIX, and it was common in the inner ditch system of the West Annexe and in the inner ditch of the East Annexe, in all of which the fragments of pottery were of Antonine character.

The type, however, is perhaps not entirely late. One specimen came from near the bottom of the larger inner ditch of the later fort on the west front, and two small fragments from Pit LXIII. This, coupled with the fact that it occurred at Gellygaer, indicates that the dish had probably begun to make its appearance at least as early as the beginning of the

second century. A number of fragments of vessels of Type 49, together with one or two of Types 41 and 42, are shown below in Fig. 32; all of these were found in association with pottery of the later period.

Type 42

Closely related to the vessel just described is a shallow bowl or pan (Plate XLVIII., Type 42), which was found in association with it in Pit XXXIX. It has a height of $3\frac{3}{4}$ inches and a diameter of 6 inches. It is of rather coarse ware of a dark-grey colour, turning to black. The inside is somewhat lighter in shade, the clay showing traces of

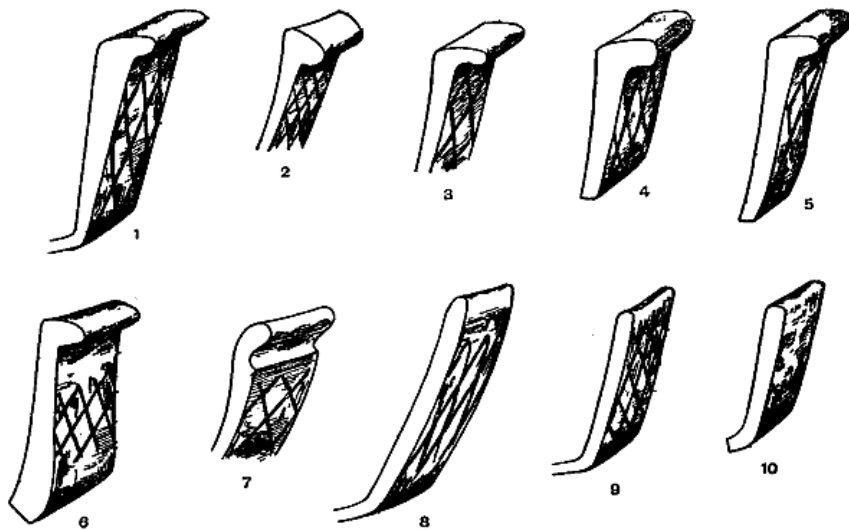


FIG. 32. SECTIONS OF RIMS OF BOWLS No. 1, GREAT DITCH, WEST FRONT. NOS. 2 AND 3, INNER DITCH SYSTEM, WEST ANNEXE. NOS. 4 AND 5, PIT XLV. NOS. 6, 7, 8, 9 AND 10, INNER DITCH, EAST ANNEXE

mica. In the interior the lines formed on the bottom, as the vessel was turned on the wheel, terminate in a spiral. The lip does not overhang, but is simply defined by a moulding. In some of the fragments lattice-work decoration is visible on the side. The type was on the whole a common one. A good many pieces came from the inner ditch of the East Annexe.

5. PLATES

Plates. Type 41

To the same period may be attributed a plate of blackish-grey ware (Plate XLVIII., Type 41, also Plate L. (A), Fig. 11). Height $1\frac{3}{4}$ inches, diameter $7\frac{1}{4}$ inches. Found near the surface in the Barracks of the Praetentura, Block II. This, like Types 49 and 42, to which it is

closely related, was common. A fine specimen was obtained from Pit XCV. Fig. 32, Nos. 8, 9 and 10 are outlines of rims of these vessels from one of the later ditches. They are all of black or grey colour on the surface.

6. MISCELLANEOUS

Plate XLVIII., Type 47; also Plate L. (A), Fig. 10. Small pot of somewhat thick greyish-brown ware. Height $2\frac{1}{2}$ inches, diameter $1\frac{9}{16}$ inches. Found in the Praetentura, near the surface. Such small vessels Type 47 might be used for some medical preparation; they seem too small for culinary or table purposes.

Two other specimens, measuring $2\frac{1}{8}$ and $2\frac{3}{8}$ inches in height respectively, were found in Pit XCV, associated with a much-worn coin of Trajan and pottery of the later period.

Before passing to the larger and coarser vessels, it may be well to note one or two fragments of dishes which present uncommon features either in their form or in their decoration.

Plate LI., Fig. 7. Bottom of a small vase of reddish clay. The texture is close and hard. The exterior is a beautiful orange-red colour, the surface smooth and almost polished in appearance. This may possibly be an example of the red Belgic ware, well known on the Rhine. It was found in excavating the gateway in the reducing wall, and is the only specimen of the kind that was observed.

Plate LI., Fig. 4. Fragment of an urn of whitish colour having a grey surface. A band of notched decoration evidently ran at the base of the neck. Below it the surface of the vessel has been covered with a pattern produced by straight lines incised with a fine comb. These lines have a reddish colour.

Plate LI., Fig. 6. Fragment of an urn of whitish material with a grey surface. Around the shoulder of the vessel ran a band of wavy incised lines produced by a comb. Similar urns with this decoration occur at Colchester as early as the first century.

Plate LI., Fig. 12. Small fragment of pale grey ware showing impressed decoration. River Bank Field.

Fig. 11 is a small fragment of thin whitish-grey ware showing a decoration of overlapping scales. There was no other example of this style of ornamentation. Fig. 14 is the lid of a vessel of thin whitish-grey ware from the courtyard of the Principia; while Fig. 15, which is of whitish ware covered with a yellow-brown engobe, the surface roughened or decorated with

LI. EXAMPLES OF UNGLAZED POTTERY

	PAGE
1. 'Rustic ware.' Pit LXIII.. Colour grey.	247
2. 'Rustic ware.' Pit XVI. Colour grey.	247
3. Black ware with raised surface. Ditch of the early fort.	246
4. Grey ware with comb decoration. The incised lines show traces of red colour.	260
5. Black ware, highly polished, with mouldings showing lines of vertical incisions.	248
6. Grey ware with comb. decoration.	260
7. Orange red resembling Belgic ware.	260
8. Buff ware. Shape probably copied from type Dragendorff 29.	257
9. Grey ware with raised lines.	
10. Buff ware. Shape copied from type Dragendorff 33.	257
11. whitish grey ware with scale decoration.	260
12. Grey ware with impressed decoration.	263
13. Buff ware. Shape copied from type Dragendorff 37.	257
14. Whitish. grey ware. Lid of a vessel.	260
15. Whitish ware. with brown engobe. Pit XXIII.	260
16. Buff ware with impressed lines.	261



impressed lines, is probably part of the lid of a flat tazza-like dish of the Antonine period. It came from Pit XXIII. The ware, which in its consistency resembles Castor ware, occurs at Chesters. Fig. 16 is possibly earlier; it is somewhat thicker.¹

JUGS, MORTARIA AND AMPHORAE

1. JUGS WITH ONE OR MORE HANDLES, OF BOTH PERIODS

Early Jugs. Type 33

These did not occur in large numbers, and few examples could be reconstructed. Plate XLVI., Type 33, represents the form of jug which occurred in the ditch of the early fort. The jug stands ten inches high, and the material is a fine, soft, buff ware with a smooth surface. In the only example which could be put together the handle was wanting (Plate XLIX. (A), Fig. 2). The sides bulge out in a graceful form. At the mouth the lip is thickened by the formation of a slightly projecting moulding. Three parallel lines of moulding run below it. The foot shows a projecting ring, a feature borrowed from metal work. The missing handle was no doubt ribbed. Necks of jugs of the same type in whitish-buff colour, and also in black and in reddish-brown were found in the ditch of the early fort. The shape occurs at Hofheim,² where it is spoken of as resembling a screw; and it may be put down as belonging to the Flavian period. Examples of the necks of different types of these jugs are given in Fig. 33. Nos. 1, 2 and 3, which all come from the ditch of the early fort, are of the same type as the more complete specimen just described. No. 4 is from Pit LXV. No. 5 is also an early type. It is of fine smooth buff ware. It came from Pit LIV, which from its position and contents marks it as belonging to the first occupation. This type has also been recognised in Germany as characteristic of the Flavian period. It occurs at Okarben.³ No. 6 is the neck of a jug from Pit LXXVIII. Several of these jugs were found in this pit, and two of them are illustrated in Plate XLIX. (B), Figs. 2 and 4. They are of fine soft ware of a pale buff colour with neatly-formed ringed footstand. The pottery found in association with them was all early. This fine pale buff pottery, almost white, is very similar to the material employed to make the jugs of the same period found on the Rhine.

1 See Walters, *Catalogue of Roman Pottery*, M. 2732, and references to other specimens of this ware given there.

2 Ritterling, *Das frühromische Lager bei Hofheim*, p. 87, fig. 40, 7.

3 *Der obergermanische-Raetische Limes*, Lief. 16, 'Kastell Okarben,' Taf v Figs. 62, 63 and 68.

No. 7 is of light brown ware with cup-shaped mouth. It is from the great ditch, on the west side of the enlarged fort, near the sewer mouth. No. 8 belongs to a large reddish-brown jug. It also came from the great ditch on the west side, and perhaps represents a type slightly later than some of the

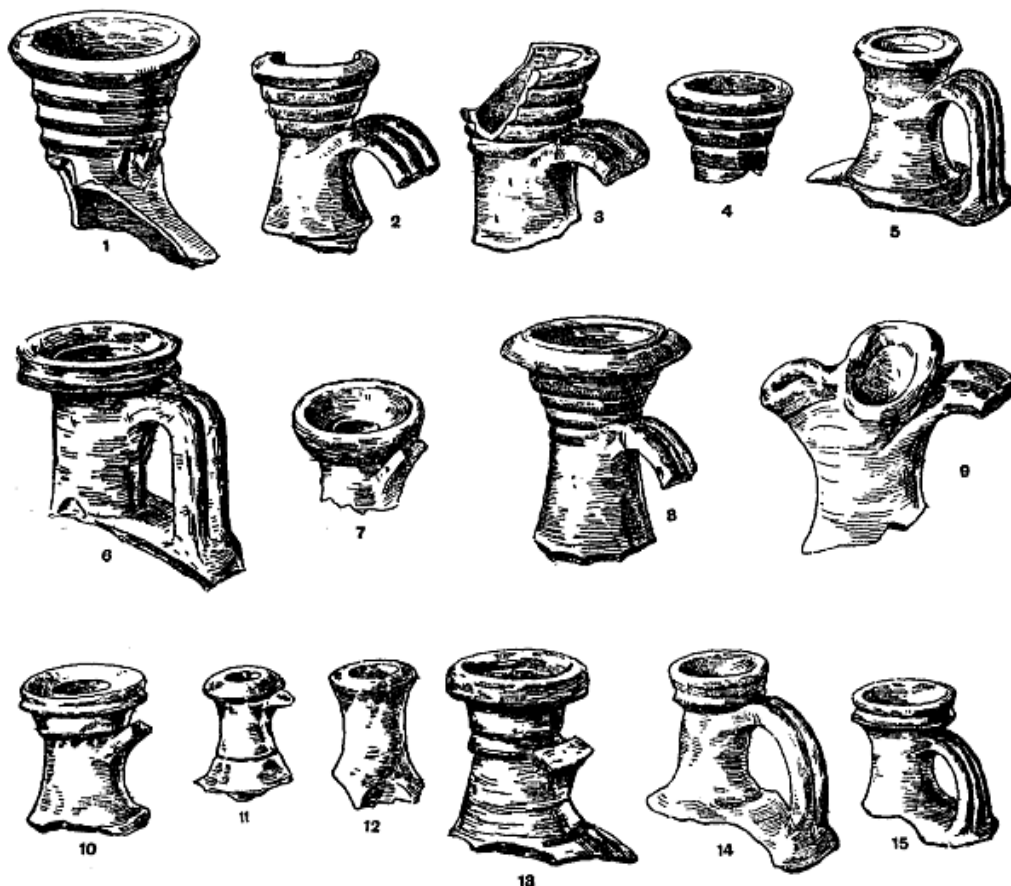


FIG. 33. NECKS OF JUGS

Nos. 1, 2 AND 3, DITCH OF THE EARLY FORT. No. 4, PIT LXV. No. 5, PIT LVI. No. 6, PIT LXXVIII, No. 7, GREAT DITCH, WEST FRONT. Nos. 5, 9, 10, 11 AND 12, SURFACE FINDS. No. 13, PIT LXXXII. No. 14, SURFACE FIND. No. 15, PIT XLV

preceding. It may be noted that the same type occurred in soft buff ware, like that of Plate XLVI., Fig 33. Similar jugs occur among the vessels from the pottery of Heldenbergen, which are believed to date for the most part from the Hadrianic period.¹ No. 9 is of hard-baked light-brown ware. The

1 'Romische Töpfereien in der Wetterau,' *Westdeutsche Zeitschrift*, xviii. Taf. 3, iv. 3.

surface is somewhat rough. The sides of the mouth are pinched together so as to form a spout. Jugs showing this arrangement appear at Wiesbaden, dating from the end of the first or the beginning of the second century; they are also among the early types at Nymwegen. The precise place of find at Newstead is uncertain. No. 10 is a surface find; the jug was of light grey ware, rather hard in texture. No. 11 is a small jug of buff ware; the type occurs on the Rhine and was in use for a somewhat lengthy period. No. 12 is one of the spout-like attachments like those on Type 35. It did not communicate with the interior of the vessel.

Jugs. Later Types

No. 13 must be a type belonging to the second century; it is of coarser material than most of the early jugs, and was found in Pit LXXXII, a built well with other late pottery. Nos. 14 and 15 belong to the later occupations of the fort; both are of a reddish-brown colour. No. 14 was found near the surface, but No. 15 came from Pit XLV, where it was associated with fragments of Terra Sigillata (Bowls, Drag. 37), with the large wreath decoration of the later period. The type is common at Corbridge, where the earlier variety, with screw outline, is so far wanting.

2. MORTARIA OR PELVES, OF BOTH PERIODS

Mortaria or Pelves. Types 24 and 25

These vessels usually take the form of a small shallow basin of strong, thick earthenware. They are furnished with a broad, overhanging rim, lowered a little at one point to form a slightly projecting spout. Imbedded in the interior of the vessel are numbers of small fragments of quartz. It is believed that the vessels were used for the preparation of vegetables in cooking. These were rubbed down against the sharp points of the projecting quartz, which acted as a grater, while the water was run off by means of the spout. In many mortaria the names or stamps of makers are found impressed transversely across the rim.

Type 24

Mortaria were of common occurrence at Newstead at all levels, and showed considerable variety in shape and colour. One or two specimens could be definitely identified as early. The best example of an early type came from Pit X. It is of a pale greyish-white colour, with a wide flat rim, which has small particles of quartz embedded on it as well as in the interior of the vessel. (Plate XLV., Type 24; also Plate XLIX. (A), Fig. 6.) This may be taken as the type of the early mortarium. The same flat rim was found in the ditch of the early fort and in Pits XIX, LIX, LXXV, LXXVI, LXXVIII and LXXIX, which also yielded early Terra Sigillata.

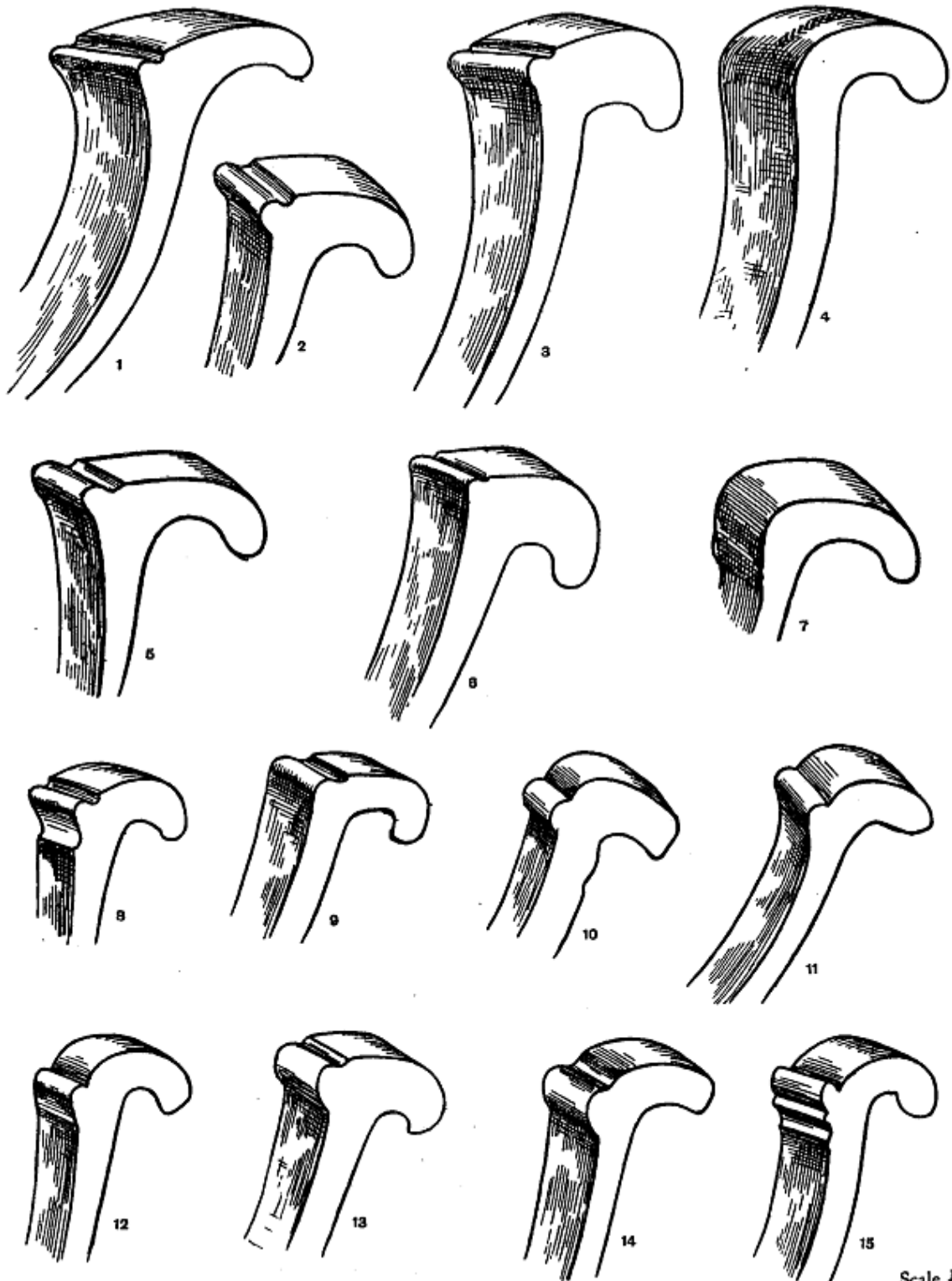


FIG. 34. SECTIONS OF RIMS OF MORTARIA

Type 25

From Pit LXXXVIII three practically uninjured specimens were recovered. In Fig. 34 we have the outline of the rims of a number of these dishes. Nos. 2, 3, 4, 5 and 6 are from the ditch of the early fort. No. 1 is from Pit XIV, No. 7 from Pit LIX. All of them belong to vessels of considerable size, with large heavy rims and of hard material. The rims of the vessels which follow are from Pits XXIII (No. 13) and XLIX (Nos. 9 and 12), the great ditch on the west front (Nos. 8 and 14), the inner ditches of the West Annexe (Nos. 10 and 11), and the inner ditch of the East Annexe (No. 15). In every one of these cases the profile of the dish is less bold and the ware softer. They probably all belong to the later period. A mortarium, nearly complete, of soft buff ware, bearing the stamp *BRVSC*, was found in Block II of the Barracks (Plate L. (A), Fig. 8). Another of a reddish-brown colour, with the stamp *MF* (Plate L. (B), Fig. 5), came from Pit XLVI. The outline of both of these corresponds with that of the fragments from later sites; the latter is illustrated on Plate XLV., Fig. 25, as representing the later type.

The maker's stamps are reproduced below in Fig. 35.

Many of the stamps were difficult to decipher. The only ones which could be with certainty assigned to the early period were *MARINVS* (No. 17) and the incomplete stamp *LLVS*, perhaps *MARCELLVS*, both from the ditch of the early fort. The stamp No. 14, also found at Inveresk, appears to belong to a vessel of the same period. The outline of the rims on which they are impressed indicate that most of these stamps belong to the second century. No. 4 was found in Pit LXXII, No. 7 in Pit XLV, No. 24 in Pit LXXXVI, all in association with pottery of the later period. In No. 31 the rim bears not only the maker's stamp, but a name, probably that of the owner, scratched upon it. An interesting feature was the occurrence, twice over, of the stamp *F·LVGVDV*. The same stamp has been found in London and elsewhere, as at Richborough, as well as *LVGVDV·F* and *LVGVDV·FACTV*. It is generally read *LVGVDVN·FACTVS* = 'made in Lyons.' On a mortarium found at Ewell in Surrey, it appears along with the name of the potter *VRBANVS LIBER F*. The evidence seems conclusive that some at least of these vessels were imported from abroad. The mention of any place of manufacture is rare; but we may note for comparison the stamp on an amphora found in the Limes fort of Zugmantel, *LIDFITA*,¹ and *LIDF ITALICA*² found on Monte Testaccio. These may indicate that the vessels that bear them were made in the city of Italica.

1 *Die Obergermanische-Raetische Limes*, Lief. 32, 'Kastell Zugmantel,' p. 170 (9).

2 *C.I.L.* XV. 2031.

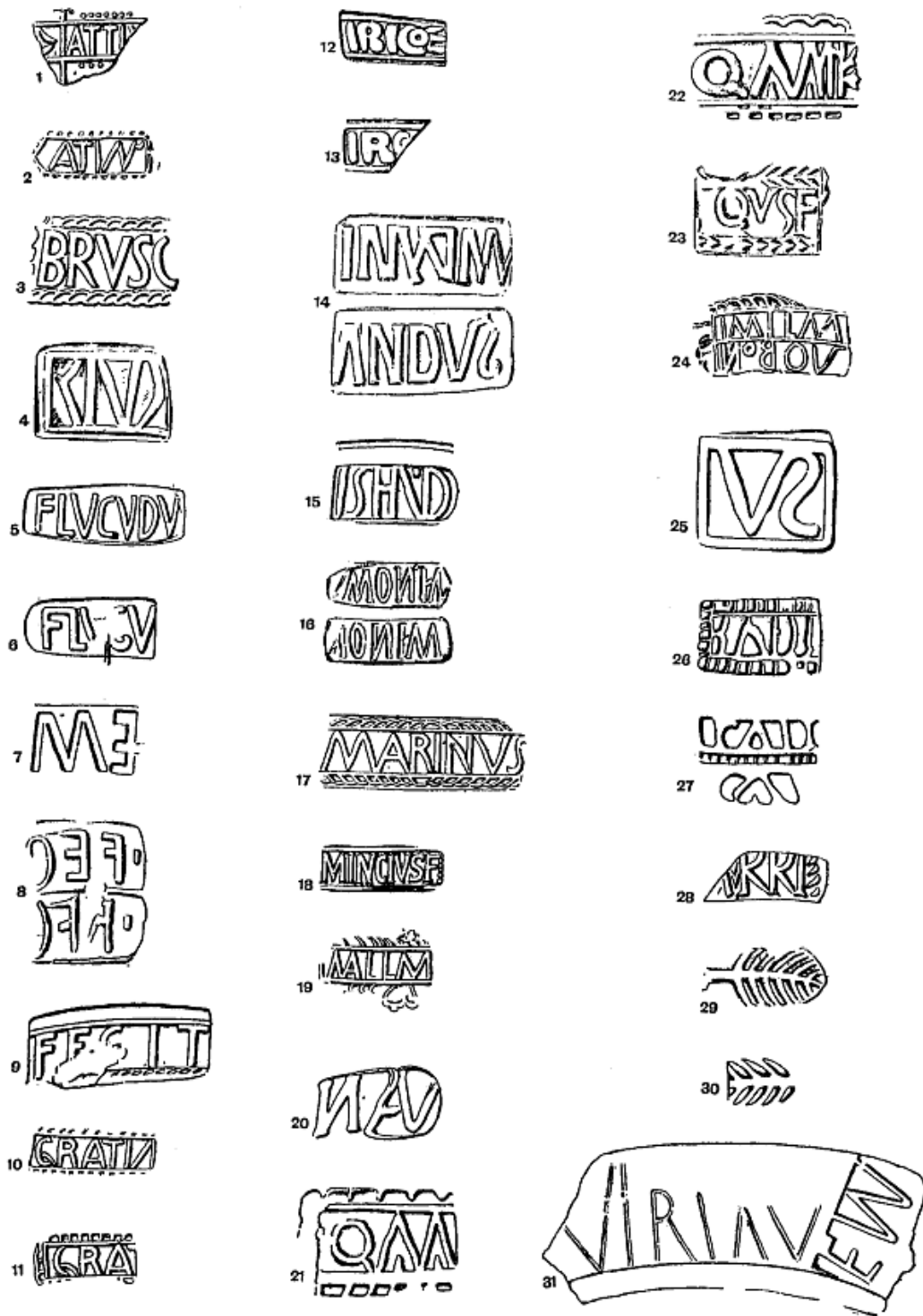


FIG. 35. MAKERS' STAMPS ON MORTARIA

3. JARS AND AMPHORAE, OF BOTH PERIODS

Jars and Amphorae

The vessels which remain to be described are larger in size than any of the preceding. They were probably employed for storage and for transport, and they may be classified as jars and amphorae. The former are often of jars and fine ware, resembling large jugs with one or two handles. Though doubtless many fragments of these larger vessels occurred among the pottery, it was only towards the end of the excavations that any specimens could be put together. Among the early dishes in Pit LXXVI, the neck and handle with the greater part of the body of a large jar was found. This vessel is illustrated in Plate XLIX. (B), Fig. 3. It stands 17½ inches in height, and is made of fine close-grained earthenware of no great thickness. The colour is a light grey. The mouth is 3½ inches in diameter. The vessel has a single handle, and the foot shows a projecting ring as in the case of the smaller jug type. Such vessels were doubtless imported. A jar differing very little in shape occurs at Haltern,¹ and we may see it also at Hofheim.² We have no examples of vessels of this type belonging to the later period. Another early vessel more closely approaching the amphora was found in Pit LXXVIII (Plate XLIX. (B), Fig. 1). It is made of rather thin close-textured ware of a grey colour. It stands 25 inches in height, and is almost complete with the exception of the bottom, which is a restoration. The orifice is 3 inches in diameter. On either side of the neck, strong handles are affixed. The neck of the vessel has been made separately from the body and inserted; this is also the case in Fig. 3. An additional point of interest in connection with this jar lies in an inscription written across the shoulder with a brush which has been dipped in ink or some dark pigment. The inscription is reproduced in Plate LII., Fig. 20. It consists of two lines, for the most part still wonderfully distinct, and it is evidently a mark of possession, *ATTI·SECVNDI·LAGVNVM*; the jar of *ATTIVS SECVNDVS*. The strokes which terminate the first line, apparently forming one or two letters or symbols and possibly a single letter at the end of the second, are faint, and have not been deciphered satisfactorily. We have a parallel to this inscription on a jar—a Laguna—in the Museum of Saintes, which bears the inscription, *MARTIALI SOLDAM LAGONAM*.³ A second inscription of the same character occurred upon a

1 *Mitteilungen der Altertums-Kommission für Westfalen*, v. Taf. xxiii. Fig. 1.

2 Ritterling, *Hofheim*, p. 97, Abb. 54.

3 Marquardt, *Privatleben*, vol. ii. fig. 14, p. 649.

fragment of the neck of a large jar found in Pit LXXVI (Plate LII., Fig. 21), APRILIS HEL. . . In the first line we have probably the owner's name; in the second, the letters HEL, followed by a symbol or device, possibly formed part of some word indicating the contents of the vessel.

The stamp Q G A (Fig. 21) was found impressed twice on the side of part of a large jar, or perhaps an urn, of black ware found in Pit LXXXVI, probably of the later period; it is the only example of a maker's stamp which came to light on such vessels.

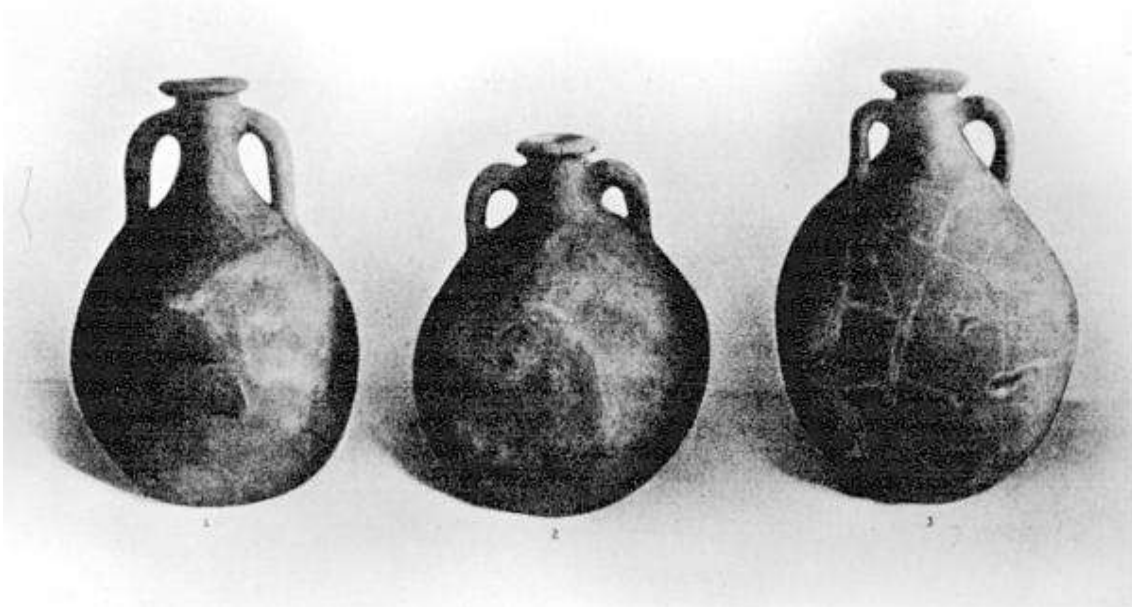
Amphorae

The bottom of the pits very commonly contained fragments of large amphorae. Pieces from at least seven such vessels were found in the pit in the Principia (No. I). When complete, an amphora of this sort stood about 2 feet 6 inches high, with wide bulging sides and rounded bottom. The neck was comparatively narrow—about 4 inches—and attached to it were two strong handles, upon one of which the maker's stamp was sometimes impressed. Such amphorae were doubtless in use during all of the various periods of occupation. Fragments came from the early ditch, and were, indeed, met with at every level. Heavy and clumsy though they must have been, it is apparent that these great vessels were often brought from a distance. They were carried over the Empire filled with oil, wine and other products of the south. Their number at Newstead is itself almost sufficient to prove that wheeled transport must have been employed for supply purposes even during the Agricola period.

One of the handles from Newstead has incised upon it the letters VIN (Plate LII, Fig. 17), standing perhaps for *vinum*. The head of an amphora found at VINDONISSA bears the inscription THUNNI, showing that it once held pickled tunnies, while another inscribed OLIVA NIGR EX. DE. FR, was evidently a vessel for olive oil.¹ These examples enable us to realise the usual nature of their contents. Many came from Spain and from Southern Gaul. In Rome the huge artificial mound which rises beside the Tiber, known as the Monte Testaccio, where vessels used to discharge their cargo, is very largely composed of the fragments of similar vessels. The stamps found there date from about 140 B.C. to 250 A.D., and they show that the amphorae came from Baetica, Gallia Narbonensis and Mauretania. A Spanish amphora discovered near Bonn is inscribed with the name of C·CONSI·CARIOI·ET·FILIORUM, no doubt a firm who exported their products to the north.² In the remarkable series of

1 Eckinger, *Töpferstempel und Aehnliches der Sammlung der Gesellschaft 'Pro Vindonissa'*, p. 3.

2 Dressel, 'Eine Amphora aus Spanien mit lateinischen Inschriften,' *Bonner Jahrbücher.*, Heft xciv. p. 66.



4. [PORG]S

5. [SER]B

14. [ALFO]

15. [P]

5. [STAKSLA]

10. [BOPI]

16. [EPA]

17. [MAGSR]

6. [ANTO]

11. [BELISE]

18. [V V V]

7. [LIR]S

12. [E.SS]

8. [VALERER]

13. [COVAD]

19. [C S T]

20. ANTI SECUNDI
IN CUNU. M. N.

21. APRILIS
HEI

22. Q. CA.

PLATE LII. AMPHORAE AND MAKERS' STAMPS.

monuments from Neumagen, a Roman town on the Moselle, now preserved at Trier, we see the long river boats heavily laden with casks and manned by many rowers. In one, the shipmen are represented packing amphorae by coiling them round with ropes of straw.

At least two well-marked types of amphorae are distinguishable. The first has a slightly elongated neck, and consequently longer handles, and is provided on the bottom with a rudimentary foot—a common feature in earlier types. The material of which it is composed appears to be closer and harder than is the case with the other variety, which is somewhat shorter at the neck and has a rounded bottom. Plate LII., Fig. 1, represents an amphora of the first type, which came with remains of two others from Pit No. X. Fig. 2 represents a specimen of the second type from the Praetorium Pit (No. I). Both vessels have been to some extent restored. In putting them together, it was interesting to note how they had all been originally made in two pieces, the neck and shoulder in one, the bottom in the other. In the interior, at the point of junction, the marks of the potter's fingers kneading together the soft edges were very evident. The fragments taken from the ditch of the early fort suggest that the longer-necked variety may be characteristic of the early period. A third variety of amphora was tall and narrow, with a long, pointed foot and upright handles. Of this there was not much trace at Newstead. But a foot was recovered from the early ditch, while Pit LX yielded a handle and part of a neck. The vessels to which these belonged must have resembled one found at Haltern,¹ and they therefore represent an early, indeed the earliest, type of amphora encountered.

Several of the stamps deciphered at Newstead have been met with in England and on the Continent. Thus C·MARI·SILVANI (Plate LII., Fig. 5) has been found in Southern Gaul, at Vienne and St. Colombe,² as well as in London and Rome;³ C·ANTON·Q (Fig. 6)—the cognomen is probably QUIETI—occurs at Trion,⁴ Nîmes and St. Colombe, as also in London L·Q·S (Fig. 7) has been noted on many sites in Germany, Holland and France,⁵ and also on Monte Testaccio;⁶ L·VALERER (Fig. 8) is probably the same as L·VALERTER, which is recorded at Monte Testaccio, and at Nîmes⁷ and elsewhere in Southern Gaul; and SER, found at St. Colombe and Monte Testaccio,⁸ is perhaps the same as the Newstead SER·B. (Fig. 9).

1 *Mitteilungen aus Westfalen*, Band ii. Fig. 26.

2 *C.I.L.* xii. 5683, 185–186.

3 *C.I.L.* xv. 3024.

4 *C.I.L.* Xiii. 10,002, 104.

5 *C.I.L.* xiii. 10,002, 414.

6 *C.I.L.* xv. 3227a.

7 *C.I.L.* Xii. 5683, 306.

8 *C.I.L.* xv. 3183.

The only stamps which can with certainty be attributed to the first period are POR·G·S·S from the ditch of the early fort, C·MARI·SILVANI, from Pit LXXVI, and the imperfect stamp POR, though probably C·ANTON·Q and SER·B belong to the same time. In the stamp POR·G·S·S (Fig. 4) the letters POR, which are of common occurrence on amphorae, form a contraction for the word PORTUS,¹ indicating the warehouse rather than the name of a maker. We may compare F B POR on the handle of an amphora in the Tullie House Museum at Carlisle, POR·POP at Monte Testaccio,² POR MEDIA at Heddernheim³ and POR·P·S at Bonn.⁴ It would be easy to cite many other examples. How widespread was the commerce in which these great vessels were employed, is exemplified in a striking fashion by the stamp DAZ·COL, which occurred at Ardoch. This is found on the Rhine at Kastell Hofheim, and it has been noted in Spain in the form DAS·COL,⁵ while DAS·COL occurs in the South of France at St. Roman,⁶ and also among the fragments of broken vessels from Monte Testaccio.⁷

A complete list of the stamps on the amphorae handles from Newstead, so far as it has been found possible to decipher them, will be found in Plate LII.

When we apply the results obtained from the classification of the Newstead finds to the collections from the sites of Roman forts previously investigated in Scotland, the results are striking. Among the fragments from Cappuck preserved at Monteviot, the residence of the Marquess of Lothian, are two fragments of early pottery, both probably from bowls of Type Dragendorff 29. The other specimens are distinctly of the later period. The evidence alone is too slight to afford absolute proof that the advance in the first century followed the road across the Cheviots, but taken in connection with the recent discoveries of fragments of bowls of the same early type in the lower strata at Corbridge—a stage further south on the same line of road—it greatly strengthens the presumption that this must have been the case, and it gives an indication of the interest which would attach to a proper investigation of Cappuck. Birrens, on the western line of advance, notwithstanding the evidences of rebuilding exhibited in its plan, does not appear to have produced any pottery earlier than the Hadrianic period. The presence of DIVIXTUS and of ALBUCIANUS, the latter being one of the potters of the Pudding-pan Rock

1 The FORTVS VINARIVS is mentioned on a Roman monument; cf. *C.I.L.* vi. 9189–90.

2 *C.I.L.* xv. 3094c.

3 *C.I.L.* Xiii. 10,002, 236.

4 *C.I.L.* xiii. 10,002, 33f.

5 *C.I.L.* ii. part i. 4968, 26.

6 *C.I.L.* Xii. 5683, 75.

7 *C.I.L.* xv. 2715.



PLATE LIII. CAMP KETTLES AND PATELLA.

series,¹ are indications of the later occupation, while more than one of the decorated pieces suggest a German origin. At Camelon we find the early Newstead types reappearing along with such early stamps as OF·CALVI, OF FRONTINI, and OF·RUFINI; but the Antonine pottery is also common there, the potters' names including those of CINNAMUS and DIVIXTUS. This points, as was to be expected, to an occupation by Agricola as well as by Lollius Urbicus. The pottery of both Rough Castle and Castlecary appears on the whole to be late. At Ardoch, north of the Vallum, the presence of pottery of both periods is again to be noted, while at Inchtuthil, the most northerly site as yet excavated in Scotland, the small collection appears to belong without exception to the early period. Here we find decorated bowls of Type Dragendorff 29, scrolls of early type, and arrow-point decoration. The cup is of Type Dragendorff 27. The platter with its moulding at the point of junction of side and bottom (Plate XXXIX., Type 2) is duly represented, as is also the shallow bowl (Type 11) with its wide flat rim decorated with lotus. These all correspond to the finds from the early fort at Newstead. Of the coarser pottery, the jug with 'screw' outline (Type 33) and the flat-rimmed cooking bowls (Type 37), as well as the broad-rimmed mortaria (Type 24), reappear, pointing clearly to the conclusion that the encampment on the Tay dates from the campaigns of Agricola, and that there was no subsequent occupation.

GLASS

Glass

Glass vessels and also window glass were in common use at Newstead throughout the whole period of its occupation by the Romans. Unfortunately there was only a single glass vessel which could be reconstructed, but in several other cases enough remained to enable the original shape to be identified with some certainty. A few of the fragments can be definitely assigned to the earliest period. The most common variety was represented by pieces of large bottles of pale green or blue colour. These bottles, which are sometimes square, sometimes rounded at the sides, were frequently employed as cinerary urns in Roman graves. They have a short neck with a moulded rim and a single reeded handle. At least three of the necks of such vessels and two of the handles came from the ditch of the early fort. The best specimen (Fig. 36) was taken from Pit XV, where it was associated with a bowl, showing metope decoration, from La Graufesenque or

¹ *Proceedings of the Society of Antiquaries*, second series, vol. xxi. p. 283.

Banassac. It has rounded sides, and is 10½ ins in height. Other fragments proved the presence of both larger and smaller vessels of this class.

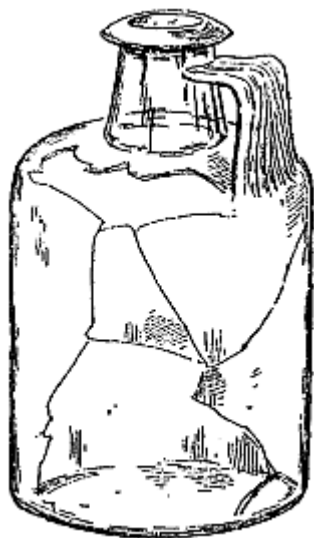


FIG. 36. GLASS BOTTLE
FROM PIT XV

Portions of a small tumbler-shaped vessel also came from the ditch of the early fort. The glass is thin and of a slightly green tint. The sides which expand with the height of the vessel are decorated with three parallel lines, $\frac{5}{8}$ of an inch apart, ground with a wheel. The outer edge of the lip, which is slightly curved inward, is ground in the same manner.

Pillar-moulded cups were not uncommon; two fragments of considerable size came from Pit XVI, the glass being of a clear claret colour. A portion of the lip of a similar cup came from a surface trench in the same area, while fragments of a rather more amber tint were found in Pit VII (which also contained early pottery), and some of blue-green colour in the ditch of the early fort. Of millefiori glass only one piece was discovered. This lay in the overlapping ditch before the West Gate. Like the preceding, it had belonged to a pillar-moulded cup. It is of thick, dark-blue, translucent glass, in which are embedded irregular opaque patches of white and yellow. These pillar-moulded cups and such millefiori glass are common on the Rhine at the end of the first century. Both occur at Hofheim. The rim of a somewhat larger vessel—a shallow bowl or cup—in amber-coloured glass was found in a first-century pit, No. LV. The edge had been turned over so as to form a hollow tube. Another of these rims made of greenish-white glass came from Ditch A, inner series, West Annexe. The same form occurred in bright blue glass.

Among pieces which were found near the surface, or in positions which afforded no clue to their date, were the fragment of a vessel of clear white glass, decorated with bands of parallel engraved lines, and two fragments of white glass with facets. One of these latter had formed part of the side and lip of a cup ornamented with parallel lines of incised ovals, cut with the wheel. It recalls the lip of a tumbler-shaped vessel found in the Roman cemetery of Barnwell near Cambridge.¹ This faceted glass occurred at Birrens. It has since been turned up at Gellygaer, where most of the finds are probably

¹ *Catalogue of the Collection of Glass formed by Felix Slade*, p. 28, fig. 38.

PLATE LIV. BRONZE DISC (PIT XXII) AND MISCELLANEOUS OBJECTS

	PAGE
1. Bell of bronze. Pit VI.	
2 and 3. Objects of bronze, possibly terminals for the legs of a seat. Pit XVI.	287
4. Bell of bronze. Praetentura.	
5. Circular disc of bronze. Pit XXII.	178
6. Handle of a flagon, bronze. Ditch of early fort.	274
7. Handle of a tankard, bronze. Pit LVII. Baths.	275
8. Vessel of lead. Ditch of early fort.	274
9. Small cup of bronze. Pit LVIII.	274
10. Vessel of lead found inside No. 8. Ditch of early fort.	274



INCHES 0 1 2 3 4

CENTIMETRES 0 1 2 3 4 5 6 7 8 9 10 11

early, and also in the *Schutthügel* at Vindonissa, which belongs to the end of the first and beginning of the second century. In view of the undoubted use of the wheel at the time of the first Newstead occupation, a use of which we have evidence in the cup from the ditch of the early fort, it seems probable that such glass was employed as early as the Agricolan period. The second fragment of glass with facets is coarser, and gives no clue to the original shape of the vessel. A small piece of the lip of a vessel of fine white glass showed a delicate moulding in relief. Two necks—one of blue, another of olive—green, glass—evidently belonged to jugs of the tall elegant form with a single handle, which on the Rhine date from as early a period as the end of the first century. The glass as a whole showed little or no sign of decay, only one piece—the bottom of a small perfume bottle from Pit VI—displaying iridescence. The window glass which was found throughout the fort, and in the Baths, varied in colour from green to a pale blue. As usual, one side was invariably dulled. Fragments of what appeared to be a sheet of some size came from near the surface in the South Annexe. The sheet must have been about $\frac{1}{8}$ of an inch in thickness, and the rounded mark of the mould was visible at the outer edges. On the whole, it may be said that glass vessels were scarce. They were probably too fragile and costly to be brought in any large numbers over the long roads that linked the garrison to the south, and were therefore regarded solely as luxuries.

VESSELS OF BRONZE

In the Musée Calvet at Avignon there is preserved a series of thirty-one bronze vessels—the vessels of a Roman house. They were taken from the bottom of a well at Apt in Vaucluse, where they lay grouped round a small white marble altar, sculptured with the head of a faun in high relief, and the great triple-wicked lamp of bronze which must have hung above it, an *ex-voto* bearing a dedication to the Genius of the Colonia. The great majority of the dishes are either cooking-pots or squat flagons with somewhat narrow necks. These are of thin metal and simple undecorated form. More than one of them shows signs of wear, and has been mended by patches which are held in position by small rivets. Along with the kitchen dishes are a few vessels more elegant in shape, showing some decoration, particularly a ewer or jug of thicker metal with a decorated handle, and one or two *situlae* or pails.

Though the vessels from Newstead form a smaller group, they exhibit the same types as those at Avignon. The cooking-pot was of most common

occurrence. No doubt it was employed as the camp-kettle of the soldiers; it is seen on Trajan's column suspended with other equipment from the spears of the



FIG. 37
MARKS OF POSSESSION ON BRONZE
VESSELS

legionaries as they march out towards Dacia. Seven such kettles in all were found, most of them battered and showing signs of having been repaired by means of rivetted patches. Usually an iron handle had been attached to a collar of the vessel, but had perished. One example came from the ditch of the early fort (Plate LIII., Fig. 8), one from Pit X (Fig. 4), another from Pit XIV (Fig. 6), and three from Pit LVII, at the Baths (Figs. 1, 3 and 5). One of these three has in the illustration been placed upon an iron grid or *craticula*, found in Pit LXI, which was no doubt designed to be used in such a way. The seventh kettle, which is not included in the illustration, was found in Pit XCIX. Fig. 4 bears punctured upon it the centurial mark and the letters SA, while the letter A and a cross have been scratched with a sharp point on the side (Fig. 37 (1)). Fig. 6, which is much smaller in size, and has been a good deal battered and mended, has the name LVCANI cut twice upon the bottom (2), while the example found in Pit XCIX, which in form resembles Fig. 5, has upon it the punctured inscription TVRMA CRISPI NIGRI (3).

Of the flagons so common among the dishes at Avignon, the only trace at Newstead was a single handle found in the ditch of the early fort (Plate LIV., Fig. 6). That it belonged to the same type of vessel is certain, as may be seen by comparison with a complete example at Colchester. Plate LIII., Fig. 7, reproduces a specimen of the patella, of thicker metal than either the pots or flagons,—a long-handled pan. It was found at no great distance from the surface, between Pit LV and Pit LVI on the south front. There can be no doubt as to its having been a cooking-vessel, A smaller



PLATE LV. BRONZE OENOCHOE
Pit II

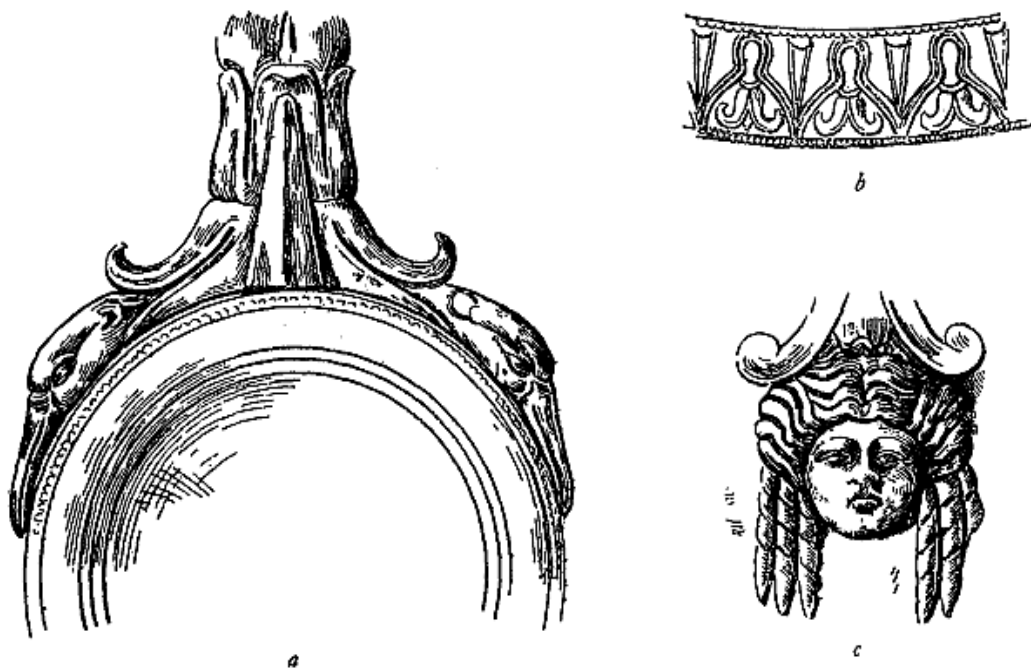
specimen, less well preserved, was taken from the ditch of the early fort, while portions of the handles, showing the usual rounded end perforated with a circular hole, came from Pits XX and LXIII. That from Pit XX has upon it the remains of a maker's stamp, but the impression is faint and almost illegible. Before passing to the larger vessels, we may mention a small cup, apparently of white bronze (Plate LVI., Fig. 9), found in Pit LVIII. At one time it probably possessed a handle, but this has disappeared. Across the bottom is scratched the name MAXIMI (Fig. 37, No. 4). Two small vessels of lead (Plate LVI., Figs. 8 and 10) were lying, one inserted inside the other, in the ditch of the early fort. They are 3 inches high and 2½ inches in diameter, and might have been employed to hold paint. The object represented in Plate LIV., Fig. 7, is some 3¹/₁₆ inches long; it is of thin bronze, finely patinated. It was found in Pit LVII. It perhaps formed one of the handles of a wooden tankard with bronze mountings.

Two larger vessels, to which we now come, may be taken as representing the more highly decorated vessels of the table service. The term 'Oenochoë' might perhaps be applied to both. The types occur at Pompeii. Appearing at Newstead, they are clearly importations, in all probability from Italy. The more capacious (Plate LV.) stands 11 inches high. It is of green patinated bronze, and is in fair preservation, though here and there the metal has been perforated through oxydisation. It has one handle, the upper part of which has a terminal in the form of a lotus-bud, whence arms, fashioned like long-beaked birds, stretch out to grasp the rim. At the lower extremity, where it broadens out for attachment to the body, the handle takes the form of a Bacchanal's head with ivy tendrils wreathed in the hair. This jug was found in Pit II, which lay beneath the dividing walls of two huts in Barrack Block No. XII.

The second jug (Plate LVI.), which is of somewhat smaller capacity, was found in Pit LVII. It is of yellow bronze, and stands 12 inches high. Around the turned-over rim is an ovolo border. Lower down a band of well executed lotus pattern surrounds the body (Fig. 38 (b)). This contains traces of silver-plating. The handle grasps the rim with the usual heads of long-beaked water-birds, remarkably well executed, issuing from a bunch of pointed leaves (Fig. 38 (a)). The lower end terminates in a female head, with the hair braided and hanging in long curls on either side (*c*). The eyes have been inlaid with silver. Although in excellent preservation, this oenochoë had clearly seen some service before it was dropped into the pit. The point of the leaf,

which must have curved upwards at the apex of the handle, is broken away, and the silver-plating has been worn off by usage.

Neither of these vessels can be associated with the later occupation at Newstead. Both were found in pits which had been covered over by later works, and there seems little doubt that they were both deposited in the first century. They belong to a group of vessels which shows the art of the early Empire strongly influenced by Greek tradition and probably Greek workmanship. Like the patellae of the Capuan bronze founders, such jugs are met with scattered somewhat widely over Europe. The Pompeian examples, alluded to above, exhibit not only the same shape but precisely the same



38. DETAILS FROM BRONZE EWER FOUND IN PIT LVII

FIG.

method of decorating the handle; the necks of the same long-beaked waterbirds issue from curving reed points to grasp the rim,¹ while the lower ends broaden out into a Medusa head, or perhaps a little group of figures. Not infrequently the whole of the handle is covered with ornament. Silver enrichment, too, is a common feature. The only complete specimen of these ewers hitherto found in Scotland appears to be one discovered in 1807 on the farm of Sadlerhead, in the parish of Lesmahagow, and now the property of the University of Glasgow.²

1 *Museo Borbonico*, xii. tav. 58, 1, 2, also 3, 4.

2 James Macdonald, *Tituli Hunteriani*, p. 95, plate xvii.



PLATE LVI. BRONZE EWER
Pit LVII

CHAPTER XIII

Tools and Implements

NOTHING conjures up so clearly a sense of the life that once moved within the fort, and nothing brings us into such close touch with the individual men who held it, as does a sight of the tools, the implements and the vessels which they handled in their daily life. The axes that levelled the woods of birch and hazel, the scythes that cut the hay, the hammers and tongs with which the smith beat out the blunted spear-points or fashioned the sword-blades, have come down to us in such perfect preservation, differing so little in their forms from those with which we are familiar, that in their presence it is difficult to realise how many centuries have passed since the camp fires of a Roman army glimmered for the last time above the Tweed. The collection of tools, implements of agriculture and iron objects left behind by the garrison of Newstead is without doubt the most remarkable that has yet been met with in Scotland. Many crafts are represented—the smith, the carpenter, the mason, the leather-worker, the weaver, the husbandman. The soldier would seem to have been all of these in turn.

The iron found near the surface was generally in a state of hopeless corrosion. On the other hand, the metal objects from the ditch of the early fort, and those from many of the pits, were in extraordinarily fine condition. The most interesting of all these finds came from Pit XVI. It consisted of ninety-six pieces of iron,—tools, weapons, mountings, and odd pieces of metal, partly worked and partly unworked. It suggested the contents of a camp forge, including as it did spears with their points blunted, pioneers' axes with their edges to be set, hammers, chisels, tongs, mountings for saddles, hub-linings for wheels, as well as much old metal ready to be hammered and welded into something new.

One can easily imagine that on the eve of a sudden retirement such things might be hurriedly cast down a well for concealment. England can

show three similar finds. The earliest was made by Lord Braybrooke in 1854 at Great Chesterford in Essex, where ninety-six objects were found at the bottom of a Roman well.¹ Again, at Silchester there have been two discoveries of such deposits. The first, which was made in 1890, consisted of sixty-six pieces.² The second, which belongs to 1900, contained over one hundred articles.³ Both collections, like that from Newstead, appear to have formed the stock-in-trade of a smith, comprising his tools and material, along with some of his finished goods. In addition to the smith's hoard from Pit XVI, forty to fifty iron objects came from the ditch of the early fort, and a small number of well-preserved tools from other pits. As the association of the articles comprising these finds has been indicated in dealing with the pits and wells themselves, it is possible here to treat them in classes rather than in accidental groups.

The Axes of the Pioneers

In the sculptures of the Trajan column there are many representations of the pioneers at work, clearing the forest growths and levelling the ground as they constructed the highways for the army. In their hands they swing a heavy pick-axe, the *dolabra*. One end of the head is fashioned like the blade of an axe, the other like a curved pick. It is used to destroy a wall as well as to beat down a Dacian palisade. Specimens of this very tool have been recovered from the Newstead pits. Several of them are unruined, but their jagged edges and their worn points are eloquent of vigorous usage and of hard toil in making broad the narrow ways.⁴ Five of these dolabrae are figured in Plate LVII. Fig. 1, which differs slightly in type from the rest, came from Pit LXI. The whole length is 14½ inches. The pick shows a simple curve downwards. The axe measures 3½ inches along the edge. In the centre is what is known as a slip eye, slightly wider at the upper end of the aperture than the lower, with side clips. The weight is 4 lbs. 4 oz. The lower surface of the axe-blade near the eye bears a circular stamp with letters now illegible, no doubt the name of the maker. Figs. 2, 3, 4 and 5 are all of the same pattern, and were found together in Pit XVI. It will be noted that the curve of the pick is not the same as that seen in Fig. 1, and that its section is hexagonal. The largest of the four (Fig. 5) weighs 6 lbs.

1 *Archaeological Journal*, vol. xiii. p. 1.

2 *Archaeologia*, vol. liv. p. 139.

3 *Ibid.* vol. lvii. p. 246.

4 Cichorius, *Die Trajanssäule*, Taf. lxvii. 242, Taf. lxx. 254, Taf. lxxxvii. 314. 'Correptis securibus et dolabris ut si murum perrumperet.' Tacitus, *Annals*, book iii. c. 46. 'Quod si angustae sunt viae sed tamen tutae melius eat praecedere cum securibus ac dolabris milites et cum labore aperire vias quam in optimo itinere periculum sustinere.' Vegetius, iii. 6.

PLATE LVII. THE PIONEERS' AXES

	PAGE
1. Pioneer's axe (Dolabra). Pit LXI.	278
2. Pioneer's axe (Dolabra). Pit XVI.	278
3. Pioneer's ixe (Dolabra). Pit XVI.	278
4. Pioneer's axe (Dolabra). Pit XVI.	278
5. Pioneer's axe (Dolabra). Pit XVI.	278
6. Hammer. Pit XVII.	286

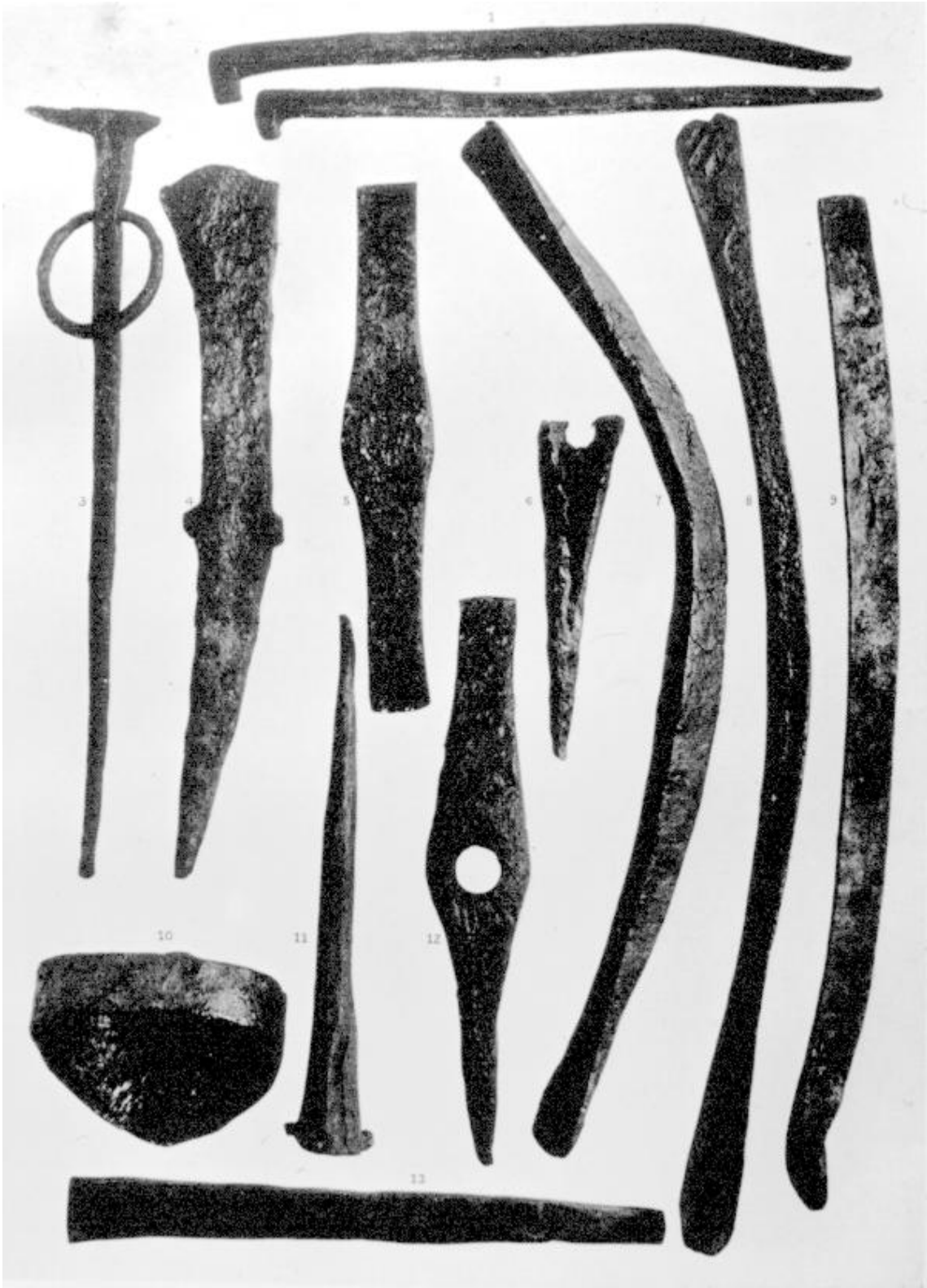
All the objects figured are of iron.



PLATE LVIII. PICKS AND SCRAP IRON

	PAGE
1 and 2. Iron in course of manufacture. Pit XVI.	280
3. Stake with ring. 'Exercise Hall'	280
4. Pickaxe. Block XIII.	279
5. Small pick.	279
6. Shod for a pole.	280
7, 8. Pick-like objects of uncertain use. Pit LXI.	279
9. Unfinished object of iron. Pit XVI.	280
10. Object resembling a stirrup. Pit XVI.	280
11. Shod for a pole. Pit XVI.	280
12. Small pick.	279
13. Iron bar. Pit XVI.	280

All the objects figured are of iron.



use, therefore, they must have been either grasped in the hand or fastened to a forked stick. The making of an eye was an operation so familiar to the Roman smith that one is tempted to wonder whether these strange tools may not have been the product of some Caledonian smithy of the pre-Roman period.

Associated with them on Plate LVIII. are some pieces of iron from the smith's stock in Pit XVI (Figs 1, 2, 9 and 13). Fig. 11 from the same pit is evidently the shod of a pole or spear, while Fig. 6 must have served a similar purpose. In Fig. 10 we have an object whose appearance at once suggests that it was used as a stirrup. It is almost circular, $4\frac{1}{2}$ inches wide by 4 inches in height, and measures 4 inches across the tread from front to back. It is, however, doubtful whether the stirrup formed any part of the equipment of the Roman horseman, although an object recently found at Alesia has been thus classified.¹ Fig. 3 shows an iron peg, $15\frac{1}{2}$ inches long, with a ring inserted near the upper end. This was doubtless driven into the earth as a means of tethering horses or other animals. It is, in fact, what is known in the north-east of Scotland to-day as a 'baikie.'

The Carpenter's Tools

Several tools can be identified as belonging to the carpenter. The most common of these were chisels. Two specimens came from Pit XIV (Plate LIX., Figs. 7 and 8). Both are socketed, and they measure $10\frac{3}{4}$ inches and $9\frac{5}{8}$ inches in length respectively. The former still preserves its short haft of deer-horn, 2 inches long. Two other chisels were among the tools in Pit XVI (Figs. 10 and 4). They are only $7\frac{3}{4}$ inches and $6\frac{3}{4}$ inches long. The larger of them had had a wooden haft, part of which remained in the socket. The smaller has a solid iron haft, the metal of which shows abrasion from hammering. They are no doubt morticing chisels. The head of one of the wooden mallets which would be used with them was found in Pit LIV (Plate LXXXIII., Fig. 3). It measures 8 inches long by $4\frac{1}{2}$ inches by 3 inches. The eye, $1\frac{1}{2}$ inches in diameter, is bored through the mallet. The handle is wanting.

A socketed gouge (Fig. 13, Pit XVI) was doubtless also a carpenter's tool. It is $6\frac{3}{4}$ inches long and has had a wooden haft. A smaller instrument of the same kind (Plate LIX., Fig. 3), $5\frac{1}{8}$ inches long, with unusually flat cutting edge, was found in the ditch of the early fort. Two larger gouge-like tools were perhaps augers. One (Plate LIX., Fig. 14), which was taken from Pit XVI, has a length of $11\frac{1}{2}$ inches. It is a bar of iron roughly octagonal, terminating in a gouge at the lower end, while at the upper end

¹ Espérandieu, 'Note sur un étrier gallo-romain,' *Pro Alesia*, vol. i. p. 17, plate iii.

PLATE LIX. THE CARPENTER'S TOOLS

	PAGE
1. Wedge. Ditch of the early fort.	281
2. Blade of a moulding plane. Ditch of the early fort.	281
3. Socketed gouge. Ditch of the early fort.	280
4. Chisel. Pit XVI.	280
5. File. Ditch of the early fort.	281
6. Part of the handle of an auger.	281
7. Socketed chisel with deer horn shaft. Pit XIV.	280
8. Socketed chisel. Pit XIV.	280
9. Socketed chisel.	
10. Socketed chisel. Pit XVI.	280
11. Chisel.	
12. Boring tool. Ditch of the early fort.	281
13. Socketed gouge. Pit XVI.	280
14. Auger. Pit XVI.	280
15. Blade of a small plane. Ditch of the early fort.	281
16. Awl. Pit XLIV.	281
17. Wrench. Pit XIV.	281

All the objects figured are of iron.



it is flattened out into a triangular shape. This flattened portion was evidently inserted in a wooden handle. A very well-made example of a similar tool is shown in Plate LIX., Fig. 12. It measures $7\frac{1}{2}$ inches long. The upper portion is square in section and somewhat tapered to allow for insertion in a socket. It came from the ditch of the early fort. In Fig. 6, which was found in Pit LV, we have perhaps part of the handle of an auger. It is obviously a socket through which a cross-bar of wood would be inserted. Fig. us possibly a wedge.

Two blades of planes were found in the ditch of the early fort. One of these (Plate LIX., Fig. 2) is $5\frac{3}{4}$ inches in length, and was designed to cut mouldings one inch wide. The other (Plate LIX., Fig. 15), which is $3\frac{1}{4}$ inches long and slightly curved, is composed of two pieces of metal, $\frac{1}{8}$ of an inch thick, which have been welded together, the back plate being made to describe a wider curve than the front one. The same ditch yielded a single example of a file (Plate LIX., Fig. 5). It measures $7\frac{3}{4}$ inches long and $\frac{5}{8}$ of an inch at its widest part. Another carpenter's tool—unfortunately imperfect—is a wrench for extracting nails (Plate LIX., Fig. 17). It came from Pit XIV, while a good specimen of an awl with a metal haft (Plate LIX., Fig. 16) was found in Pit XLIV. This last, which measures $4\frac{1}{8}$ inches in length, probably belonged to a shoemaker.

Knives

The number of knives of varying shapes and sizes was considerable. Eleven are illustrated on Plate LX. Two of the largest (Figs. 1 and 3) are from the pit in the Principia (No. I). Fig. 3, which measures with its handle 13 inches in length, is shaped rather like a modern carving-knife, and has its haft covered with plates of bone. Fig. 1 has a blade 8 inches long with a short tang for insertion into a wooden handle. Both are probably butcher's knives. Two knives (Figs. 2 and 6) are from the ditch of the early fort. Fig. 6, which is $7\frac{1}{2}$ inches long, is finished at the end with a ring for suspension, while on the flat handle are remains of the rivets that have held the bone mountings. Of such mountings we have a fragment with incised decoration from the ditch of the early fort (Plate XCIII., Fig. 7). The blade, with its downward curve, recalls the form of some modern Asiatic knives. This type of knife is common on sites in Germany dating from the second half of the first century. That it was also in use in this country has long been known. Three well preserved specimens from London are illustrated in the catalogue of the Guildhall Museum.¹ An example complete,

¹ Plate xvii. figs. 6, 7 and 8.

with its bone handle, has been found at Wiesbaden.¹ The other knife from the ditch of the early fort has a small blade, 3½ inches long, having a slight upward curve and provided with a tang which is inserted in a bone handle. Another knife (Fig. 5) from Pit XL, with a blade 6⅝ inches long, reminds one of the common form of knife represented with other sacrificial emblems upon altars.

Fig. 12, from Pit LV, though a mere fragment, is of special interest, because it probably represents an early type. Its characteristic feature is the brass mounting at the junction of blade and handle.

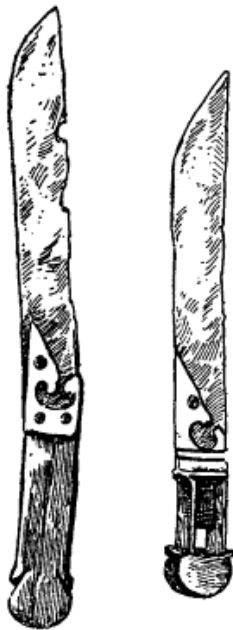


FIG. 40
KNIVES FROM
VINDONISSA

Through the courtesy of Dr. Fröhlich, two knives of the kind from the *Schutthügel* at Vindonissa, are shown in Fig. 40. These cannot be of later date than the reign of Trajan; the type is common at Vindonissa, with handles sometimes of bone and sometimes of metal. In one of them we have a specimen of the bone handle, while in the other the handle of bronze corresponds in pattern to the incomplete examples from Newstead (Figs. 9 and 10). The same style of handle is to be seen at Novaesium.² Fig. 7 came from Pit LIV. It is short, the blade having a length of only 3¼ inches, and it belongs to a type which is probably British. A similar knife, still with its bone handle, from the Dowkerbottom cave, and two others from caves near Settle are to be seen in the British Museum. Mr. Reginald Smith has recently described one of these knives found in the Harborough Cave near Brassington, and he cites their occurrence on such British sites as Hod Hill, Dorset, and Glastonbury.³ Fig. 4, a worn blade with its bone

handle, was found in the great ditch of the later fort; the other examples in Plate LX.,—Figs. 8, 13 and 14,—are from surface finds.

The axe is twice represented. A beautiful specimen (Plate LXI., Fig. 4) from Pit XVI measures 40 inches in its extreme length. Its blade is curved at one end, and has a flat rectangular face at the other. The edge measures 4¼ inches, and there is a slip eye with side clips. The weight is

1 See Ritterling, *Das Kastell Wiesbaden*, p. 101, where references to finds are given.

2 *Bonner Jahrbücher*, Heft 111–112, Taf xxxiii. B, Fig. 36.

3 *Derbyshire Archaeological and Natural History Society's Journal*, 1909, p. 23.

PLATE LX. KNIVES

	PAGE
1. Knife. Pit I.	281
2. Knife with bone handle. Ditch of early fort.	281
3. Knife with bone handle. Pit I.	281
4. Knife with bone handle. Ditch of later fort, west front.	282
5. Knife. Pit XL.	282
6. Knife. Ditch of early fort.	281
7. Knife. Pit LIV.	282
8. Knife.	282
9, 10, 11. Portions of knife handles in bronze.	282
12. Knife with brass mounting. Pit LV.	282
13. Knife with socket.	282
14. Knife.	282

All the objects figured, unless otherwise mentioned, are of iron.



6 lbs. On the lower side of the square end is impressed a stamp on which appear the letters L.G.R. It is made from a solid piece of iron exactly as a modern axe would be, the eye having been punched out. Along the upper edge is a punctured inscription in two lines (Fig. 41). The first consists of the centurial mark followed by the name BARRI.

In the second line the letters appear to be COMPITALICI. It is interesting to compare this beautiful axe, evidently the work of a professional tool-maker, with an axe from Pit XXIII (Plate LX., Fig 1). The two are similar in shape, both having a curved blade



FIG. 41.

PUNCTURED INSCRIPTION ON AXE
FROM PIT XVI

at one end and a square head at the other. The extreme length of the latter is $7\frac{3}{4}$ inches. The edge measures $3\frac{1}{2}$ inches. The weight is 3 lbs. 7 oz. It has a slip eye with side clips, which has a general resemblance to that on the larger axe. But the whole is formed of two pieces welded together at the eye, just as might be done to-day in a country smithy, and the welding of the steel on the head and edge is somewhat clumsy.

Implements of Husbandry

We have already noted that in a fort with such elements of permanency as were obvious at Newstead there must have been some cultivation. Nothing was found which could with certainty be set down as having formed part of a plough, but the pits yielded a few characteristic implements of husbandry. A hoe, half-spade and half-pick, about a foot long came from Pit XIV (Plate LXI., Fig. 9). It could be utilised in throwing up entrenchments, but its real purpose was probably tillage. Liger figures a specimen closely resembling it from a grave at Neuvicque, Charente Inferieure.¹ A smaller example, 8 inches in length, was found in Pit LXXXIX. A single specimen of a rake (Plate LXI., Fig. 7) came from the Baths (Pit LVII). It is formed of a wooden clog, made of oak, the length of which, when complete, was probably 13 inches. Through this have been inserted seven prongs, which project 6 inches and are slightly curved. The opposite ends of the prongs are doubled over the lower edge of the clog so as to form a fastening.

The two sickles on Plate LXI. differ slightly in pattern. They have short curved blades, and must have been little more than a foot in length. Fig. 2 is from Pit I; in it the end of the tang has been turned over the

¹ *La Ferronnerie*, vol. ii. p1. 21, H.

handle so as to form a fastening, as was done with the prongs of the rake. Fig. 5 is from Pit XXII; in this case the tang is quite straight. The edges of the sickles have been sharpened, and they appear to have had steel welded upon them. The monuments furnish more than one appropriate illustration. On the Trajan column a legionary, grasping ears of corn with his left hand, cuts them down with a sickle of precisely this pattern, which he holds in his right.¹ Another example hangs on the wall of the shop of a Roman cutler in a monument now in the Vatican.² A larger implement (Plate LXI., Fig. 10), found in a rusted condition at the east end of the Bath building, is possibly the *falx arboraria* employed for cutting branches. It is 15 inches in length. A small sickle-shaped knife (Plate LXI., Fig. 8) from a small pit or post hole in the side of the branched ditch in front of the west gate, and a heavy iron wedge for splitting wood (Plate LXI., Fig. 6) may also be included in this class of objects. A specimen of a turf-cutter (Plate LXI., Fig. 3) was taken out of the ditch of the early fort. It is virtually an anchor-shaped knife in outline, 4½ inches across, and furnished with a socket for a strong shaft. These implements are not uncommon on the Limes forts; an unusually large specimen occurred at Zugmantel.³ They were primarily employed for cutting the turf that went to the construction of ramparts; but, as several blocks of peat came from Pit XXVIII, it is possible that they also served to cut fuel.

Four scythes (Plate LXII., Figs. 3, 4, 5 and 6) came from Pit XVI. The blades are from 43½ to 35 inches long and from 2¾ to 3 inches wide, and have a strong back rib. The tangs which fasten them to the handle vary from 6½ to 5½ inches in length. At the point where the blade joins the tang three of them still have a large anchor-shaped rivet, the curved head of which was no doubt employed to fasten the blade to the single long handle. The scythes show considerable signs of wear, and one of them (Fig. 6) has been carefully patched by a piece of iron bolted on to the back rib.

With the scythes we may associate the small anvil which the mowers used for sharpening them. An example (Plate LXII., Fig. 1) came from Pit XVI. It is a solid iron peg 5½ inches long, sharpened at one end to allow it to be driven into the ground, while at the other it is flat, 1¾ inches square. At a distance of about 2½ inches from the top a hole has been

1 Cichorius, *Die Trajanssäule*, Taf lxxx. c. 291.

2 Liger, *La Ferronnerie*, vol. ii. fig. 369.

3 *Der Obergermanisch-Raetische Limes*, Lief. 32, 'Kastell Zugmantel,' Taf. xvi. Fig. 55.

PLATE LXI. IMPLEMENTS OF HUSBANDRY

	PAGE
1. Axe. Pit XXIII.	283
2. Sickle. Pit I.	283
3. Turf cutter. Ditch of the early fort.	284
4. Axe with punctured inscription. Pit XVI.	282
5. Sickle. Pit XXII.	284
6. Heavy wedge.	284
7. Wooden rake with iron prongs. Pit LVII.	283
8. Small socketed sickle. Small pit or post hole before west gate.	284
9. Hoe. Pit XIV.	283
10. Large socketed sickle (<i>Falx arboraria</i>). Baths.	284

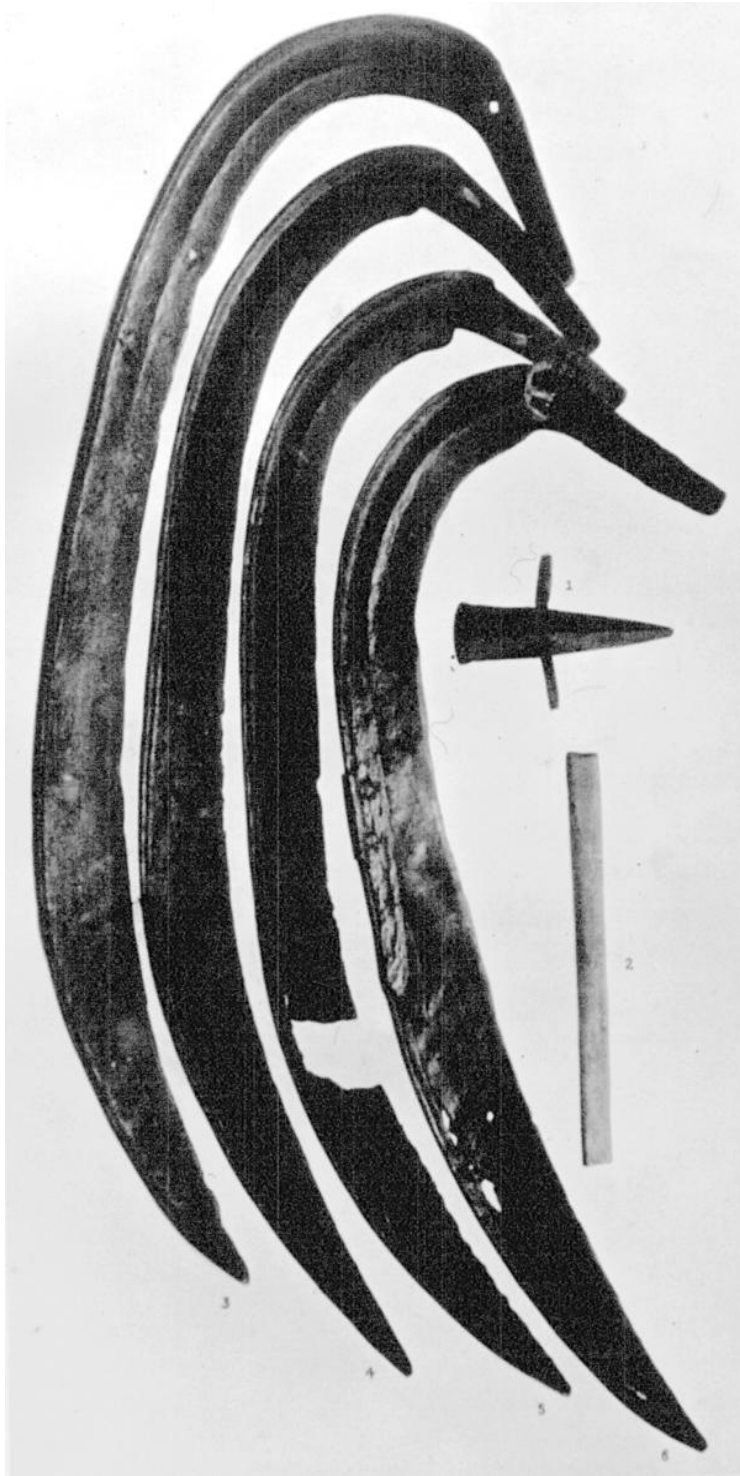
All the objects figured, unless otherwise mentioned, are of iron.



PLATE LXII. SCYTHES, ANVIL, AND WHETSTONE

	PAGE
1. Mower's anvil. Pit XVI.	284
2. Whetstone. Pit LXI.	285
3, 4, 5, 6. Scythes. Pit XVI.	284

With the exception of No. 2, all the objects figured are of iron.



punched, and through this a thin strip of iron has been inserted and bent at each end into a spiral, so that it projects $1\frac{3}{4}$ inches on each side. Its purpose is to prevent the peg from being driven too deeply in the ground. Four of these objects were discovered in the Silchester hoard of 1890, but their purpose was not at first recognised, so long had they ceased to be used in England. It turned out, however, that they were still employed in Spain, in South America, in Italy, and they are common in many parts of Europe to-day. The mower sits on the ground, and, laying the scythe across his knees, hammers out the edges upon the anvil, which is planted between his legs, before giving the edge a final polish with his hone. It may be added that whetstones of various shapes and sizes were common at Newstead. The specimen from Pit LXI, figured in Plate LXII., No.2, is remarkable for its length and fineness. It measures $11\frac{3}{4}$ inches, and was no doubt intended to be exactly a Roman foot in length. It is evidently a carefully manufactured article, unlike the flattened river stones, many of which, it is apparent, had been used for the same purpose.

Among the smith's tools in Pit XVI were five hammers of different sizes. The largest of these (Plate LXIII., Fig. 11) is a fore-hammer, 7 lbs. 4 oz. in weight. It is $11\frac{1}{2}$ inches long, and the head is The Smith's cross-paned. The shaft must have been fastened with a wedge. Tools The face measures 2 inches by $1\frac{7}{8}$ inches, the pane $1\frac{3}{4}$ inches by $\frac{3}{4}$ of an inch. Fig. 1 is a smaller fore-hammer of the same type. It weighs 4 lbs. $1\frac{1}{4}$ oz., and is 11 inches in length The shaft must have been wedged in position. No modern smith would use so small a fore-hammer, but it would be eminently suitable for making spears or sword blades. Plate LXIII., Fig. 5, is a cross-paned hammer, roughly octagonal at one end and furnished with a slip eye. It weighs $16\frac{1}{2}$ oz.; one end seems to have been used for driving in nails, the metal being upset and abraded. The pane shows the steel welded upon it, although nothing of the kind is now visible on the face. Plate LXIII., Fig. 3, is a roughly made hammer, weighing 1 lb. $4\frac{1}{2}$ oz. The eye is badly shaped, and the tool looks as if it had been hurriedly turned out. Plate LXIII., Fig. 6, is a smith's set-hammer—an instrument which is held against the iron and receives the blows of the fore-hammer. The eye is only $\frac{3}{4}$ of an inch in diameter, and was probably fitted with an iron shaft. The weight is 1 lb. 9 oz. Plate LXIII., Fig. 7, shows the tool known as a 'drift.' It is $5\frac{3}{4}$ inches long and oval in section, and was used by the smith in making the eye-holes of hammers. It came

from Pit XVI. Plate LXIII., Fig. 2, represents a pair of smith's tongs, 18 inches in length, such a tool as would be used for making nave-bands or other light work (Pit XVI). Plate LXIII., Fig. 4, shows another pair of smith's tongs, 16 inches in length. These also are intended for light work. They were perhaps used for drawing out the heads of spears or for forging bolts. It should be noted that they have been made for a left-handed man (Pit XVI).

In addition to the mower's anvil already described, the smith's stock found in Pit XVI contained a small anvil, $4\frac{3}{4}$ inches high, ending in a rectangular face from which the steel has evidently been broken off (Plate LXIII., Fig. 10). When in use, it would be inserted in a block of wood. This is the sort of anvil on which nails would be pointed. Plate LXIII., Figs. 8, 9 and 12, are pieces of solid iron (Pit XVI) which were doubtless used in the camp smithy as mandrels on which to shape square staples such as are still employed for carts. A heavier hammer than any of those in the smith's stock came from Pit XVII. It is illustrated in Plate LVII., Fig. 6, and measures $13\frac{1}{2}$ inches in length. At one end it is brought to an edge $2\frac{1}{2}$ inches wide, while at the other end it is flattened and is roughly octagonal in shape. The eye is oval. This hammer weighs 11 lbs. 10 oz.

From the Smith's Stock

Passing from tools, one has next to catalogue a number of pieces of iron, so miscellaneous in character as to render classification difficult. They include articles of which the use is uncertain, things in process of manufacture, and mountings and fastenings. To the first category, and also no doubt partly to the second, belong several of the objects that formed part of the smith's stock in Pit XVI. Of these the most striking are five beautifully forged rods of iron. Four of them are illustrated in Plate LXIV., Figs. 1, 2, 4 and 5. They measure from 9 inches to 13 inches in length, and are decorated with a series of hammered mouldings expanding at a central point into a larger disc $2\frac{1}{8}$ inches in diameter. The pattern is the same in all of the pieces. In spite of the fact that they are obviously incomplete, they seem to represent, in the hoard, old metal about to be used again rather than work in an unfinished condition. It will be noted that in all of them the mouldings on either side of the larger disc correspond, a circumstance which suggests that they were used in a horizontal rather than in a perpendicular position. This fact, together with the number found, five pieces, gives a clue to the purpose for which they were forged. They must have formed part of the connecting

PLATE LXIII. THE SMITH'S TOOLS

	PAGE
1. Fore hammer. Pit XVI.	285
2. Tongs. Pit XVI.	286
3. Hammer. Pit XVI.	285
4. Tongs. Pit XVI.	286
5. Hammer. Pit XVI.	285
6. Set hammer. Pit XVI.	285
7. Smith's 'drift.' Pit XVI.	285
8. Staple mandril. Pit XVI.	286
9. Staple mandril. Pit XVI.	286
10. Small anvil. Pit XVI.	286
11. Fore hammer. Pit XVI.	285
12. Staple mandril. Pit XVI.	286

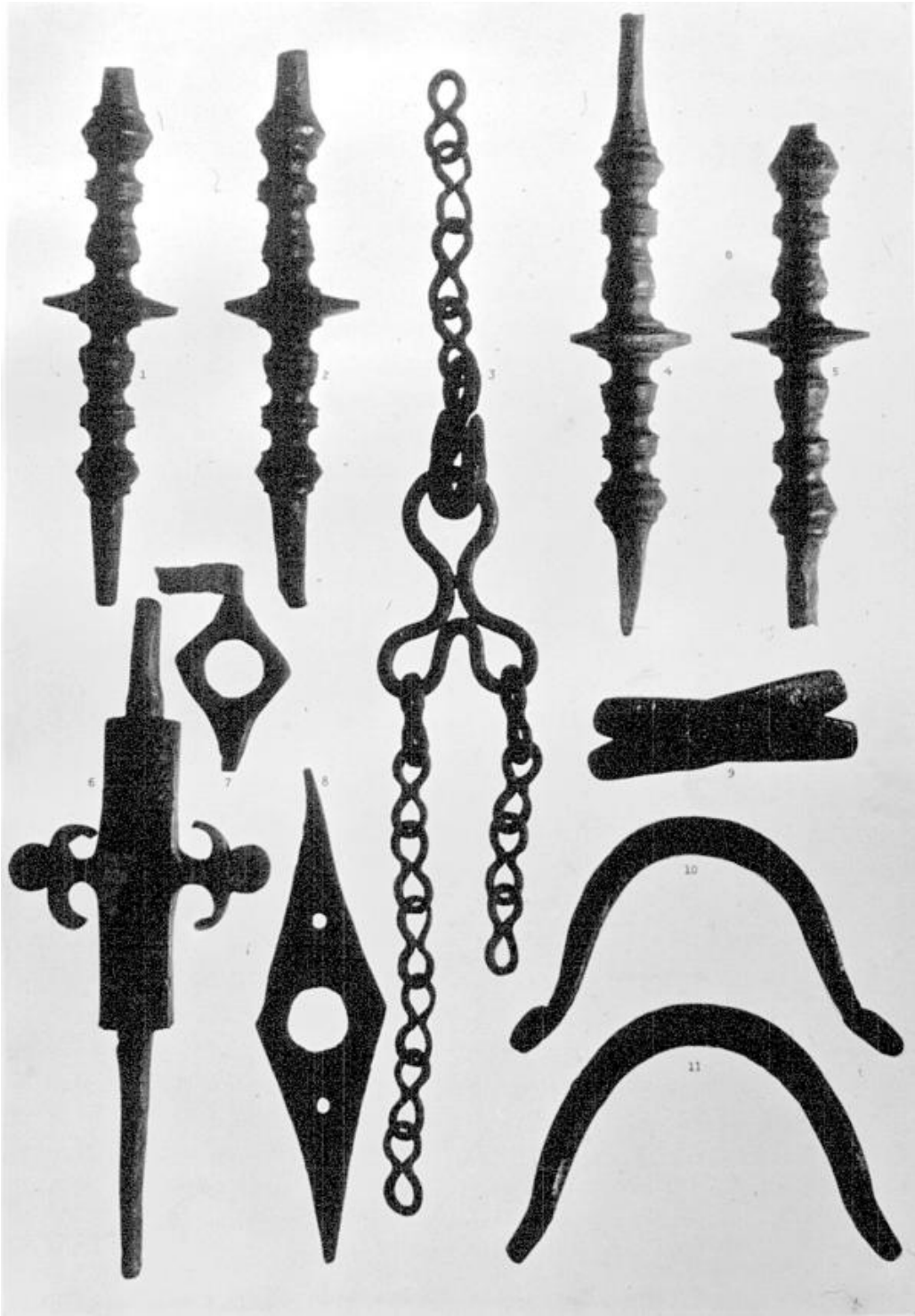
All the objects figured are of iron.



PLATE LXIV. THE SMITH'S STOCK

	PAGE
1, 2, 4 and 5. Iron objects which probably formed part of the framework of a seat. Pit XVI.	286
3. Chain for suspending a pot over the fire. Pit XVI.	287
6. Iron object over-laid with white metal, perhaps a bolt. Pit XVI.	287
7 and 8. Iron mountings of uncertain use. Pit XVI.	287
9. Iron object. Ditch of early fort.	288
10 and 11. Mountings forming part of the framework of a saddle. Pit XVI.	288

All the objects figured are of iron.



rods binding together the ends of a seat, perhaps a *sella castrensis*. It is quite clear that these decorated pieces were intended to be welded to longer metal rods, and this has been done in the piece which has been omitted from the illustration. On one end a metal rod is affixed measuring from the central disc to its end a length of 8 inches, so that, if the opposite end was treated in the same way, the whole would have a length of 16 inches, which would probably mean that the seat was some 8 inches in length.

Such a seat, found in a Roman cemetery at Nymwegen, is to be seen in the Museum of the Canisius College there. The framework, which is of iron, resembles a modern camp stool, except that the ends, instead of simply forming a St. Andrew's cross, are curved gracefully, the lower and the upper half each describing a semi-circle. The two ends are tied together by five rods; two join the feet together, two the supports for the seat, and one ties together the ends at the point of intersection. The rods themselves measure about 14 inches in length, and each rod is ornamented by three disc-like mouldings of brass placed at intervals upon it. The feet of the seat terminate in small shoes or sandals of bronze, which possibly give us a clue to the use of three objects of brass which were found with the iron rods in Pit XVI. Two of them are illustrated in Plate LIV., Figs. 2 and 3. They very probably formed part of the feet. It is on a seat of this kind that Augustus is placed in the reliefs on the silver cups from Boscoreale now in the collection of Baron Edmond de Rothschild,¹ and on the columns of both Trajan and Marcus Aurelius we may see the Emperor seated upon it. Doubtless the Newstead seat formed part of the camp equipment of some officer of high rank.

Plate LXIV., Fig. 6, also from Pit XVI, is likewise incomplete. It consists of a rectangular iron plate, 5 inches in length, overlaid with brass. At either end of it there projects a rod, the two rods being of unequal length, while on either side of the plate are ornamental projections resembling a fleur-de-lys in shape. These last have also been plated with brass. The use of this object remains uncertain. Plate LXIV., Fig. 3, came from Pit XVI. It is a chain, the full length of which is 19½ inches. The upper part consists of a single heavy chain fastened to a triple loop. From this depend two smaller chains. It was probably used for hanging a pot over a camp fire. The iron mountings shown in Figs. 7 and 8 of the same plate are possibly

1 Héron de Villefosse, *Le Trésor de Boscoreale*, Monuments Piot., tome v. 1899, pl. 31 and 32.

sockets for the insertion of the bolts of a door. Fig. 9, which is from the ditch of the early fort, consists of two pieces of iron moving on a short pin which holds them together; its purpose is unknown. Figs. 10 and 11, both from Pit XVI, have served as part of the frame of a military saddle; such saddles had a projecting peak behind and before. The ends are splayed out and perforated with double eye holes, which show signs of considerable wear.

Some of the larger objects from Pit XVI are brought together on Plate LXV. Fig. 1 is doubtless the hoop of a barrel for lowering into a well. It has a loop to hold the suspending chain or rope. Figs. 2, 3 and 4 may be mountings for waggons. Fig. 5 is the tyre of a wheel in process of being welded into something fresh. In Fig. 6 we have an iron peg with the lining of a hub adhering to it. Fig. 7 is another object of uncertain use, perforated at both ends. Fig. 8, from the ditch of the later fort, is perhaps the lining for the pivot-hole of a heavy door, while Fig. 9 is simply an ingot of iron. It came, with four similar ingots, from Pit LVIII, and a sixth was taken out of Pit XVI.

Some miscellaneous iron objects are illustrated in Plate LXVI. Fig. 1 is from Pit XLV, Figs. 2 and 4 from the Barracks (Block No. II). Fig. 1 has its surface hammered into a herring-bone pattern, of which examples occur elsewhere, as on an iron shovel recently found at Zugmantel.¹ Its use is doubtful. Fig. 3 is a door handle, or possibly a knocker. Fig. 5, a square mounting 1 inch high, might possibly have been used as the socket for a pilum. Fig. 6, an iron rim with loops for a cross handle, may have belonged to a small bronze vessel. Fig. 7 resembles an armlet. It is from Pit XXII. Fig. 8, which bears a striking resemblance to a boat hook, is from the ditch of the later fort. It was probably employed to pull up buckets from the bottom of a well; a similar specimen has recently been found at the Saalburg. Fig. 10, a small socketed hook from the ditch of the early fort, was perhaps a meat hook, serving the purpose of the modern fork. Fig. 13 possibly belonged to a steelyard. Fig. 14, which is much corroded, recalls a manacle. Figs. 16 and 17, from Pits LV and XXII, are the spindles of querns. Four of these were found in their original settings. In Fig. 19 we have what is probably a mounting for insertion in the shaft of a waggon. It bears evident marks of wear. Fig. 20 is probably a punch. Fig. 21 is a lunette of iron, finished behind with a projecting tang, by which it was probably inserted into

1 *Der Obergermanisch-Raetische Limes*, Lief. 32, 'Kastell Zugmantel,' Taf. xv. Fig. 21.

PLATE LXV. HEAVY IRON MOUNTINGS AND INGOT

	PAGE
1. Hoop for a well barrel. Pit XVI.	288
2, 3, 4. Heavy mountings, probably parts of a waggon. Pit XVI.	288
5. Disused tyre of a wheel in process of being welded into something else. Pit XVI.	288
6. Heavy peg with hub lining for a wheel adhering to it. Pit XVI.	288
7. Object of unknown use.	288
8. Heavy ring, perhaps a lining for a door pivot. Inner ditch of later fort.	288
9. Ingot. Pit LVIII.	288

All the objects figured are of iron.

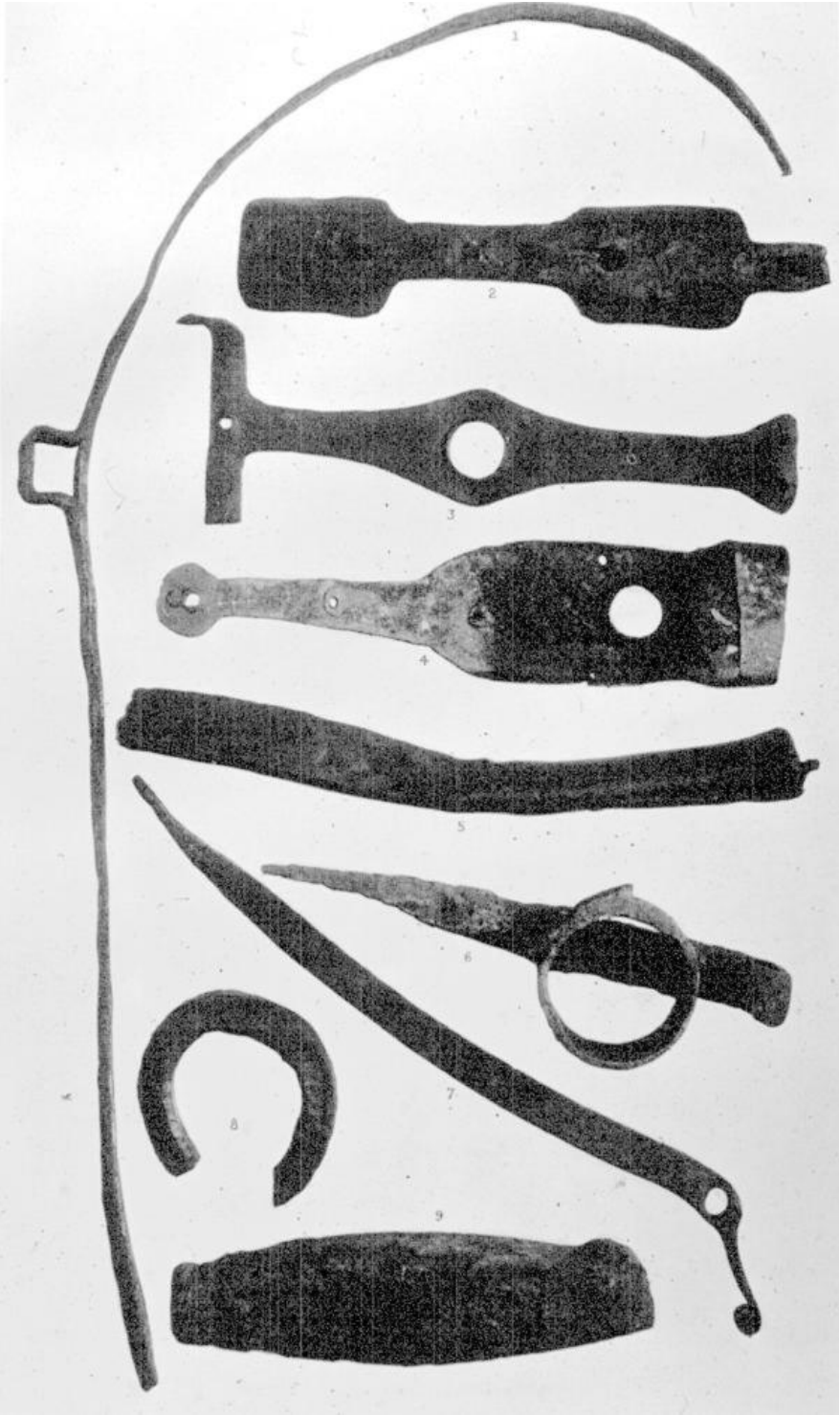
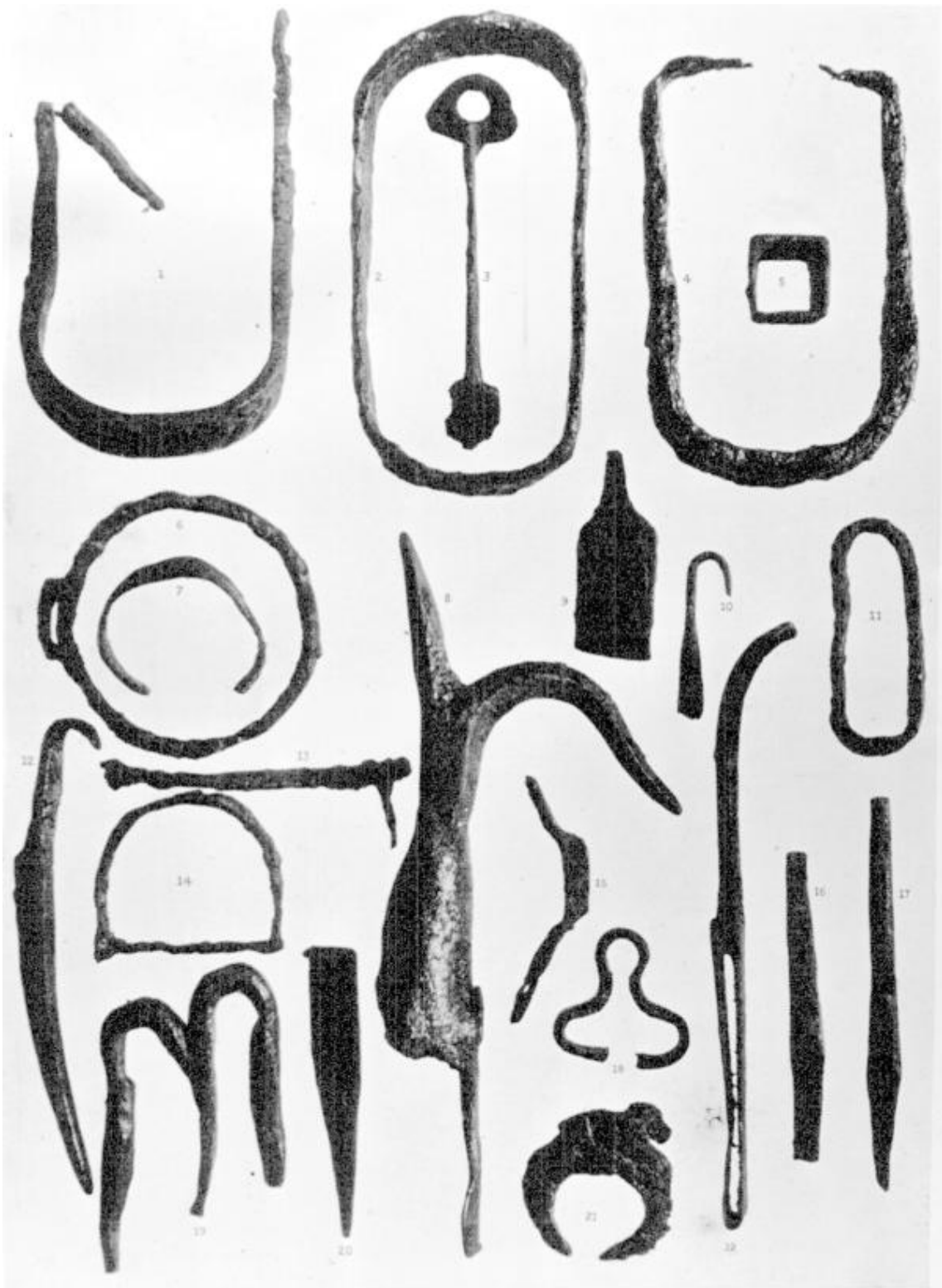


PLATE LXVI. MISCELLANEOUS IRON OBJECTS

	PAGE
1. Stirrup-like object, probably part of a waggon. Pit XLV.	288
2. Stirrup-like object, probably part of a waggon. Praetentura.	288
3. Iron object, perhaps a handle.	288
4. Stirrup-like object, probably part of a waggon. Pit I.	288
5. Box-like mounting resembling the socket of the shaft of a pilum. Pit XVI.	288
6. Ring with two loops, probably part of the mounting of a small pail.	
7. Rudely shaped object resembling a bangle. Pit XXII.	288
8. Hook with socket for a pole. Inner ditch, west front.	288
9. Small wedge. Ditch of early fort.	
10. Small socketed hook. Ditch of early fort.	288
11. Ring, perhaps belonging to a balance.	
12. Prong of a rake.	
13. Fragment of a steelyard.	288
14. Manacle (?)	288
15. Object of unknown use.	
16. Spindle for a quern. Pit LV.	288
17. Spindle for a quern. Pit XXII.	288
18. Ring.	
19. Mounting of a cart shaft. Pit LV.	288
20. Punch. Ditch of early fort.	288
21. Crescent-shaped mounting or letter C, which has been attached to wood.	288
22. Strigil. Pit LVII.	289

All the objects figured are of iron.



the wood of a door or a chest. Fig. 22, which came from the Baths, is a strigil (Pit LVII). Two iron objects included in Plate LXXI., Figs. 5 and 6, may be noted here. Fig. 6, found in Pit LVI, consists of two iron rings joined together by a swivel. Fig. 5, from the ditch of the early fort, is an iron collar composed of two semi-circular pieces hinged together, so that it can be opened and closed at will. The ends, which open, terminate in loops—one of these circular, the other rectangular. From examples noted on the Continent it is probable that these loops were held together by a long narrow link, to which a chain was fastened. When the collar was slipped over a wooden post or other object to which it was desired to attach it, it could be drawn taut by means of the chain. On the other hand, when the chain was slackened the long narrow link permitted the collar to be opened. These objects are to be met with on pre-Roman as well as on Roman sites. An example may be noted among the finds from La Tène,¹ while from the Limes forts they are to be seen at Zugmantel and Pfünz.² Precisely the same type of collar survived in the African 'slave chain.'

Nails and Bolts

Nails, bolts and fastenings were common both in the pits and as surface finds. A number of these are collected in Plate LXVII. The T-shaped objects, Figs. 1 and 4, were employed to fasten tiles and tubes to the walls. They were, therefore, common in the Baths. Most of the others tell their own story. Loops such as appear in Figs. 6 and 10 to 13, some of them with rings attached, must have been used for many purposes. Inserted in the beams of the Barrack huts, they would serve for hanging a variety of articles. The nails have a surprising air of modernity about them. They are of all sizes and shapes. Not a few are perfectly fresh. Figs. 16 to 18 represent tackets from shoes.

Weaving

Although leather was abundant in the pits, cloth seemed to have disappeared almost completely. Two small fragments were, however, discovered among the damp refuse in Pit XXIII, and it is more than probable that among the population which followed in the wake of the army and settled in the annexes, weavers were to be found. No better evidence of their presence can be adduced than the presence of the long-handled combs of bone or horn employed in weaving, which occur also at

1 Munro, *The Lake Dwellings of Europe*, p. 287, fig. 89, 13.

2 *Der Obergermanisch-Raetische Limes*, Lief. 32, 'Kastell Zugmantel,' Taf. XV. Fig. 53 ; *Ibid.* Lief. 14, 'Kastell Pfünz,' Taf. v. Fig. 26, and xviii. Fig. 14.

Camelon and on Roman sites in England. Four very good specimens were found at Newstead. Plate LXVIII., Fig. 2, which is from the ditch of the early fort, shows some signs of wear. It is $4\frac{7}{8}$ inches long and has nine teeth, and but for the incised lines, which form a triangle at the base of the teeth, it is without decoration. Fig. 1, from Pit XXXVII, is in perfect preservation. It measures 6 inches long and has eight teeth. The handle terminates in a cross-bar which is decorated with a double set of incised diagonal lines. It has a hole in the centre, probably intended for a cord for suspension. Fig. 4, from Pit LIX, has originally been of the same shape. It is $4\frac{3}{4}$ inches in length. One end of the cross-bar has been broken off. The main part of the handle is divided into two panels by means of double lines incised across it. In each panel are two circles, inside each of which are seven dots. At the upper end is a hole for a cord. Fig. 3, which represents a common type, came from the inner ditch of the East Annexe. The long-handled combs are of common occurrence among the brochs of Northern Scotland, and Dr. Joseph Anderson¹ has shown how they must have been employed to press the woof on to the web,—the teeth being inserted between the threads of the warp,—and has pointed out that a similar implement is still used for this purpose in the East. In England, long-handled combs have come to light, not only in immediate association with Roman relics, but also on sites such as the Lake-village of Glastonbury and the camp at Hunsbury, near Northampton, which appear to belong to a period of pre-Roman civilisation. On the other hand, the long-handled weaving comb is almost unknown in the finds from the German Limes forts. It would, therefore, appear that at Newstead we must class these combs as things belonging to the native population, and associate them with the characteristic fibulae and horse trappings of Late Celtic design.

Other objects suggestive of cloth-making are spindles. Two of them were found in Pit LIV. They are neatly tapered at each end. One measures $8\frac{1}{2}$ inches, the other (Plate LXVIII., Fig. 7) $6\frac{1}{4}$ inches. Whorls were sometimes of sandstone (Plate LXVIII., Figs. 13, 14 and 15) and sometimes of bone (Plate LXVIII., Fig. 12). Objects cut from pieces of red and black ware (Plate LXVIII., Figs. 8 to 11) probably served the same purpose. A small, neatly made saw from Pit XVII, with its handle of deer horn, the whole only $5\frac{1}{2}$ inches long (Plate LXVIII., Fig. 6), is just such a tool as might have been

¹ Notes on the Evidence of Spinning and Weaving in the Brochs or Pictish Towers? *Proceedings of the Society of Antiquaries of Scotland*, vol. ix. 548.

PLATE LXVII. HOLDFASTS AND NAILS

	PAGE
1, 2, 3 and 4. T-shaped clamps employed for fastening tiles against a wall. Baths.	<u>289</u>
5. Bolt with loop for attaching to woodwork. Pit LV.	<u>289</u>
6. Loop with ring for attaching to woodwork. Pit LV.	<u>289</u>
7. Bolt.	<u>289</u>
8. Hook.	<u>289</u>
9. Tie.	<u>289</u>
10 to 13. Loops for attaching to woodwork.	<u>289</u>
14. Pin with perforated head.	<u>289</u>
15. Bolt. Pit LVII.	<u>289</u>
16, 17 and 18. Shoe nails.	<u>289</u>
19, 20 and 35. Flat-headed iron studs.	<u>289</u>
21 to 34. Nails of different patterns.	<u>289</u>

All the objects figured are of iron.

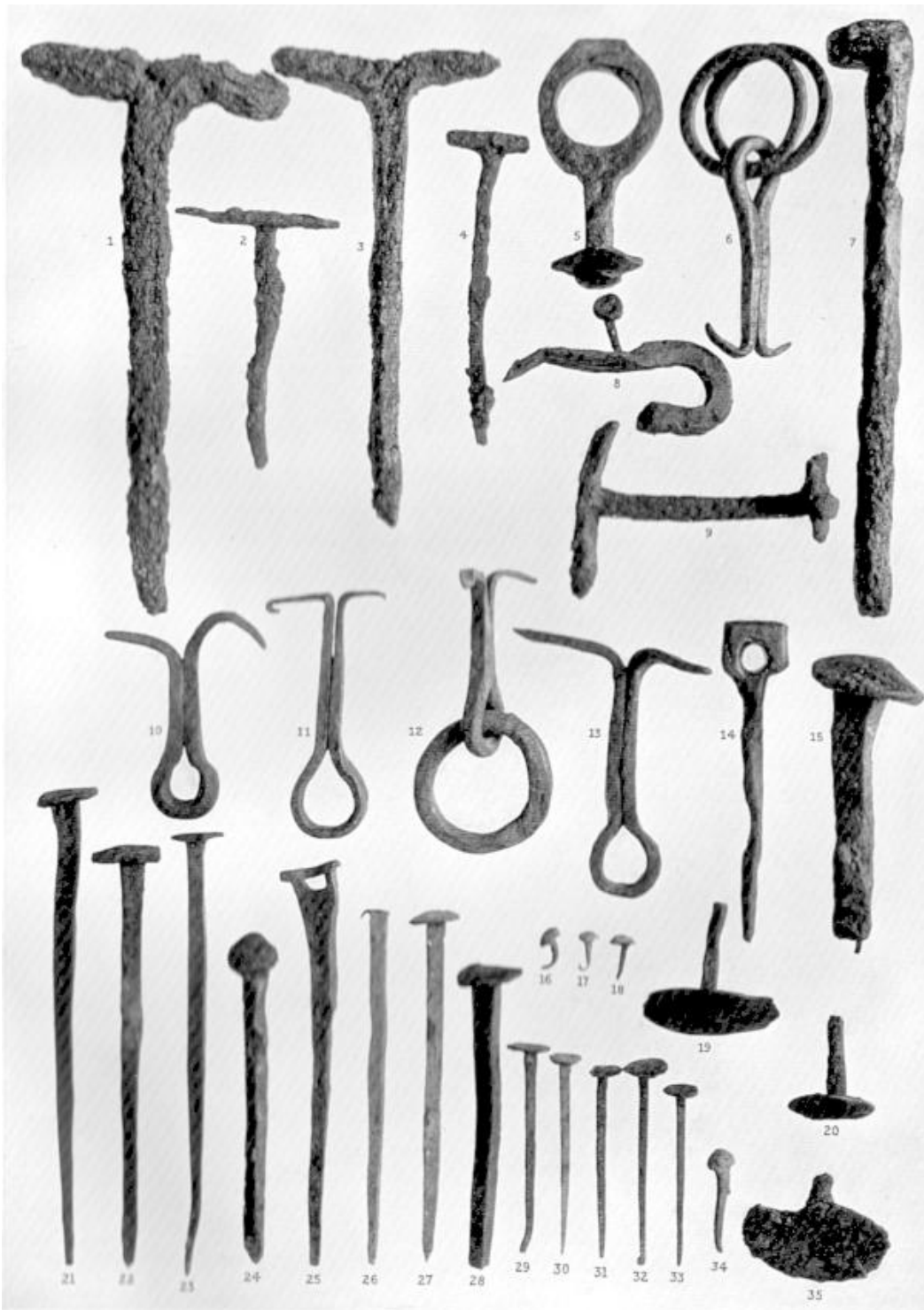
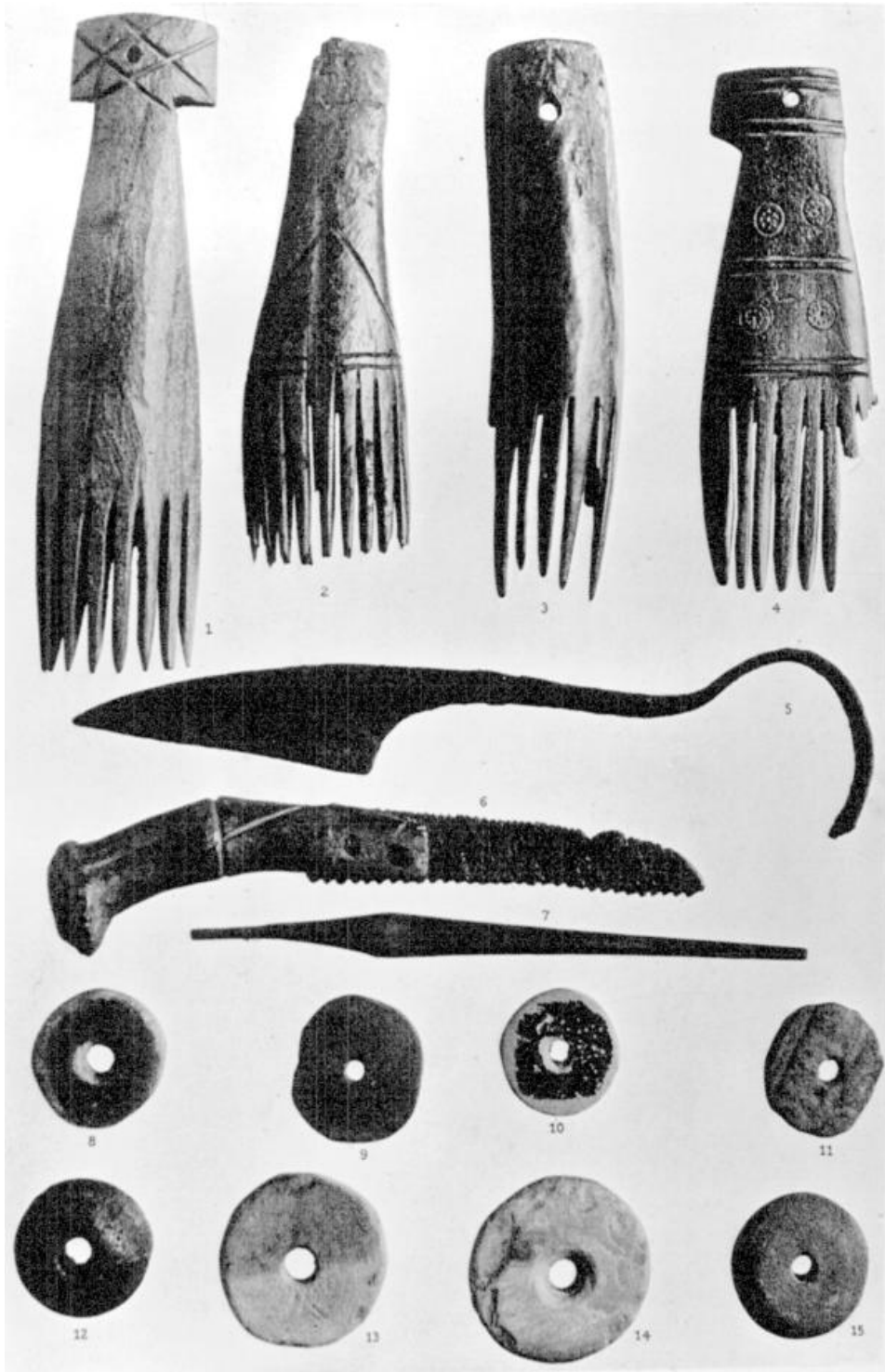


PLATE LXVIII. EVIDENCES OF WEAVING AND SPINNING

	PAGE
1. Weaving comb of bone. Pit XXXVII.	290
2. Weaving comb of bone. Ditch of early fort.	290
3. Weaving comb of bone. Inner ditch, East Annexe.	290
4. Weaving comb of bone. Pit LIX.	290
5. Shears of iron. Ditch of early fort.	291
6. Small saw, iron, with handle of horn. Pit XVII.	290
7. Wooden spindle. Pit LIV.	290
8 to 11. Whorls made from fragments of pottery.	290
12. Whorl of bone.	290
13 to 15. Whorls of stone.	290



used to cut out the weaving combs. Of the shears, which were, of course, indispensable to the weaver, we have an example from the ditch of the early fort (Plate LXVIII., Fig. 5). It is unfortunately incomplete. It had measured $7\frac{1}{4}$ inches in length, and was shaped like the instrument still used for sheep shearing.

CHAPTER XIV

Transport and Harness

IN some of the forts on the Wall of Hadrian there can still be seen upon the threshold of the gateways the ruts that tell of wheeled vehicles. At Newstead the destruction of the buildings has been far too complete to afford any parallel, but the evidence of wheeled traffic comes to us in a different, but not less convincing, form. Two wheels, almost entire, were found in Pit XXIII, and a third in Pit LXX. Spokes of wheels or other wooden fragments came from Pits LIV, LXV, and LXXXII, while among the hoard of iron objects in Pit XVI were twenty-three hub-rims, three hub-linings and some broken fragments. A portion of a wheel tyre in process of being manufactured into something else was taken from the same receptacle. A rusted tyre came from the ditch of the South Annexe, and a portion of another from Pit LVII at the Baths. Both hub-rims and hub-linings were found in the ditch of the early fort, and they not infrequently occurred, more or less corroded, near the surface.

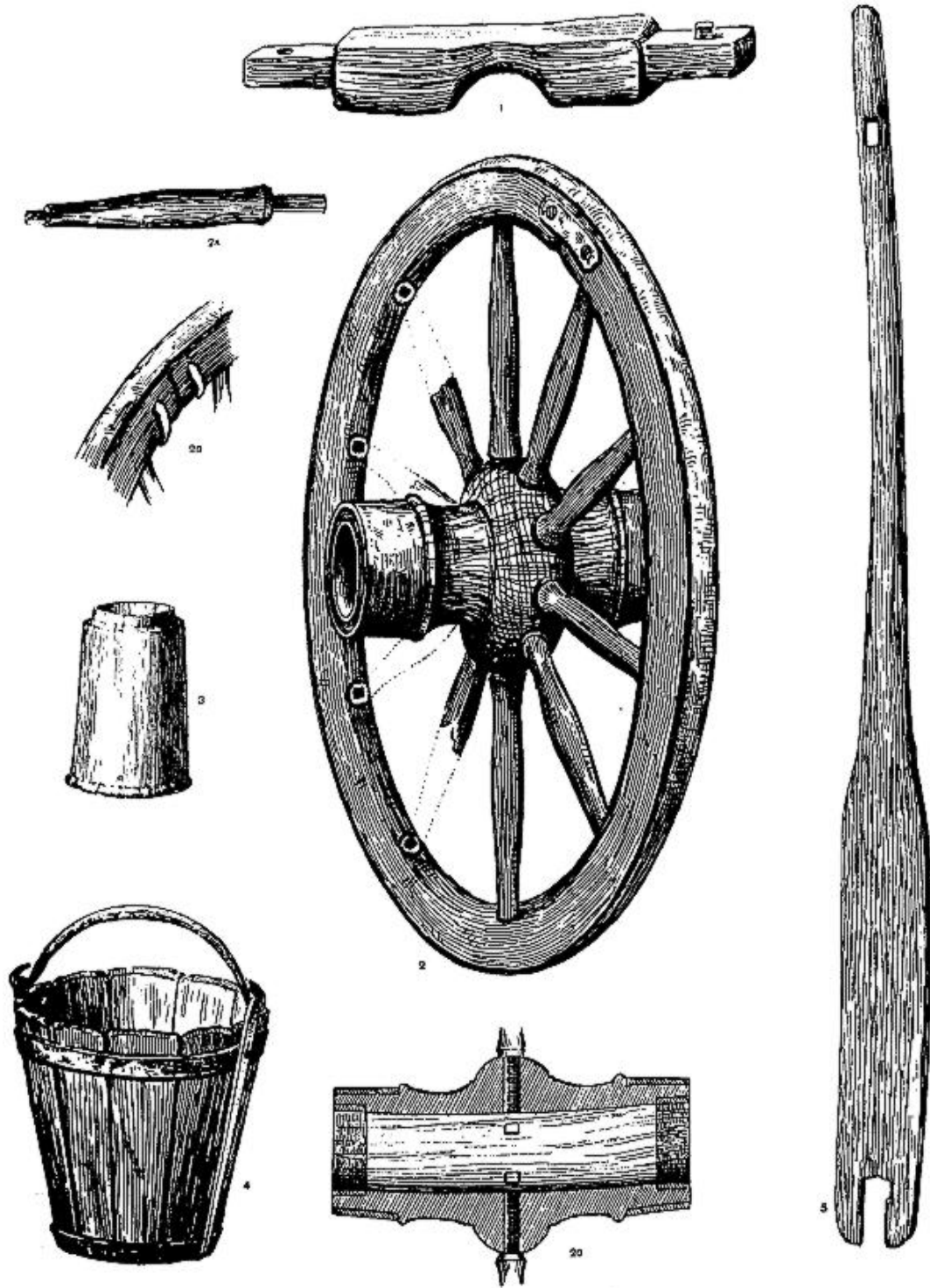
Wheels

The wheels from Pit XXIII, one of which is illustrated in Plate LXIX., Fig. 2, have an outside diameter of three feet, while the nave measures $15\frac{1}{2}$ inches from end to end, and has a diameter of $8\frac{1}{2}$ inches at the centre and $5\frac{7}{8}$ inches at the ends. The felloe is made of a single piece of ash, bent through artificial softening so as to present only a single joint; the ends are bolted together with an iron plate (Fig. 2 b). The spokes, probably of willow, are eleven in number. They are fitted into the felloe with a round tenon and into the hub with a square tenon (Fig. 2 a); they are beautifully formed and show a neat bead, half an inch from the point of insertion into the hub. The hub, which is of elm, appears to have been turned on a lathe (Fig. 2 c). At both ends it is fitted with an iron ring 3 inches deep, and at one end a strong iron ring forms a lining inside the hub to protect it from wear. This ring is kept in position by a pair of curved loops projecting from

PLATE LXIX. WHEEL FROM PIT XXIII AND WOODEN OBJECTS

	PAGE
1. Yoke. Pit XXI.	322
2. Wheel. Pit XXIII.	292
2A. Spoke of wheel, showing tenons.	292
2B. Felloe of wheel, showing method of jointing.	292
2C. Section of hub of wheel	292
3. Box. Pit XL.	311
4. Bucket with iron mountings. Pit XXIII.	310
5. Steering oar. Pit LXV.	313

All the objects figured are of wood.



its upper surface, and the inner edges of the loops are sharpened so that they could be driven into the wood of the hub. The iron tyre of the wheel is $\frac{3}{8}$ of an inch thick and $1\frac{3}{4}$ inches in breadth. Specimens of the hub-rims and linings are illustrated in Plate LXX. Fig. 5, which belongs to the former class, is from Pit XVI. Linings are represented by Fig. 9, from the same pit, and by Fig. 10, from the ditch of the early fort.

The only wheel of a similar character hitherto known in Scotland came from the fort at Bar Hill. Slightly smaller in size, it shows the same features of construction—the long hub, the comparatively slender spokes and the felloe composed of a single piece of bent ash. Messrs. Macdonald and Park, in their account of Bar Hill, have pointed out the resemblance between this wheel and the nave and spokes found in the pre-Roman Lake-village of Glastonbury, referring at the same time to the ten-spoked wheel discovered in the year 1882 at La Tène, in which also the felloe was formed of a single piece of ash, bent.¹ At the same time they indicated the possibility that the Bar Hill wheel is a product of native workmanship. That this is so is more than probable, though the exact nature of the vehicles to which such wheels belonged and the seat of their manufacture are alike unknown to us.

The discoveries at La Tène and at Glastonbury, both sites which are pre-Roman, only bear out the evidence we have from early writers to the effect that before the Romans reached Central Europe and Britain, the natives were possessed of wheeled vehicles, and of vehicles which, like the war chariots—the *covinnus* and the *essedum*—were capable of being driven rapidly. Indeed, the vocabulary used by Roman writers in speaking of the wheeled transport of the Empire is largely Celtic in its origin. Such words as *benna*, *carpentum*, *carrus*, *cisium*, *colisatum*, *covinnus*, *essedum*, *petorritum*, *reda*, which are applied to a considerable variety of vehicles—carts, waggons, war-chariots and light cars for rapid movement—can all be traced to a Celtic origin.^[2] It is no doubt tempting to see in these wheels the remains of some Caledonian chariot captured before the walls. But, however much the suggestion may appeal to our imagination, we have no means of proving it. We shall probably do well to rest content with the view that they belonged to more prosaic vehicles. We have no strictly British or Gaulish representation of chariots, but we possess a series of reliefs on grave-monuments from Igel and Neumagen on the

1 *The Roman Fort, on the Bar Hill* p. 94.

2 See Holder, *Alt-keltischer Sprachschatz*, Leipzig, 1897. I am indebted to Professor J. B. Keune of Metz for drawing my attention to this subject.

Moselle, and from Anon in Belgium,¹ which have preserved to us many representations of the carts, the waggons and the lighter vehicles of the native population—a people over which the Roman civilisation had doubtless to some extent laid its veneer. That such carts were employed for transport is shown by the reliefs on the Trajan column.² Perhaps, then, the clearest inferences we can draw are that there was wheeled transport with the force at Newstead, and that, as early as the first occupation, the roads which the army followed admitted of its use.

Two types of wheels were noted at Bar Hill, and the same types occurred again at Newstead. At the bottom of Pit LXX, which, from its pottery, had evidently belonged to the later period, lay the remains of a large wheel. It had been, on the whole, coarser and heavier than the wheels found in Pit XXIII, and it was also less well preserved. The hub was broken in two and most of the spokes had been displaced. Enough remained, however, to indicate clearly that it had resembled the wheel found in the outer ditch at Bar Hill. When complete it must have had a diameter of about 3 feet 5 inches. No iron mountings were found with it. The nave measured 16 inches in length, and had a diameter of 9 inches in the centre. The spokes, which must have been twelve in number, were nearly square. At the point of junction with the hub they measured $2\frac{1}{2}$ by $2\frac{1}{4}$ inches, tapering slightly towards the felloe. They were 12 inches long, and were fixed into the hub with a square tenon, while the outer ends passed right through the felloe. Whether they had originally projected a little beyond the felloe was difficult to say, but the extremities were worn as though they had not been covered by any protecting rim. Unlike the felloes of the wheels from Pit XXIII, the felloe of this ruder wheel was made in six sections, on treads attached to one another by wooden dowels. The length of each tread was 1 foot 10 inches and the thickness $3\frac{1}{4}$ inches, tapering to $1\frac{1}{2}$ inches where it touched the ground. The projecting dowel measured $1\frac{1}{4}$ by $\frac{7}{8}$ inches.

Linch Pins

Another attribute of wheeled vehicles, several obvious specimens of which came to light, was the linch pin, which was used for preventing the wheel slipping from the axle (Plate LXX., Figs. 1, 3, 6 and 8). These are made of iron, and are commonly about 6 inches long. At the upper end they are hammered out into a flat plate rudely oval or circular in form, in the centre of which projects a loop through which there was probably

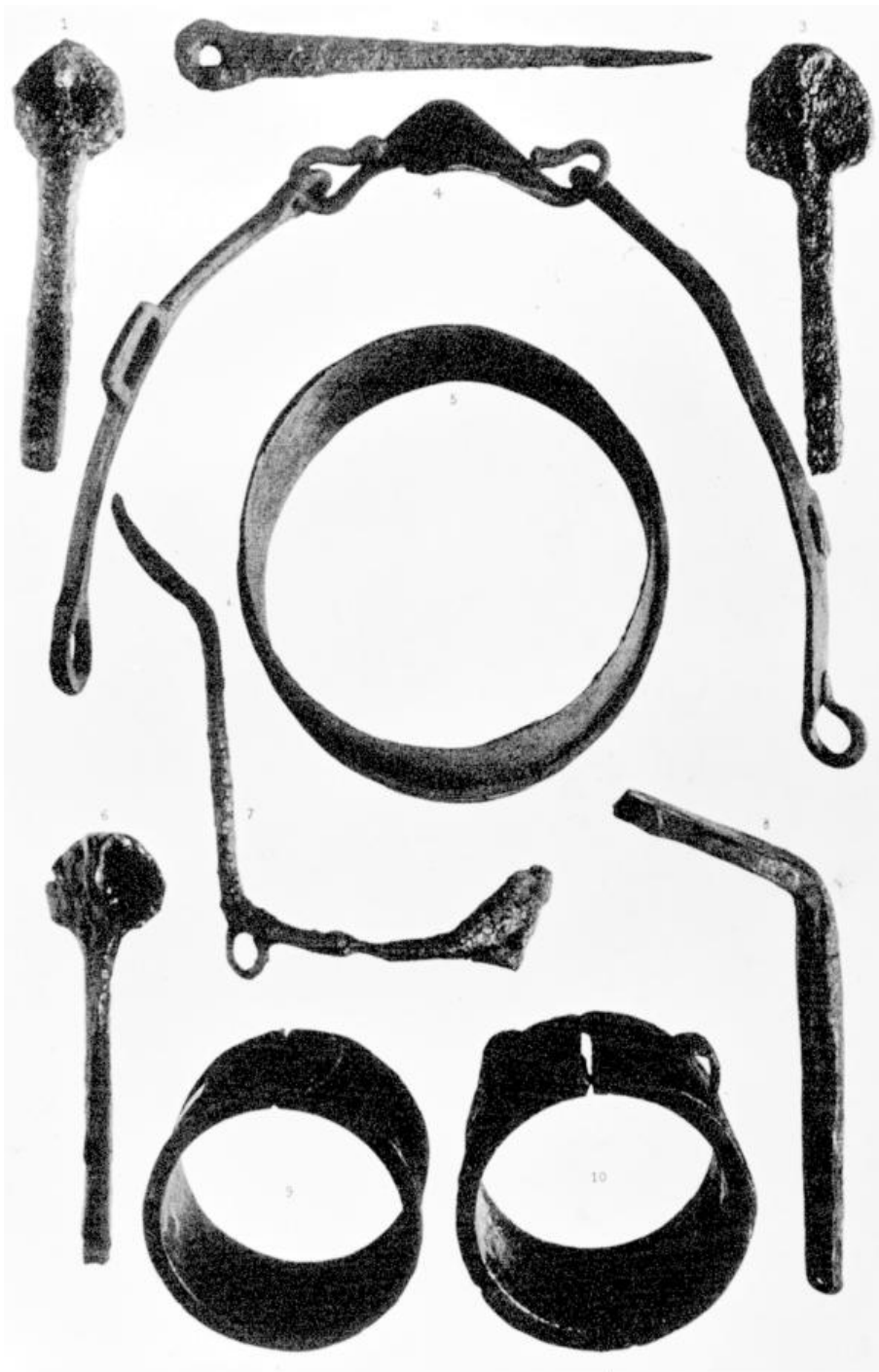
1 Sibenaler, *Guide illustré du Musée d'Arlon*.

2 Cichorius, *Die Trajanssäule*, Taf. lxxviii.

PLATE LXX. WHEEL-MOUNTINGS AND HARNESS

	PAGE
1. Linch pin. Pit I.	294
2. Pin.	
3. Linch pin.	294
4. Object, probably belonging to harness. Pit xvi.	297
5. Hub rim. Pit XVI.	293
6. Linch pin.	294
7. Fragment of iron head stall.	
8. Linch pin (?) Pit XVI.	294
9. Hub lining. Pit XVI.	293
10. Hub lining. Ditch of the early fort.	293

All the objects figured are of iron.



INCHES 0 1 2 3 4

CENTIMETRES 0 1 2 3 4 5 6 7 8 9 10

passed a cord to keep the pin in position. Such heavy pins may be seen in use to-day in country waggons on the Continent.

In modern times harness, like dress, has lost much of the colour and decoration formerly associated with it. Only in Southern Spain, in Sicily and in Northern Africa do the horse-trappings of to-day continue to display something of the richness which is illustrated on the monuments of Roman horsemen. These monuments were no doubt frequently coloured. Traces of the colour occasionally survive, though, as a rule, it has faded out of all recognition. A recently published drawing of the gravestone of Silius, a soldier of the Picentinian Ala, found at Mainz, reproduces the tints which were still fresh at the time of its discovery. In one panel, which shows the soldier leading his horse, we can see the high-peaked military saddle of yellow leather and the green saddle-cloth with red hanging streamers, while the broad red straps that form the breeching and run round the horse's breast are adorned with bright metal phalerae.¹

Roman Horse Trappings

Some of the horses in the monuments from Cologne, preserved in the Wallraf-Richartz Museum there, are even more richly caparisoned. On the charger of Marcus Sacrilus of the Norician Ala, for example, the fringed saddle-cloth hangs almost to the ground, the bridle is decorated with what appear to be great tufts of wool, which we may suppose to have been brightly coloured, and on the horse's poll is fixed a large circular phalera with a head in relief. The breeching and the straps round the breast bear at intervals the usual phalerae,—circular metal plates from which streamers are suspended, and between which are attached smaller crescent-shaped pieces, probably of bright metal. Sometimes a band of cloth or leather with a deep fringe is worn round the shoulder beneath the straps as in the monument of T. Flavius Bassus, also of the Norician Ala, in the same collection. The figure of this soldier on his charger is reproduced in Fig. 42. Here too there is a richly decorated martingale, from which hangs a strap terminating in a small crescent-shaped pendant—a feature which may likewise be observed on the monument of the standard bearer Flavinus at Hexham. Both at Arlon and at Neumagen the heads of the horses harnessed to the lighter vehicles are adorned with a high crest-like ornament, no doubt made of bright-coloured wool and leather. Such ornaments are still in use in the South of Europe, and something of the kind, though on a smaller scale, forms part of the bridle of the horse of Bassus.

¹ Lindenschmitt, 'Neuerwerbungen des Mainzer Altertumsvereins,' *Mainzer Zeitschrift*, 1908, p. 135, Taf. iii.

Bits

At Newstead a large number of the objects of metal could be identified as harness-mountings. Of these the most easily recognisable were the bridle-bits. Two were found with the helmets in Pit XXII (Plate LXXI., Figs. 1 and 2). They are both of iron, and appear to have been originally of the same pattern. The bar, which is $4\frac{5}{8}$ inches in length between the



FIG. 42. FIGURES FROM THE
MONUMENT OF T. FLAVIUS BASSUS AT
COLOGNE

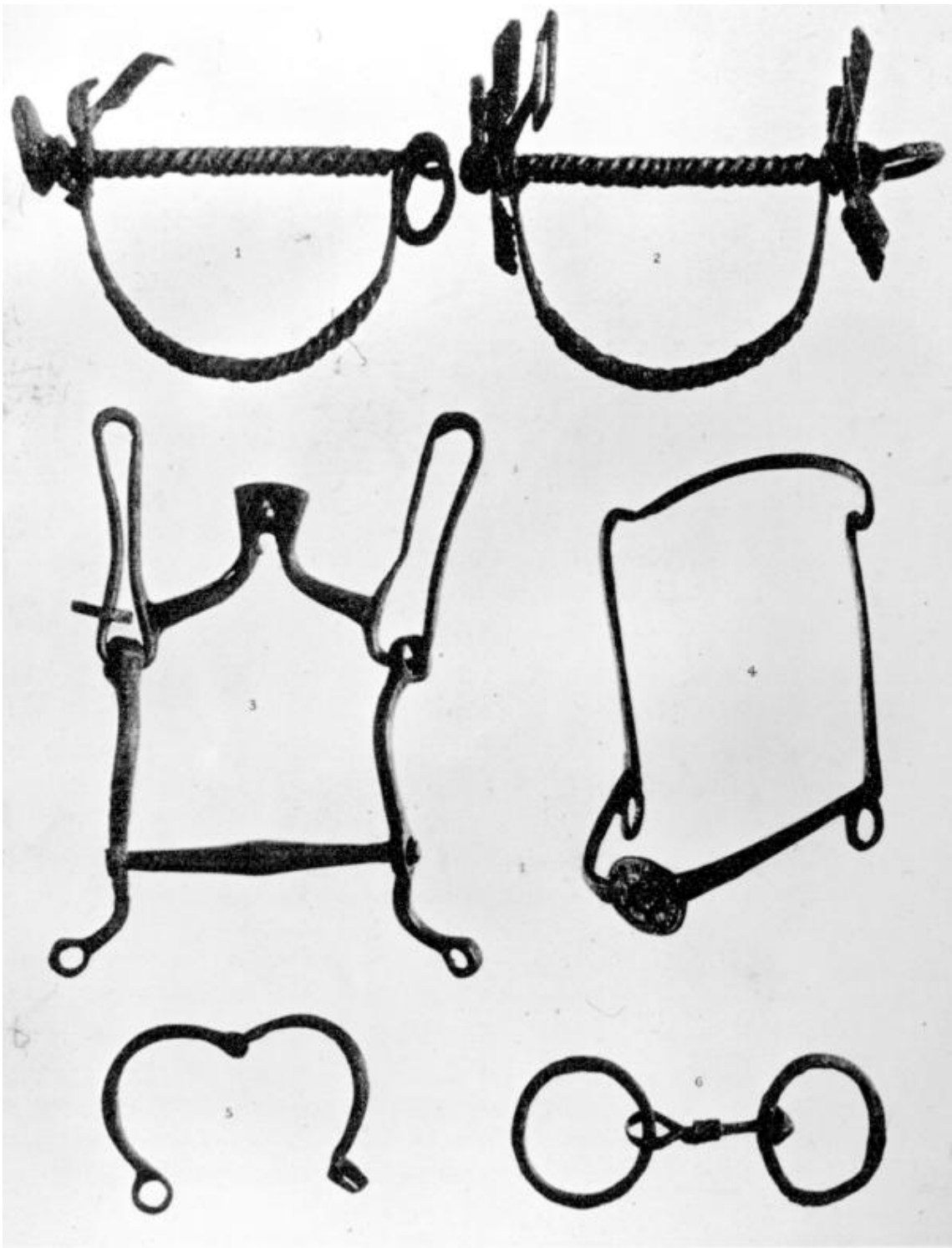
cheeks, is ridged by twisting. Joined to it at either end is a rigid curb bent almost to a semi-circle, and also twisted. Immediately beyond the points at which the curb is attached are two rectangular loops, each $1\frac{1}{2}$ inches long, by which the bit must have been fastened to the head-stall. Beyond these, on either side, are rectangular plates, the corners of which have been hammered out, and the edges serrated, the whole somewhat in the shape of a St. Andrew's cross. Fastened to each end of the bar are the rings for attaching it to the reins. These bits probably date from the end of the first century. A Gallo-Roman specimen, somewhat similar in construction, showing a rigid curb and the same square loops for attachment to the head-stall, was found at Alesia.¹

¹ Zschille und Forrer, *Die Pferdetrense in ihrer Formen-entwicklung*, Berlin, 1893, Taf. vii. p. 19.

PLATE LXXI. BRIDLE BITS, ETC.

	PAGE
1, 2. Bridle bits from Pit XXII.	296
3. Bit from large inner ditch, west front.	297
4. Mounting of headstall with enamelled disc from large inner ditch, west front.	297
5. Hinged loop. Ditch of early fort.	289
6. Swivel. Pit LVI.	289

All the objects figured are of iron.



INCHES 1 2 3 4

CENTIMETRES 1 2 3 4 5 6 7 8 9 10 11 12

Another bit was found in the large inner ditch of the extended fort, where it was cleaned out on the west side, and near it lay an iron head-stall decorated with enamel. The bit (Plate LXXI., Fig. 3) is a severe one. It measures 4¼ inches between the cheeks; the bar is curved, and assumes in the centre the form of a solid tongue of metal. The mounting of the head-stall (Plate LXXI., Fig. 4) is of iron. This part of the harness was placed over the horse's nose. Sometimes it broadened out above the nostrils. In the Newstead specimen such expansion is slight, its place being taken by an enamelled medallion. Round loops served for the attachment of the bit, and the whole was fastened securely by means of straps passing through the curved bends on either side.

Head-stalls, both in bronze and in iron, have been found in various parts of the Empire, although they are probably more common on early sites. Zschille and Forrer figure a specimen in bronze found in Rome.¹ Head-stalls Another of iron is illustrated by Liger,² and the Museum of St. Germain-en-Laye contains a bronze example from St. Paul Trois Chateaux, Drôme. In Germany instances are to be noted as occurring at Haltern,³ at Hofheim,⁴ and at Zugmantel,⁵ while the horse on the monument of T. Flavius Bassus at Cologne appears to be wearing a metal head-stall. In none of these cases, however, do we find the same method of decoration as is employed in the present specimen, where the centre is composed of millefiori enamel with a brass edging, recalling the familiar egg and tassel ornament. Many examples of the use of enamel in harness-mountings of the Late Celtic period have been found in Britain. But neither in its form nor in its decoration is the head-stall associated with these. Probably the method of decoration combined with the 'find-spot' may be taken as evidence that it belongs to the Antonine period.

Figure 4, Plate LXX., which came from Pit XVI, seems to have formed some portion of a set of harness. It suggests hames for a collar. But the two long pieces of metal are of unequal size—8½ inches and 9⅝ inches respectively. Again, one of them has a single projecting loop, as though for a strap, while the other, which is flatter and more solid, has two much

1 *Op. cit.* Taf. V. Fig. 7.

2 *La Ferronnerie*, vol. ii. fig. 101.

3 *Mitteilungen der Altertums-Kommission für Westfalen*, Heft ii. Taf. xxvii. Fig. 2.

4 *Das früh-römische Lager bei Hofheim*, Text Fig. 24, No. 16174.

5 *Der Obergermanisch-Raetische Limes*, Lief. 32, 'Kastell Zugmantel,' Taf. xxi. Fig. 56.

smaller perforations. This last feature can be paralleled from an object found at Hofheim.¹ Examples of the rings known as terrets were also met with. They were fastened on a pad, and the reins were passed through them. Plate LXXV., Fig. 12, from Pit LVIII, is of iron with some traces of bronze or brass plating. It is a Roman type, similar to specimens from Novaesium and the Saalburg. It is interesting to compare it with Fig. 2 of the same plate, a bronze terret with projecting flanges on the ring, which is a characteristic British variety. Fig. 4 is an object of bronze which was taken from Pit LVIII. It also seems to belong to harness. It is 4 inches long, and curved with a loop at one end, while at the other end is a tang for fastening it into a socket. When the whole was complete, the bronze portion must have projected to the side like an animal's horn. Possibly it was one of a pair fixed on the top of a pad and intended for the suspension of hanging discs of metal. One such disc, leaf-shaped and of bright brass, (Plate LXXV., Fig.10) was found in the pit along with it. It is 4½ inches long, and has a button-like termination of solid metal. The metal in the body of the disc is quite thin, and the stud upon the back shows that it was probably backed with leather.

The smaller metal objects employed in the decoration of harness can be divided into three classes—the circular phalerae, the lighter pendants hanging from these, and the loops by which the straps for attachment were fastened. The most remarkable set of such harness-mountings was found in washing out the silt at the bottom of Pit LV. These are grouped together in Plate LXXII. In the centre is a phalera, and on either side of it are two hanging ornaments and other mountings for strap ends. Then there are two decorated plates which, from their association, probably belong to harness. All of these are of brass. Here and there, however, silver-plating and copper have been employed to heighten the decorative effect.

Phalerae

The phalera measures 3⅝ inches in diameter. Unlike the light discs which bear the name of Domitius Atticus, it is strongly put together. The central boss is of silver, bordered by a rope-moulding of bright brass, which in its turn is surrounded by a moulding plated with silver, while the other band and the small circular projections on the rim have been overlaid with copper, bearing an embossed pattern. A flat circular ring is attached to the back of the phalera shown in Fig. 43. From this project

1 Ritterling, *Das frühromische Lager bei Hofheim* (Nachtrag), Abb. 13, 17666.

PLATE LXXII. HARNESS MOUNTINGS FROM PIT LV

	PAGE
1, 2, 5, 6, 7, 11, 12, 13, 15 and 16 are loops employed to connect a leather strap with a metal ring.	298, 301
8 and 10. Terminals for attaching to straps.	298, 301
3. Small bars with tangs for attaching them to leather.	
4 and 14. Decorative plates, probably for harness.	298
9. Phalera for harness.	298

All the objects are of brass. Nos. 4 and 9 show decoration with copper. On several of the pieces there are remains of silver plating.



three strong loops of brass, which are flattened to prevent their chafing the horse's flank. Two of these loops would be attached to the breeching, while from the third would depend a floating streamer or some hanging ornament of metal. Unlike the majority of such finds, this phalera has suffered but little, and it thus serves to give a true impression of the richness of Roman harness-mountings. Many of them must have been lavishly decorated. On the monument of Albanus of the Asturian Ala at Chalons-sur-Saône, for instance, one of the phalerae bears an embossed figure of an armed man on horse-back, another that of an eagle, a third a head, perhaps representing Medusa. Altogether there would appear to have been five of these large discs on the harness of Albanus, and this was probably the usual number, three being placed in front of the saddle and two on the quarters behind.

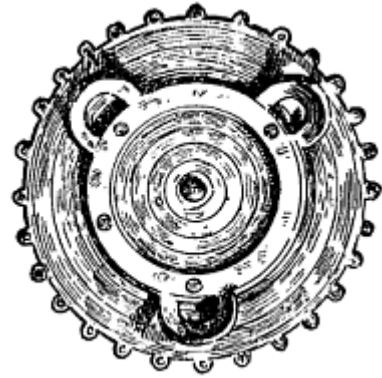


FIG. 43. PHALERA FROM PIT LV BACK VIEW



FIG. 44. PHALERA FROM XANTEN

two circular discs of bronze, illustrated in

Fig. 44 reproduces a highly decorated phalera with its pendant leaf-shaped ornament still attached to it. This phalera is of bronze, overlaid with silver. It forms one of a set said to have been found near Xanten, and is now in the British Museum. It is believed to date from the early part of the first century. On the back, in the upper segment of the circle, are two strong rings, slightly bent towards the edge, while the lower segment contains two

raised plates, between which is fixed the rigid stem of the hanging ornament. The pendant is evidently a conventional representation of foliage; a central pointed shoot is flanked on either side by leaves, and the leaves have their points turned back as though hardly yet expanded. The object, slightly varied, and sometimes assuming a phallic form, is common, in different sizes, on the Rhine, perhaps more especially on the earlier sites, such as Novaesium and Wiesbaden. It also occurs in England; the British Museum possesses specimens still attached to phalerae from Reeth, in North Yorkshire.

At Newstead examples of similar pendants were noted comparatively early among surface finds made within the fort (Plate LXXIV., Figs. 5 and 7). But it was only towards the end of the excavations that what appears to be a complete set was taken from Pit LXXVIII, which, from the pottery it contained, was undoubtedly of early date. These, though somewhat smaller in size, very closely resemble the pendants on the Xanten phalerae. They are three in number, and are made of bronze plated with silver (Plate LXXIII., Figs. 2, 3 and 4). On the broad leaf-like surface is tooled a delicate design of leaf and tendril, which was probably once filled in with niello, while the berries, corresponding to the grapes in the Xanten design, have been reproduced in small points of yellow metal. One of the pieces is slightly larger than the others, and was doubtless intended to be placed in the middle of the group. It differs from the rest in the treatment of its central leaf. On the back it has the same solid stem as was noticed in connection with the Xanten phalera. Along with this find we may conveniently notice two other objects from the same pit. One of these is a small circular disc (Fig. 1), also of bronze plated with silver, showing traces of niello decoration, and having a loop on the back for a strap to pass through. The other (Fig. 5), of the same material, forms an eye to be affixed to the end of a strap through which a T-shaped hook would be attached.

The Reeth horse-trappings alluded to above enable us to identify as portions of harness a number of examples of discs of another form. The best specimen (Plate LXXIV., Fig. 2) came from Pit LX. It is of bronze. The central portion is concave, and is decorated with six incised rays. In the centre is a small hole, through which passes a stud. On the back are two metal loops, about $\frac{7}{8}$ of an inch in width, joined together at one end by a third and much smaller loop. These discs were evidently fastened upon a strap, the stud in the centre passing through the leather, while from the small loop, placed at right angles to the larger ones, the hanging ornament was suspended

PLATE LXXIII. HARNESS MOUNTINGS, TERRA COTTA HORSE

	PAGE
A. 1. Circular stud. Pit LXXVIII.	300
2, 3 and 4. Pendant ornaments for attaching to phalerae. Pit LXXVIII.	300
5. Metal terminal, with eye for attachment to a T-shaped hook. Pit LXXVIII.	300
6. Spoon. Pit LXXXV.	338
7. Pin. Pit LXXVIII.	337
8. Needle. Pit LXXIII.	337
All the objects figured above are of bronze or brass. Nos. 1 to 5 are plated with silver, and show remains of niello decoration.	
B. Terra cotta group, originally of two horses; one has been destroyed. Pit XCII.	305



as in the Reeth find. Other specimens of these smaller discs may be seen in Plate LXXIV., Figs. 1, 3, 8 and 10.

No doubt the hanging ornaments attached to phalerae varied considerably in shape. On the horse of Bassus (Fig. 42, page 296) long floating streamers take the place of the more rigid leaf-ornaments we have been describing, and for these also there were probably employed metal terminals much like the two figured in Plate LXXII., Figs. 8 and 10, and some of those shown in Plate LXXVI., Figs. 4 to 10, 12, 13, 15, 16, though they may equally well have served for the ends of girdles. In the remarkable finds from the mosses of Schleswig, especially that from Thorsbjerg, we have interesting examples of the richness of early harness. Probably these contain objects that are not purely Roman, and they are perhaps a little later in date than the earliest occupation of Newstead. At the same time the Roman influence is strongly marked. It is instructive to note that the Thorsbjerg find included a number of hanging terminals which are identified as belonging to harness, and which clearly belong to the same class as those of which we have been speaking (Plate LXXII. and Plate LXXVI.).¹

Terminals of the same pattern as those in Plate LXXII. were found at Haltern.² In these, too, the surface of the upper portion of the mounting was plated with silver, a method of decoration less common in the Antonine period. Of the examples brought together in Plate LXXVI., Fig. 8 from the Principia and Fig. 7 from the Praetentura are very similar. The longer is plated with some white metal, and inlaid with a design in niello. Fig. 9, which is of bronze like the preceding pieces, is leaf-shaped. In the case of Fig. 6 a portion of the leather to which the mounting was originally attached still survives. It is, of course, possible that some of the metal endings may have come from the long fringed portion of military girdles. Such are shown hanging down in front in many of the monuments.

Strap Mountings

The Thorsbjerg find, which has already proved helpful, further illustrates the use of such loops as we find in Plate LXXII. These are made of comparatively thin metal, except for the actual loops, which are stronger. It is evident that they were fixed to the ends of straps, for in some of them the rivets are still in position. A similar article was employed at Thorsbjerg as part of a chain-bridle, its purpose being to serve as the joint

1 Engelhardt, *Denmark in the Early Iron Age*, plate 15, figs. 38 to 48.

2 *Mitteilungen der Altertums-Kommission für Westfalen*, Heft iii. Taf. xv. 4.

between the chain and the strap.¹ A loop of almost the same pattern as that from Thorsbjerg was also found attached to a chain, probably part of a bridle, at Weissenburg.² It is, of course, possible that some loops of this type may have been mountings for sword belts. Thus, Plate LXXIV., Fig. 6, presents an example of a circular object, with a centre hollow but for its projecting boss, and having rings to which four such loops have been attached. It was found in the roadway at the West Gate. In the Middle Ages, when swords were slung across the back, such an article might no doubt have served as part of a sword-belt. But Roman swords, as we see them on the monuments, usually hang straight at the side. It is probable therefore that this is really part of a bridle.

Late Celtic Harness

The majority of the objects grouped together in Plate LXXV. are distinguished by features which associate them with Late Celtic art. One of the most characteristic of them is the terret ring of bronze (Fig. 2). It was discovered beneath the level of the later Barrack Blocks at the south-east angle of the Praetentura, and at least two other specimens were found within the fort, both much corroded. They are a common feature in Late Celtic finds,³ such as the Stanwick hoard from Yorkshire. Sometimes, as in the well-known set from Polden Hill, Somersetshire, they have much more exaggerated projections, and are inlaid with spots of enamel.⁴ Fig. 6 is probably a portion of one of the terminal rings of a bronze bit. The oval ornament attached to it is just what we find on the bit from Rise, near Hull, except that there the centre boss is decorated with enamel.⁵

Figs. 1, 3, 7, 8 and 9 clearly belong to the same family. In all of them we have the petal-like design that occurs in the enamelled ornaments of the bridle-bit from Rise. Figs. 1 and 3 are each furnished with double loops at the back for a strap to pass through. Fig. 9 has a single loop, also at the back. Figs. 7 and 8 probably served as attachments, the petal-shaped head being employed to prevent them from slipping out of a leather strap. That all five are to be classed with Figs. 2 and 6 as harness-mountings seems evident, seeing that we can point to the occurrence of similar articles found with horse-furniture elsewhere. In Scotland analogies are to be noted in the

1 Engelhardt, *Denmark in the Early Iron Age*, plate 14, figs. 21 and 116.

2 *Der Obergermanisch-Raetische Limes*, Lief. 26, 'Kastell Weissenburg,' Taf vi. Fig. 19.

3 *British Museum Guide to the Antiquities of the Early Iron Age*, pp. 131 ff.

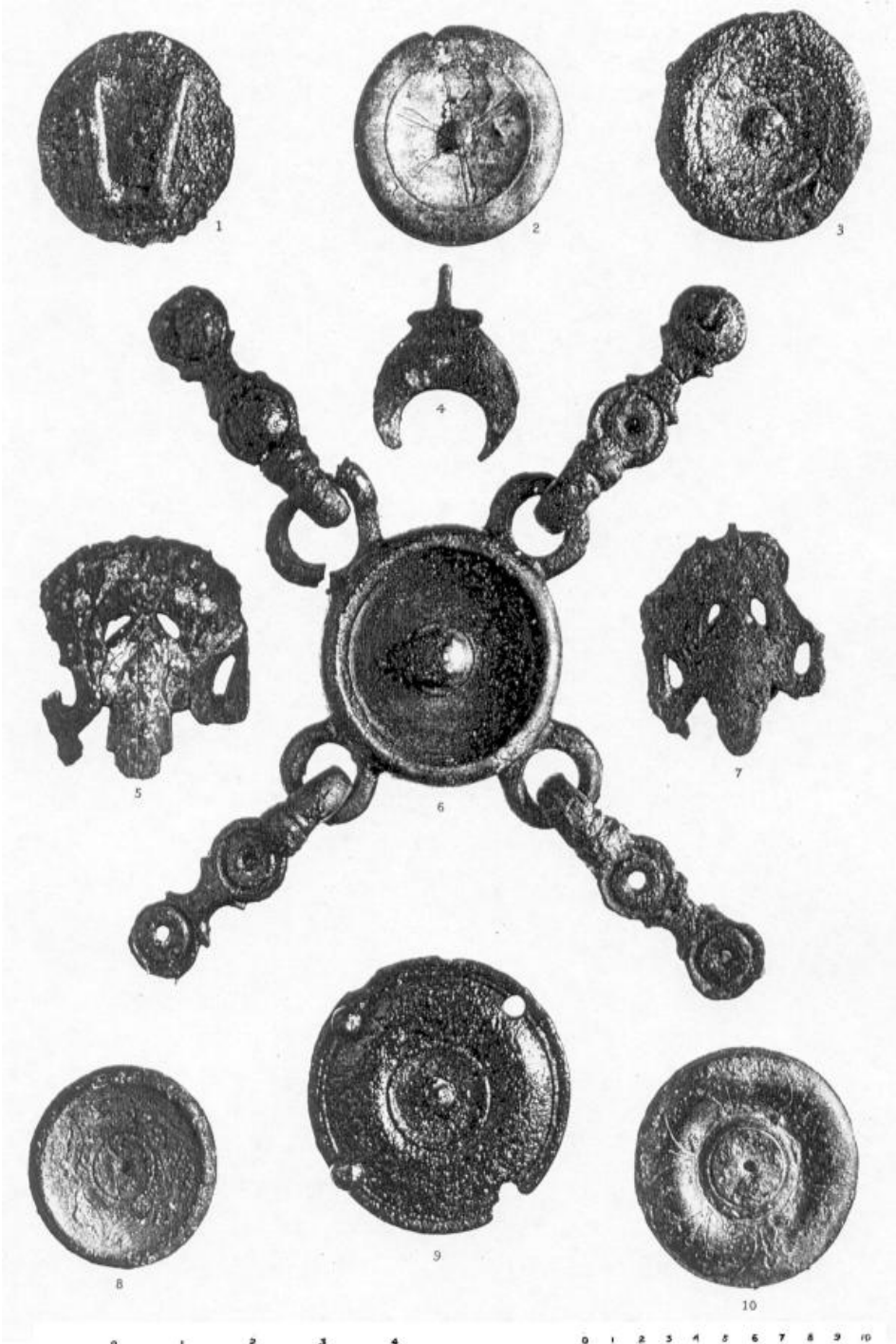
4 Kemble, *Horae Ferales*, plate xx. fig. 1.

5 *British Museum Guide to the Antiquities of the Early Iron Age*, plate v. fig. 4.

PLATE LXXIV. HARNESS MOUNTINGS.

	PAGE
1. Harness mounting, back view. Praetentura.	301
2. Harness mounting. Pit LX.	300
3. Harness mounting.	301
4. Lunette ornament for suspension. Block XIII.	
5. Hanging ornament for harness, bronze, with traces of white metal.	300
6. Harness mountings. Roadway outside west gate.	302
7. Hanging ornament for harness.	300
8. Harness mounting. Block XIII.	301
9. Circular mounting.	
10. Harness mounting.	301

All the objects figured are of bronze.



INCHES 0 1 2 3 4

CENTIMETRES 0 1 2 3 4 5 6 7 8 9 10

PLATE LXXV. HARNESS MOUNTINGS, LATE CELTIC TYPES

	PAGE
1. Harness mounting of bronze. Barracks, Praetentura.	302
2. Terret ring, bronze. Barracks, Praetentura.	302
3. Harness mounting, bronze. Barracks, Praetentura.	302
4. Harness mounting(?). Pit LVIII.	298
5. Embossed strip of brass. Pit LVIII.	303
6. Portion of a bit, bronze. Retentura.	302
7, 8. Loops of bronze. Barracks, Praetentura.	302
9. Mounting of bronze. Barracks, Praetentura.	302
10. Hanging ornament for harness of brass. Pit LVIII.	298
11. Decorated mounting for harness, bronze. Pit LIX.	303
12. Terret ring of bronze. Pit LVIII.	298



INCHES 0 1 2 3

CENTIMETRES 0 1 2 3 4 5

hoard of bridle-bits, terret-rings, and other objects undoubtedly belonging to harness, discovered in a moss at Middlebie in Annandale in 1737, and now in the National Museum in Edinburgh. Another find, which resembles the last in many particulars, is that of Stanwick already cited. In both there were decorated bridle-bits of the peculiar Celtic character that appeared at Rise, one ring being more highly ornamented than the other,—a want of uniformity which has been interpreted as indicating that the bits were designed for use by a charioteer; in driving a pair of horses, the more decorative ring would be worn on the outside, and fully exposed to view. Further, in both finds the bits are associated with the same terret-rings and trappings. At Stanwick, however, and perhaps in a measure also at Middlebie, the objects analogous to Figs. 1 and 3 are of finer and lighter workmanship. Although Fig. 11 has been included in Plate LXXV. as possibly a Celtic product, its origin is less obvious than that of the other pieces beside it. It was found in Pit LIX in association with early pottery. It is of bronze, and was evidently employed in much the same way as the smaller petal-shaped loops (Figs. 7 and 8). A strong loop is attached to the centre of the back, as though for the purpose of insertion in a strap, the decorated triangular portion serving to prevent the whole from being displaced. On the upper surface are six settings, which were probably filled with coral or enamel, though no trace of anything of the sort remains.

Along with these pieces of harness-mounting, we have grouped an object which is no less surely a product of Celtic Art (Fig. 5). This is a plate of thin brass $4\frac{1}{2}$ inches by $1\frac{1}{2}$ inches with embossed ornament. When found, it was doubled up. It is furnished with holes through which it was probably fastened by studs to some wooden surface. The design is divided into two panels. In the centre of each is a rosette closely resembling those which decorate the Balmaclellan mirror.¹ The rosettes are enclosed by curved stems terminating in a point such as one might see in a branch cut diagonally, with a piece of torn bark adhering to it. Midway in each of the curves is a thickening and a break, as though the stem had been snapped in bending. This is the feature which, slightly more developed, becomes the characteristic projections of the terret-ring. The whole treatment makes it clear that the design had its origin in the study of plant forms. The difference that is left between the two panels is characteristic of early work; the modern craftsman would have balanced them equally. To judge from the pottery with which

¹ *Proceedings of the Society of Antiquaries of Scotland*, vol vii. p. 349.

it was associated, and the position of the pit (LVIII) in which it was found, this piece of brass must belong to the early period.

When we compare the little group in Plate LXXV. with finds from purely British sites such as the Stanwick hoard, we see that the designs have become more solid and heavy, and that the craftsmen have lost something of their inventiveness. Between the art which produced these Celtic horse-trappings and that which displays itself in the buckles illustrated on Plate LXXVI. (Figs. 1, 2, 3, 17 and 18), there is no doubt a relationship. The two must have had a common origin. But, while the horse-trappings have features which are probably peculiar to Britain, such scroll-work as is found in Plate LXXVI., Fig. 2—the Trompetenmuster of German archaeologists—is by no means uncommon in the Limes forts, where it occurs both on brooches and on belt mountings. Good examples may be seen at the Saalburg and also among the smaller trinkets from Zugmantel.¹ At Zugmantel, too, we have buckles exactly like Figs. 1 and 3. At Newstead probably none of these buckles are earlier than the Antonine period.

The Stanwick hoard contains a piece of harness-mounting which evidently served the same purpose as the Newstead example shown in Plate LXXV., Fig. 1. It consists of four parts—two rings with the characteristic expansions and two rectangular pieces. In Fig. 1 the square ends are preserved, but the rings with their projecting flanges have developed into solid petals with raised centres. The bridle-bit from Rise represents an intermediate stage in the process of evolution. Here we have the petal-shaped motive employed as a decoration of the terminal rings. But each petal is composed of two parts. To begin with, there is a ring which is expanded to a point at one side, a raised line testifying to the tradition of the meeting of the two stem-like ends just as in the ornament of Plate LXXV., Fig. 6. Again, a circular filling, decorated with enamel, has been introduced. Between this filling and the expanded side of the ring there remains an open space, showing how the enamelled filling was inserted into the earlier design. The Stanwick hoard was found among extensive earthworks, enclosing nearly 1000 acres. Near it were discovered large iron hoops that were doubtless the tyres of chariot wheels. But no Roman coins or pottery appear to have been turned up within the earthworks, though these lie at no great distance from the great Roman road called Leeming Lane. As far as is known, the Middlebie find was not associated with Roman relics either. Probably,

¹ *Der Obergermanisch-Raetische Limes*, Lief. 32, 'Kastell Zugmantel,' Taf. x. Figs. 20, 21, 24, 25.

PLATE LXXVI. TERMINALS FOR STRAPS AND BUCKLES

	PAGE
1. Buckle of bronze. Upper levels, Pit II.	304
2. Buckle of bronze. Block XVI.	304
3. Buckle of bronze.	304
4. Terminal for a strap, bronze.	301
5. Terminal for a strap, bronze. Retentura.	301
6. Terminal for a strap, bronze. Retentura.	301
7. Terminal for a strap, bronze, with white metal plating and decoration in niello. Courtyard, Principia.	301
8. Terminal for a strap, bronze. Courtyard, Principia.	301
9. Terminal for a strap, bronze. Block XIII.	301
10. Terminal for a strap, bronze, showing leather. Barracks, Praetentura.	301
11. Portion of a buckle, brass. Pit LXV.	
12. Terminal for a strap, bronze.	301
13. Terminal for a strap, bronze.	301
14. Terminal for a strap, bronze.	
15. Terminal for a strap, bronze. Barracks.	301
16. Terminal for a strap.	301
17. Buckle of bronze. Block II.	304
18. Buckle of bronze. Praetentura.	304
19. Mounting, bronze, showing traces of plating with white metal. Courtyard, Principia.	
20. Belt mounting, bronze. Block XII.	
21. Bronze loop with head of a griffin; Principia.	



INCHES 0 1 2 CENTIMETRES 0 1 2 3 4 5

PLATE LXXVII. PHALERAE AND MISCELLANEOUS BRONZE OBJECTS

	PAGE
1. Bronze rod with phallic terminal, perhaps part of a balance.	150
2 and 3. Bronze amulets or perhaps buttons. Riverbank field.	187
4. Bronze loop of a sword sheath. Block XIV.	
5. Bronze loop.	
6. Bronze object of uncertain use, perhaps for the end of a sheath.	
7. Bronze mounting Porta Praetoria.	
8. Bronze mounting with settings of blue enamel.	
9. Hollow object of bronze.	
10. Bronze mounting.	
11. Phalera of bronze.	299
12. Hinge of brass. Pit LXV.	
13. Phalera of bronze. Barracks, Block II.	299
14. Bronze ornament with loop for a strap.	
15. Brooch of bronze. Praetentura.	331
16. Button of horn. Pit LXV.	150



INCHES 0 1 2 CENTIMETRES 0 1 2 3 4 5

therefore, both hoards were deposited before the Roman advance upon Caledonia. Have we then here at Newstead in these horse-trappings, an indication similar to that already noted in the sword-guards, that by the second century—perhaps under the influence of contact with Roman civilisation—the characteristic forms of Late Celtic metal work were beginning to lose something of their lightness and delicacy?

A Terra Cotta

The solitary example of a Roman Terra Cotta which came to light in the course of the excavations may be included to complete this chapter. It consists of a figure of a horse, a stout cob-like animal, standing $6\frac{3}{4}$ inches high, moulded in fine white terra cotta (Plate LXXIII., Fig. 9). It was found in Pit XCII. Originally a second horse stood beside it, but all that remains of this are the legs and tail. The two horses were evidently joined together by a yoke, the end of which may be seen resting on the neck of the figure that has survived. The stand which forms a base is complete, and there is no trace of the attachment of any vehicle. The group doubtless served as a toy or ornament. In the Museums of France and Germany we may find many little figures moulded in the same fine white terra cotta. From this material were fashioned the figures of the gods for the household shrine and the toys of the children. In France it is believed that many of these were made near Vichy. In Germany at least one centre of such manufacture is known. Many examples came from Cologne, and these bear the names of their makers, *SERVANDVS* of the Colonia Claudia Augusta Agrippinensium, who sold his wares at the *FORVM HORDIARVM*, or *LVCIVS*, who worked at the *CANTVNAS NOVAS*.¹ Unfortunately the maker of our Newstead group has left upon it no trace by which we can identify him.

¹ Lehner, 'Zur Kenntnis der römischen Terrakottafabriken in Köln,' *Bonner Jahrbücher*, Heft 110, S. 188 ff.

CHAPTER XV

Miscellaneous Finds

Locks and Keys

THAT the garrison had locks for their doors, and locks also for their chests and caskets, was evident from the large number of keys that were found in iron, bronze and lead. Illustrative examples are grouped together in Plate LXXVIII. Those made of iron are much corroded, most of them having been found near the surface. The ordinary type (Fig. 4) had resembled the letter T in shape, and was about 7 inches long. Its working was simple. When it was inserted into the keyhole, the tumblers of the lock were forced upwards, so releasing the bolt and allowing the door to open. The bronze keys were more complicated. One found in Block XIII, the Commandant's quarters (Fig. 11), had perhaps been the key of a room. It had a flat handle, probably ending in a ring, and, instead of our modern wards, it had eight projecting studs. The bolt of the lock for which it was used would be perforated by eight holes, into which the tumblers would drop from above, to be held in their places by a spring. The key being inserted pressed them upwards and released the bolt. Two of these lock-bolts are to be seen in Figs. 7 and 8; both are of bronze. One small T-shaped key of bronze (Fig. 5) was so light and fine that it must have belonged to a small casket, such a casket as may be seen on the monument of Regina, the wife of Barates the Palmyrene, found at South Shields. Fig. 12 is an imperfect lock-shield of iron found in the ditch of the early fort. Fig. 14 perhaps belongs to the same category, while Figs. 9 and 10 were probably bolts employed for fixing locks to wood.

Lamps

Lamps were scarce. It may be that supplies of oil were difficult to procure in Britain, and at Newstead, as at Silchester, tapers may have taken their place. One of the small familiar clay lamps was, however, recovered (Plate LXXIX., Fig. 8), as well as the bottom of another, and a large leaf in earthenware which had probably formed the handle of a third. None of these

PLATE LXXVIII. LOCKS AND KEYS

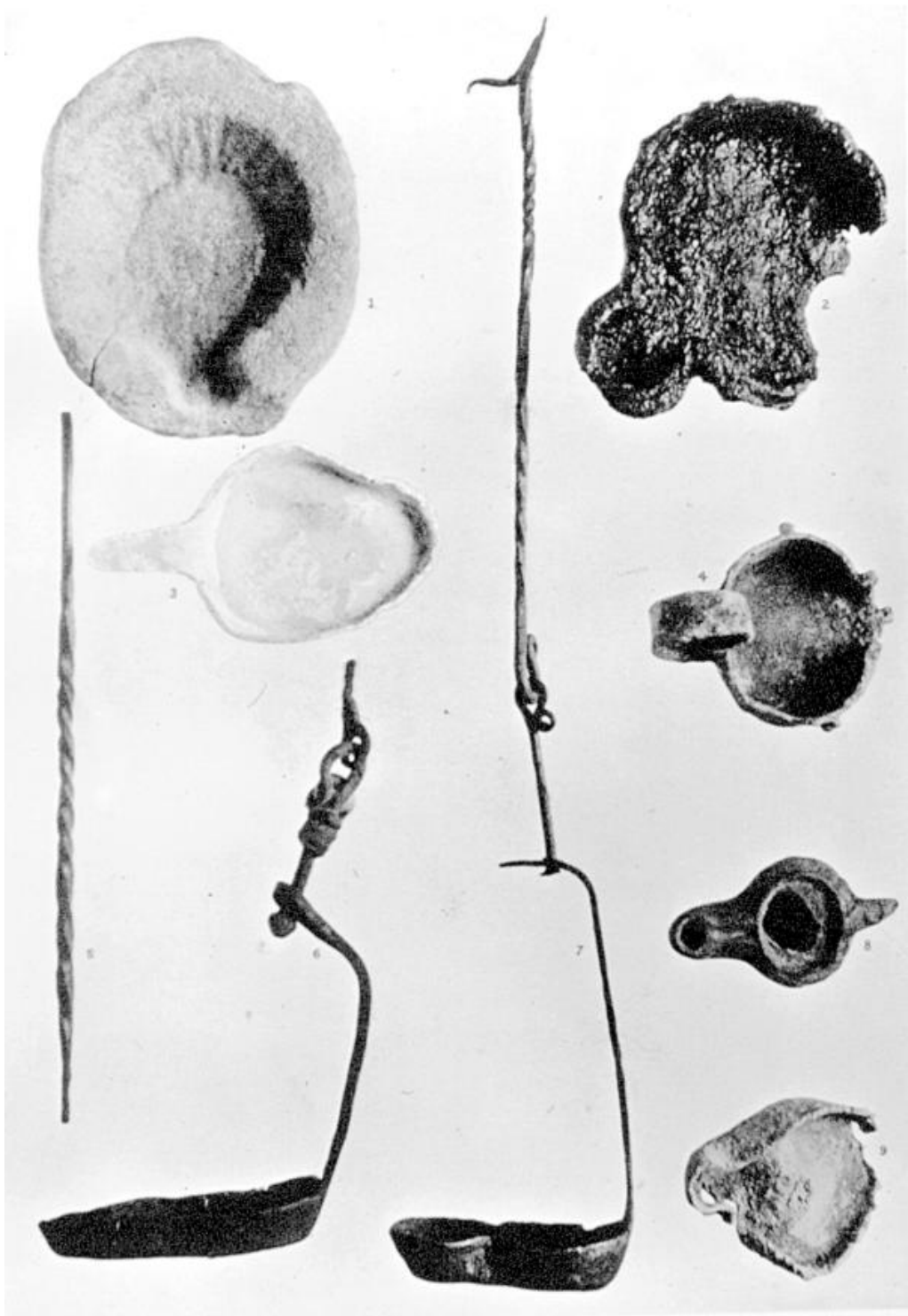
	PAGE
1. Iron key. Praetentura.	
2. Iron key. Pit LIV.	
3. Iron key.	
4. Iron key. Praetentura.	307
5. Bronze key. Retentura, Well Meadow.	307
6. Leaden key. Praetentura.	
7. Bolt of a lock of bronze.	307
8. Bolt of a lock of- bronze.	307
9 and 10. Bronze bolts for fastening lock plates.	307
11. Bronze key. Block XI II. Praetentura.	307
12. Iron plate for a lock. Ditch of early fort.	307
13. Bronze key. Block XIX. Retentura.	
14. Shield for a lock, bronze. Praetentura.	307



INCHES 0 1 2 3 CENTIMETRES 0 1 2 3 4 5 6

PLATE LXXIX. LAMPS

	PAGE
1. Lamp of stone. Praetentura.	<u>307</u>
2. Lamp of iron. South Annexe.	<u>307</u>
3. Lamp-holder of lead. Pit LXVII.	<u>307</u>
4. Lamp-holder of lead. South Annexe.	<u>307</u>
5. Iron stem, part of a hanging lamp. Ditch of early fort.	<u>307</u>
6. Hanging lamp of iron. Pit LVII. Baths.	<u>307</u>
7. Hanging lamp of iron. Pit LXV.	<u>307</u>
8. Lamp of earthenware. Retentura.	<u>306</u>
9. Lamp-holder of lead. North Annexe.	<u>307</u>



bore a maker's stamp. Plate LXXIX., Figs. 3, 4 and 9, which are of lead, were no doubt used as lamp holders. A somewhat similar specimen, with the lamp in it, is on exhibition in the Guildhall Museum, London.¹ A rudely shaped lamp cut from a block of stone is shown in Fig. 1 of the same plate, and there were several others. There were also three lamps of iron. Two of these came from pits and were in remarkable preservation. The finest (Plate LXXIX., Fig. 7) was taken out of Pit LXV, which probably belonged to the first century, to judge from the coins and the pottery which it contained. The form resembles that of a Scottish 'crusie.' The oil vessel is about 4 inches in length, and has its sides pinched in the middle. At the end opposite to the wick a stem rises about 5 inches, and then, flattened somewhat, curves over the vessel. A swivel, 3 inches in length, is inserted through a hole in the flattened portion, and this in its turn is looped into a rod 10½ inches long, furnished with a hook which projects one inch from the upper end. By the aid of the hook the lamp could be fastened to a beam, or could be carried in the hand. A second lamp of the same sort was found in Pit LVII, at the Baths, but there the long rod with its hook has been almost entirely lost (Plate LXXIX., Fig. 6). On the German Limes a good specimen of a hanging lamp of the kind was discovered at Heftrich.² A rod of twisted iron from the ditch of the early fort (Plate LXXIX., Fig. 5) appears to have been a portion of one of these hanging lamps. We are probably justified in classing with the lamps the small tweezers of bronze, two pairs of which were found. They would be useful for adjusting the wicks. One pair (Plate XCII., Fig. 8) came from the Baths. The other (Plate XCII., Fig. 6) from Block XIII, where it had been attached to a ring along with another small object, only a portion of which remains, but which had probably been a pin for teasing out the wick, such as that illustrated in Plate XCII., Fig. 16. Fig. 6 has a loose ring on the stem, by which the open ends can be brought together.

Styli and Tablets

Styli were of somewhat common occurrence. One which came from the ditch of the early fort was of bronze (Plate LXXX., Fig. 2). The rest were of iron. They were entirely without ornament, although they varied somewhat in the shape of the eraser and in the point (see Plate LXXX., Figs. 1–5 and 7–11). Some had points of solid metal. Others appeared to have been fitted with points which had perhaps been of agate. The ordinary pen, such as has been occasionally found in Germany,

1 *Catalogue of the Collection of London Antiquities*, pl. x. fig. 4.

2 *Der Obergermanisch-Raetische Limes*, Lief. 23, 'Kastell Heftrich,' Taf. ii. 13.

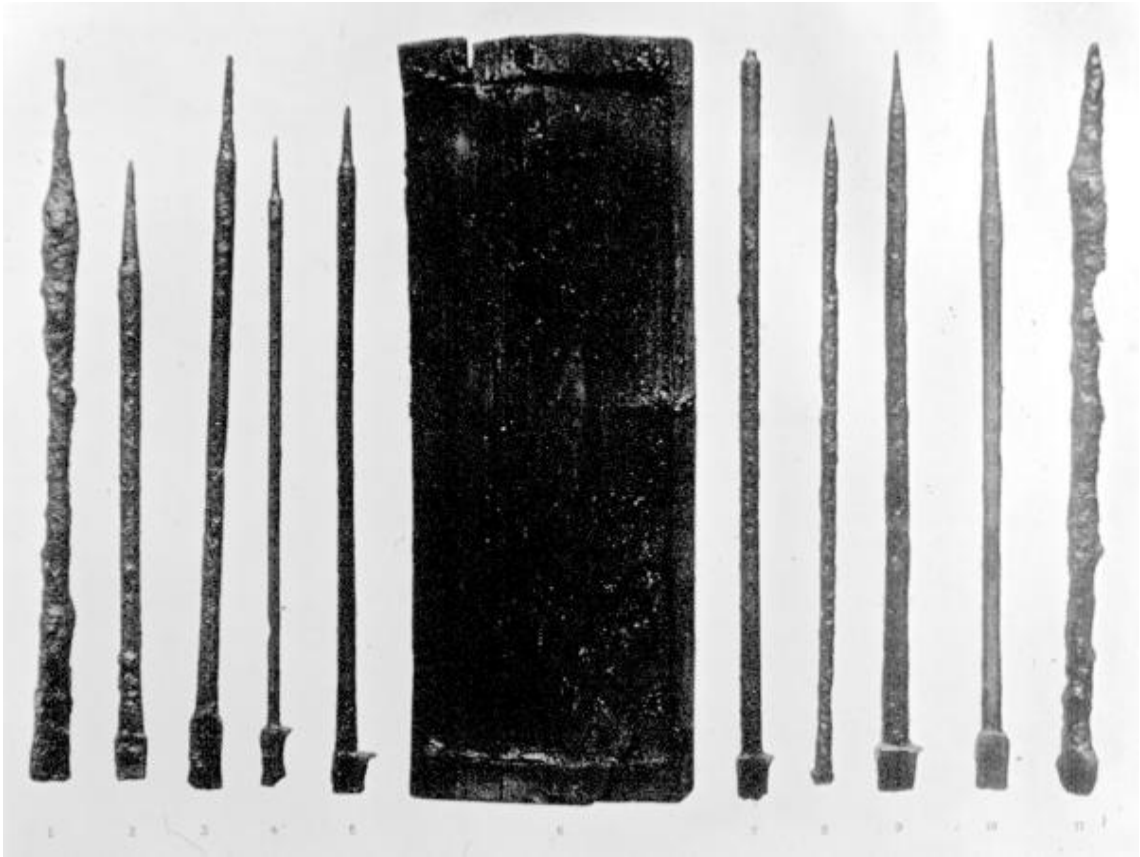
was not met with. A writing-tablet was found in the ditch of the early fort (Plate LXXX., Fig. 6). It measures $5\frac{7}{16}$ inches long by $2\frac{5}{16}$ inches broad, and consists of a frame and a tablet, both made of what appears to be finely grained pine-wood. The frame is an $\frac{1}{8}$ of an inch thick, and has been formed by cutting for a depth of about $\frac{3}{16}$ of an inch into a solid piece of wood, a little over $\frac{5}{16}$ of an inch in thickness, and leaving three margins. These vary in size, like the margins of a modern book. The widest ($\frac{3}{8}$ of an inch) probably marks the bottom. Into the space thus hollowed out is inserted the tablet, which is also $\frac{1}{8}$ of an inch in thickness, and upon which the wax was spread. Probably the making of the whole in two pieces was a precaution against warping. Writing-tablets were usually employed in pairs; and in the specimen just described, the mark of the cord by which it was fastened to its fellow is still noticeable. A second example, also of pine-wood, came from Pit LXXVIII. It is made of a single piece, and measures $5\frac{1}{2}$ inches by $4\frac{3}{8}$ inches. No trace of wax remains here either. On one of the margins, $1\frac{3}{8}$ inches from the bottom, there is a small hole. No doubt this tablet, too, was one of a pair, and a cord would pass through the hole, fastening the two together. There was also doubtless an upper hole, but it has been broken away.

Seal-boxes

Many of the smaller things which were turned up in the course of the digging are hard to classify. In not a few places, notably the courtyards of the Principia and the Barrack quarters, small articles of bronze were common. Many of these are obviously mountings—decorations for leather or wood, fragments of buckles, studs and hanging ornaments. Plate LXXXI., Figs. 2, 3 and 4—all of bronze, and all from the Courtyard of the Principia—are small hanging ornaments. Fig. 1 is the decorative ending of a strap, recalling the terminals frequently added to the fringes of military girdles. Small leaf-shaped bronze ornaments like Fig. 4 are to be seen decorating the sheaths of the dolabrae at Mainz and Bonn. Fig. 5 is a hinge. Figs. 6, 10 and 11 are portions of seal boxes. These are small boxes of bronze, either circular or pear-shaped, with a hinged lid. Each had a small slot cut on either side, and holes pierced in the bottom. The seal-box was probably fastened by studs—passing through the perforations in the bottom—to the lid of the chest it was intended to make fast. A string would be tied round the chest, or possibly to a staple, and the knotted ends would be brought together in the box, which would then be closed, covered with wax, and sealed. So secured, the chest could not be opened without

PLATE LXXX. STYLI AND WRITING TABLET

	PAGE
1. Stylus of iron.	307
2. Stylus of iron.	307
3. Stylus of iron. Pit LVII.	307
4. Stylus of iron. Pit XVII.	307
5. Stylus of bronze. Ditch of early fort.	307
6. Wooden tablet of pine. Ditch of early fort.	308
7. Stylus of iron. Ditch of early fort.	307
8. Stylus of iron.	307
9. Stylus of iron. Pit LX.	307
10. Stylus of iron. Pit LVII.	307
11. Stylus of iron.	307



the breaking of the seal or the cutting of the cords.¹ Plate LXXXII., Figs. 19 and 20, are examples of leaden seals. These are merely circular discs of lead fused together on a loop. One of them (Fig. 19), found in the inner ditches of the West Annexe, bears a stamp on both sides. The condition of the metal makes it difficult to decipher the impression satisfactorily. On one side, however, it appears to consist of two lines, the upper containing the letters CIIT, the lower \ER. On the opposite side are letters, which look like \ACM, between two branches.

Professor Haverfield suggests that as on many of these lead discs a military unit is indicated, the letters C·II·T may signify Cohors II Tungrorum, the Second Cohort of Tungri, whose presence in North Britain is attested by an inscription at Birrens.²

Of the remaining objects on Plate LXXXI., Fig. 14, from the Principia, is of silver, and seems to be a portion of a wreath. Fig. 15 is a small stud which was probably fastened to leather, and may have served as a terminal for a lace. It appears to have been filled with enamel. Fig. 9 is a small hinge, Fig. 19 a bell in the form of an acorn, and Fig. 18 a piece of embossed bronze of a kind which was employed to ornament small wooden caskets. A good example of such mountings, somewhat later in date, from a grave at Vermand,³ Aisne, is now in the Museum of Saint Quentin. Examples of the handles of such caskets are shown in Plate LXXXII., Figs. 1 and 2, 4, 5—all of bronze, and all from the Praetentura. On the same plate, Fig. 3 seems part of a hinged bronze tablet. Fig. 9 is a pair of compasses, which came from the ditch of the early fort. Unlike our modern pattern, they are in the shape of a St. Andrew's cross, the legs moving on a pin at the point of intersection. The type occurs at Pompeii, together with the form with which we are more familiar. Figs. 10 and 11 are portions of small bronze strigils, while Fig. 12 is part of a steelyard. Common as weighing must have been in the fort, no well-preserved steelyard was found. One or two examples of weights may, however, be noted. Plate LXXXIII., Fig 9, shows a specimen of the large leaden weight of a steelyard with its chain attached, found in Pit LXI; and Plate LXXXII. provides at least three examples of weights which have been used with scales (Figs. 16, 17 and 18). Fig. 16, which is circular in form, weighs 124.676 grammes. Fig. 17,

1 *British Museum Guide to Exhibition Illustrating Greek and Roman Life*, p. 16 ff.

2 *Proceedings of the Society of Antiquaries of Scotland*, vol. xxx. pp. 128 ff.

3 Eck, *Les deux Cimetières gallo-romains de Vermand et de St. Quentin*, p1. xiii.

which is also circular, weighs 23.457 grammes. Fig. 18 is square and weighs 130.378 grammes. On the last of these there has been incised an S. The same symbol was observed upon a circular leaden weight from Hofheim,¹ the S being cut roughly both on the upper and on the under surface. Professor Ritterling is probably right in interpreting it as equivalent to *Semis*, and therefore as indicating the Roman half pound of about 163 grammes. The actual weight of the Hofheim piece is said to be now about 150 grammes. Our Newstead weight, though apparently of the same denomination, falls still further short of the full standard.

Wooden Objects

A considerable number of fragments of wooden objects, some of which have already been described in other connections, were found in the pits and ditches. The difficulty of preserving things of the kind proved to be very great. Except in the case of oak and pine, the attempts made met with little success, as the wood, in drying, shrank and twisted out of shape. The whole of the numerous tent-pegs came from the ditch of the early fort. They were made of oak, and varied in length from 10 inches to 20 inches. They were triangular in section, and pointed at both ends, and had a well-defined notch for the attachment of the ropes (Plate LXXXIII., Figs. 6 and 13). The same type has been found at the Saalburg, and also at the fort of Coelbren in Wales.²

Well buckets were taken out of Pits I, XXIII and LXXXVIII. In all three cases the staves were of oak, while the bottoms appear to have been of pine. The bucket from Pit I was small in size, having a depth of 5½ inches inside and a diameter of 8 inches. The sides were ½ inch in thickness. The bottom was fixed into the sides with a neatly cut groove, ⅞ of an inch from the bottom of the staves. One iron hoop remained. A larger and better preserved bucket came from Pit XXIII (Plate LXIX., Fig. 4). It has a height of 11 ⅞ inches and a diameter of 10½ inches at the mouth. Its iron handle was found along with it, the metal plates which had been fastened to the staves and had helped the iron hoops to bind the whole together being still attached. The plates were 13 inches long. In the same pit were some remains of a smaller bucket. The bucket from Pit LXXXVIII was of the same type as that from Pit XXIII.

A few fragments of dishes of wood came from Pit XIV. One appeared to belong to a shallow bowl with a slight moulding round the lip. Another

¹ Ritterling, *Das frühromische Lager bei Hofheim*, p. 66, Fig. 26.

² *Archaeologia Cambrensis*, 1907, vol. vii. p. 150.

PLATE LXXXI. HANGING ORNAMENTS, SEAL BOXES, ETC.

	PAGE
1. Mounting for the end of a strap, bronze. Baths.	308
2. Hanging ornament of thin bronze. Courtyard, Principia.	308
3. Hanging ornament, bronze, plated with white metal. Courtyard, Principia.	308
4. Hanging ornament, bronze. Courtyard, Principia.	308
5. Hinge of bronze. Courtyard, Principia.	309
6. Portion of seal box of bronze. Courtyard, Principia.	308
7. Hook in form of a claw, bronze. Courtyard, Block XIII.	
8. Mounting of bronze with tang on back for attachment to wood or leather. Barracks, Praetentura.	
9. Portion of a hinged buckle.	
10. Portion of seal box, bronze.	308
11. Portion of seal box, bronze.	308
12. Mounting of bronze.	
13. Hook with chain, bronze. Courtyard of Principia.	
14. Fragment of wreath of silver. Courtyard of Principia.	309
15. Bronze stud with hanging object. Courtyard of Principia.	309
16. Fragment of bronze chain. Pit I.	
17. Hook of bronze, near surface. Pit XVII.	
18. Embossed plate, thin bronze, for decoration of a casket (?).	309
19. Small bell in form of an acorn, bronze. Baths.	309



looked as if it had been rudely hollowed out of a section of a branch. A very neatly made box, circular in shape and slightly tapering, was found in Pit XL (Plate LXIX., Fig. 3). It stood $2\frac{1}{4}$ inches in height, and had an inside depth of $1\frac{5}{8}$ inches. Along the upper edge was a carefully formed flange for a lid. The box, which measured 5 inches round the middle, had all the appearance of having been turned on a lathe. One of these little boxes was discovered at Bar Hill, and others have been found at Novaesium and at Vindonissa.

Two large wooden bobbins must also be noticed. One came from the ditch of the early fort, the other from Pit LIV Each is $2\frac{1}{2}$ inches in height. Between the two expanded ends they measured $\frac{1}{2}$ inch and $\frac{3}{4}$ inch respectively. Both were of soft wood and have shrunk very considerably in drying. The bobbin from Pit LIV is illustrated in Fig. 45, No. 1. A bobbin



FIG. 45. WOODEN OBJECTS FROM PIT LIV

with thread adhering to it was found at Bar Hill. But, to judge from the illustration given, it had a closer resemblance to the modern type than have the Newstead finds. Similar objects have been found at the Saalburg, where it has been suggested that they were used as fastenings for tent doors. In addition to the bobbin, Pit LIV contained the head of a wooden mallet (Plate LXXXIII., Fig. 3) with the remains of the shaft still visible, and also an object resembling the end of a pipe with a stopper, $3\frac{1}{2}$ inches long, terminating in a circular knob (Fig. 45, No.2) as well as several pieces of wood which seemed to have formed part of a chair. In digging out the large inner ditch of the later occupations, a toilet-comb made of some fine close-grained wood, probably box, was recovered. The comb is imperfect, one end having disappeared. What remains is 2 inches in length (Plate XCIII., Fig. 33) and shows a double row of teeth, one finer than the other. It varies little, if at all, from the modern small tooth comb. A second example was subsequently

taken out of Pit LXXIII. Specimens found at Bar Hill had had a length of about 6 inches.

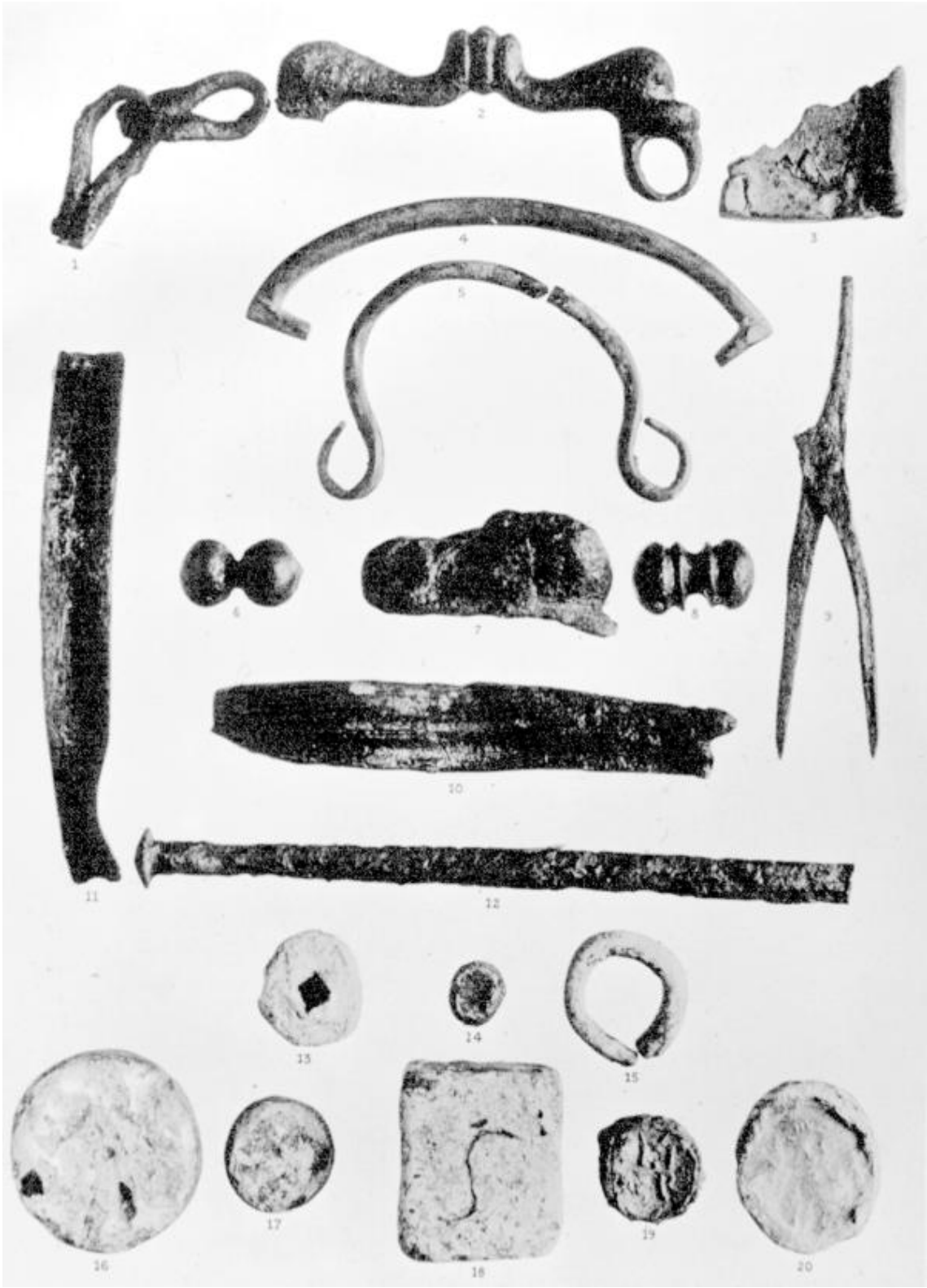
Among larger objects may be mentioned a yoke from Pit XXI. Unfortunately, owing to the softness of the wood, it has suffered in drying. The illustration (Plate LXIX., Fig. 1) was taken from a drawing made at the time of its discovery. The original measures 23 inches in length. The central portion forms a solid rectangular block, 13 inches in length and 3 inches thick by $2\frac{3}{8}$ inches wide, hollowed on the lower side to adapt it for placing on an animal's neck. The ends consist of thinner, flatter projections, 5 inches in length, having circular holes bored in them. The object of these holes was doubtless to admit the ends of a piece of bent wood which formed a loop or collar for the neck and held the whole in position. A portion of some pliable stem was in all probability used for the purpose; in fact, when the yoke was found, one of the ends of this wooden collar still remained in the hole.

Barrels

Wooden barrels came from Pits XCIV and XCVI. They had been utilised there for well-linings, but it was evident that this was not their primary purpose. Each pit contained a whole barrel and a half barrel. In Pit XCIV the whole barrel was uppermost, while in Pit XCVI the order was reversed. The barrel in Pit XCIV was made of pine, as indeed were all the rest. It had stood 6 feet 6 inches high, and its interior diameter was about 2 feet 8 inches at the ends, increasing in the middle to 3 feet 3 inches. It was formed of 17 staves, each about 7 inches wide and 1 inch in thickness. At either end of the staves there was a well-defined groove for the reception of the head and bottom. The remains of five wooden hoops, seemingly made of birch, still clung to the upper half of the barrel. Those lower down had disappeared. It was plain that at one time the barrel had served yet another purpose, as a large opening, 17 inches long by 2 feet wide, had been cut in the side, in place of the ordinary bung-hole, suggesting that it had perhaps been used as a cistern. When it came to be utilised for the well, the hole had been boarded up by placing between it and the surrounding clay several of the staves which had formed the bottom. These proved that the bottom had been held together by means of wooden dowels, like those employed in the manufacture of modern barrels. One of the casks in Pit XCVI had an iron hoop. Otherwise the character and dimensions were similar to those of that just described. The bungs of small casks or of amphorae were not uncommon; they were usually of pine wood.

PLATE LXXXII. HANDLES OF CASKETS, WEIGHTS, ETC.

	PAGE
1 and 2. Handle for a small casket, bronze. Barracks, Praetentura.	309
3. Fragment of bronze tablet (?). Baths.	309
4 and 5. Handles for caskets, bronze. Barracks, Praetentura.	309
6. Button of bronze. Barracks, Praetentura.	
7. Hollow mounting in form of a lion couchant. Barracks, Praetentura.	
8. Button of bronze.	
9. Pair of compasses, iron. Ditch of early fort.	309
10 and 11. Portions of bronze strigils. Via Quintana.	309
12. Portion of the beam of a balance. Pit LXV.	309
13. Object of lead.	
14. Small weight.	
15. Ring of lead.	
16. Weights of lead.	
17. Weights of lead in filling in gateway of reducing wall.	309
18. Weights of lead (semis) in filling in gateway of reducing wall.	310
19. Bulla of lead. Inner ditches, W. Annexe.	309
20. Object of lead.	309



An Oar

A rather unexpected discovery was made in Pit LXV, on the sloping ground at some considerable height above the Tweed. This was an oar standing upright in a corner (Plate LXIX., Fig. 5). Its total length is 5 feet 5 inches. The wood is oak. The loom is 7 inches in circumference and the blade inches in width. Five inches from the top a hole, $1\frac{1}{4}$ inches square, has been cut through the shaft, while at the lower extremity of the blade there would appear to have been a second hole, the lower margin of which has been broken away. The exact purpose of the holes through the loom and the blade was by no means clear until the oar was submitted to Mr. Henry Balfour of the Pitt-Rivers Museum, Oxford, who has kindly supplied the following note:

'It must have been the steering oar of a small low-freeboard boat, one probably resembling the modern Nordland rowing-boats, and having a high stern-post such as would dictate a rudder at the side instead of the end. The hole at the top of the loom of the oar was no doubt for a tiller pointing inboard. The hole at the end of the blade probably accommodated a cord which was attached at its other end through a hole in the gunwale or to a peg on it. This cord would take the weight, or part of it, off the oar and prevent the oar slipping away. With this arrangement there must have been some kind of collar or grummet round the loom to keep the loom close against the gunwale. The oar could be rotated in this grummet, when the tiller was pushed forward or drawn backward, and also there would be a certain latitude (owing to the sloping sides of the boat) for the loom to be pushed or pulled laterally, outboard or inboard, thus assisting the process of steering and combining the effect of a steering *oar* with that of a true rotating *rudder*. The thing is, in fact, half way between oar and rudder, and shows how the latter was in the North developed out of the former.'

Mr. Balfour goes on to point out how the features of the Newstead oar are to be traced in the steering gear of such ancient Norse vessels as those found at Gokstadt, Nydam, and Tune, in all of which the steering oar had a place for the tiller at the top of the loom and a hole for suspension in the blade. All of these types, however, as he remarks, represent a stage of development a little nearer the asymmetrical rotating rudder.

It should be added that fragments of manufactured wood were not uncommon. A piece of oak perforated at one end is shown in Plate LXXXIII., Fig. 4. Portions of oak beams were found in several pits. The largest of these came from Pit XVI. It measures 4 feet 5 inches in length by

9 inches wide and 2½ inches thick, and had been mortised to another plank three of the mortices still remained. Thin boards split with an axe were not uncommon among the debris of the rubbish pits.

Antlers of the Red Deer

The frequency with which sawn-off portions were found in pits and ditches made it evident that the antlers of the red deer had been utilised for the manufacture of various objects—doubtless for shafts of tools and handles of knives, as well as for such weaving-combs as have been already described. Plate LXXXIII., Figs. 7, 10 and 11 represent three portions of worked antlers. Fig. 7 may have served as a tent peg. The shaft has been neatly squared. It will be observed that the end has apparently been broken off. Fig. 10, a larger portion of an antler, has a hole drilled through one end and three parallel incisions near the other extremity. Fig. 11, the tine of an antler notched at one end, was perhaps employed for twisting a light rope so as to tighten it. Several of the antlers were fashioned as though they had been used as picks; others seemed to have served as pegs from which things might be suspended. Fig. 2 of the same plate is a flat piece of bone, triangular in outline, with a hole neatly bored near the apex.

Plate LXXXIV., Fig. 1, shows an object fashioned from a small tine of a horn. It was found in Pit XL, and measures 5 inches in length. At the thicker end a small portion has been cut out to a depth equal to about one half of the diameter, a small hole being then bored through to the other side, while a little nearer the point the surface has been cut back on one side in order to flatten it. It has been suggested that such articles were employed as needles by which to lace the burden on a pack-saddle. The cord would pass through the hole at the end, and the flattening on the side would give a better grip by which to pull it through. Somewhat similar objects are found on the German Limes. Examples may be noted, for instance, at Schierenhof and the Saalburg.²

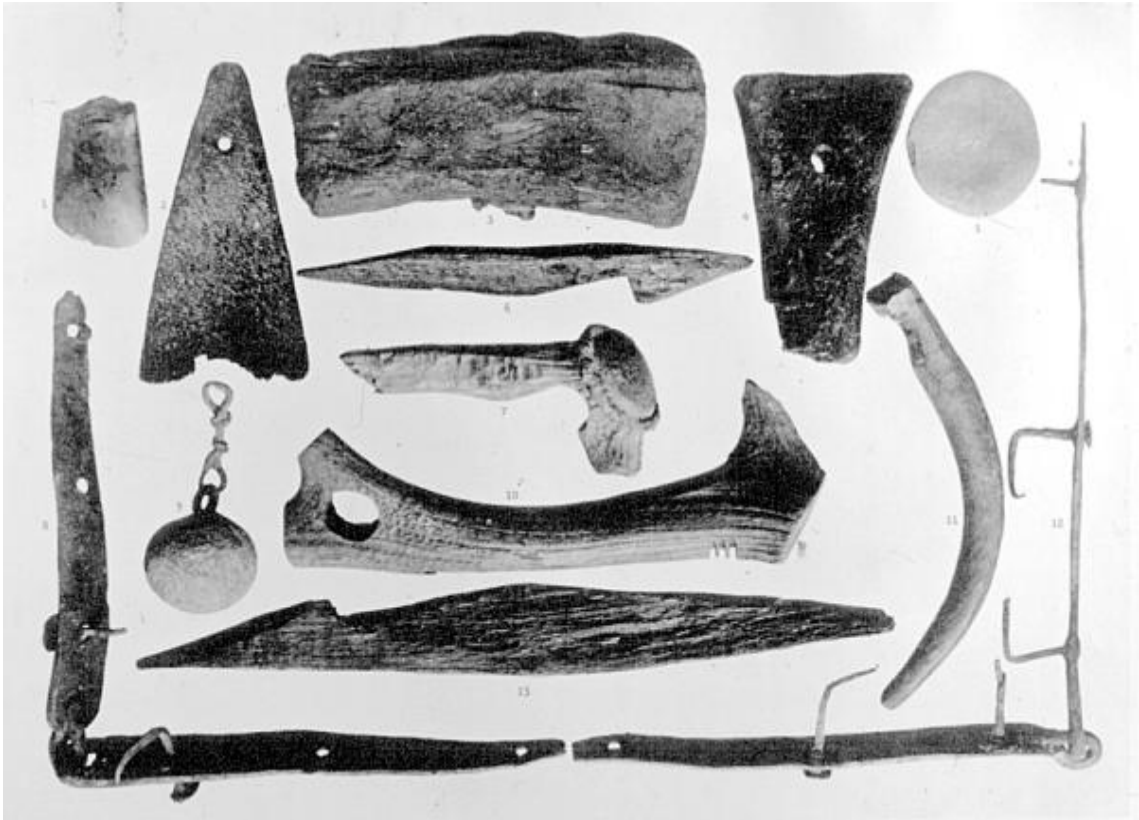
Attention should be drawn here to two other figures on the same plate. One (Fig. 12) is a circular piece of bone carefully rounded and polished, and having a large hole perforated in the centre. It was found in Pit I. The other (Fig. 14) came from Pit LIX. It is a circular disc cut from the base of a red deer antler, in the centre of which there has been carved in relief a phallic emblem, the natural protuberances of the horn being left so as to form

1 *Der Obergermanisch-Raetische Limes*, Lief. 7, 'Kastell Schierenhof,' Taf iii. Fig. 7.

2 Jacobi, *Das Römerkastell Saalburg*, p. 537.

PLATE LXXXIII. TENT PEGS, OBJECTS OF WOOD AND DEER-HORN, ETC.

	PAGE
1. Stone celt. West Annexe.	146
2. Object of bone. Ditch of the early fort.	314
3. Wooden mallet. Pit LIV.	311
4. Piece of oak. Pit XXXIV.	313
5. Sandstone disc.	146
6. Tent-peg of oak. Ditch of the early fort.	310
7. Portion of antler of the red deer. Principia.	314
8. Iron hinge. Pit LXXVI.	
9. Leaden weight for a steelyard. Pit LXI.	309
10. Portion of antler of the red deer. Ditch of the early fort.	314
11. Object of deer horn.	314
12. Iron hinge. Pit LXXVI.	
13. Tent-peg of oak. Ditch of the early fort.	310



a border. Continental parallels to this latter can be cited. An example from Novaesium¹ is furnished on the back with four bronze studs for attaching it to wood or leather. As many as seven specimens are preserved in the Römisch-Germanisch Central Museum in Mainz.

Figs. 2, 3, 4, 6, 7, 8, 10, 11, 13 in Plate LXXXIV. are of interest from being found in Pit LVIII in association with articles undoubtedly Celtic in character, like the sword of Plate XXXIV. (Fig. 8) and the embossed plate of brass of Plate LXXV. (Fig. 5). It is difficult to determine their use. Fig. 2 recalls certain objects which have been found in Late Celtic burials, and which have been interpreted as linch pins. The present specimen measures $2\frac{3}{4}$ inches in length, and consists of an iron rod, obviously imperfect, the end of which has been inserted into a hollow mounting of brass, $\frac{1}{16}$ inches in length and $\frac{1}{8}$ inches in diameter. The Celtic linch pin, as far as we know it, was more decorative than the heavy pegs illustrated in Plate LXX. and already discussed. A highly ornamental example was in the Stanwick hoard. There the pin itself was of iron, but its upper end was inserted into a heavy dome-like piece of bronze, which was surmounted by a ring showing the characteristic Late Celtic expansions. The lower end was also inserted into a bronze mounting, terminating in a flattened disc-like projection ornamented with concentric circles.

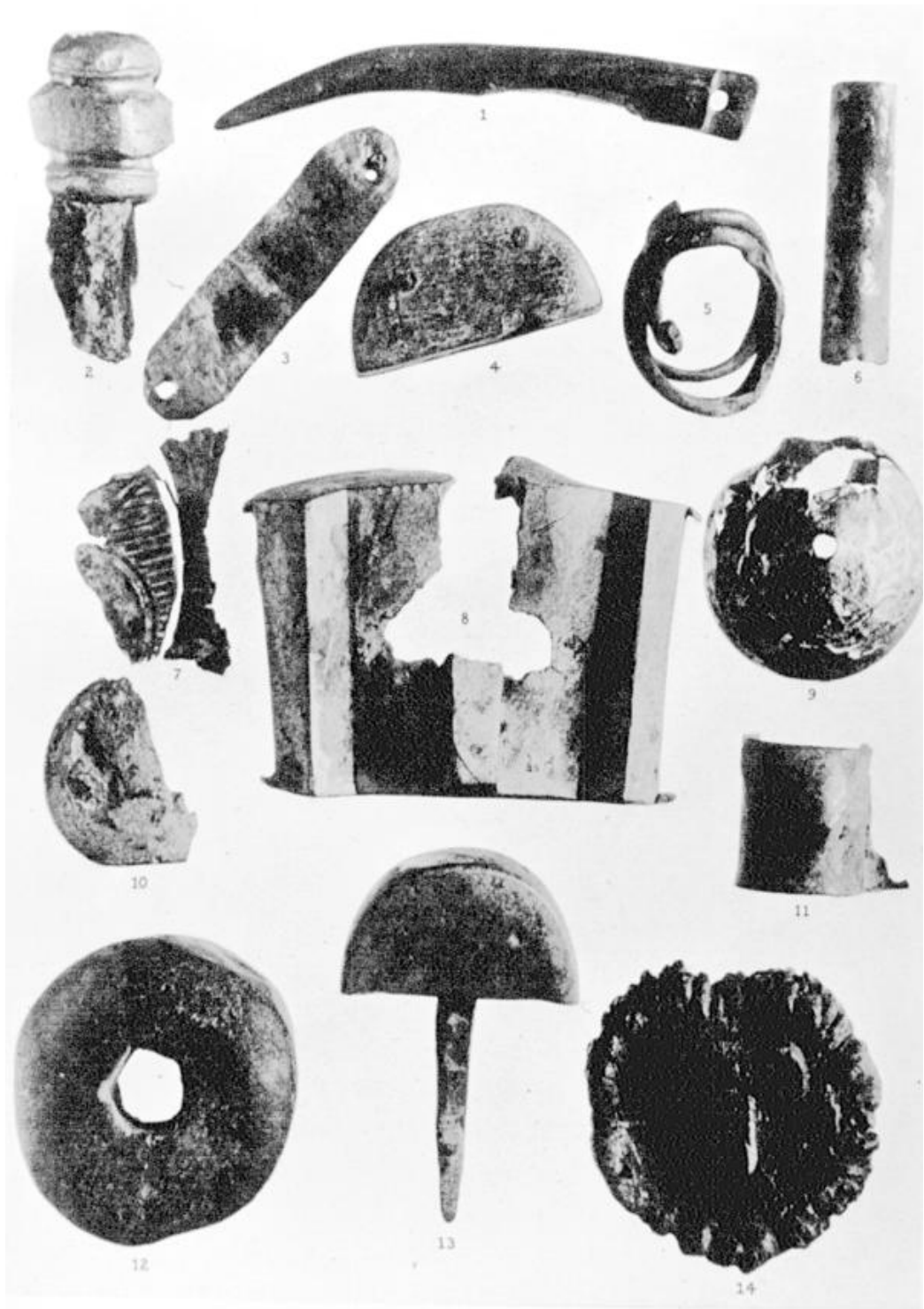
In the King's Barrow at Arras, Yorkshire, there was found a simpler form of linch pin, the upper part of which much more closely resembles the Newstead specimen. A dead man had been laid in the barrow with his chariot, for on either side of the skeleton was the iron tire of a wheel, some pieces of the wooden parts of which still remained attached to the metal.² Lying partly under each wheel was the skeleton of a horse, while on the west side of the grave were two articles which were identified with certainty as linch pins. 'They are 5 inches long, and made of a round iron bar $\frac{7}{8}$ inches wide with a bronze termination at either end. That at the larger end is $1\frac{1}{8}$ inches long, and has a flat circular top $1\frac{1}{4}$ inches in diameter, with a neck beneath it which swells into a round flat-bottomed bulb with a bevelled band where it unites with the iron bar. The other end terminates in a curved form somewhat in shape like the hoof of a horse.' Although this lower terminal, with its distinctive features, is wanting at Newstead, the similarity of the upper mountings suggests a common purpose.

1 *Bonner Jahrbücher*, Heft 111–112, Taf. xxxv. Fig. 3.

2 *Archaeologia*, vol. lx p. 279, fig. 21.

PLATE LXXXIV. OBJECTS OF BRASS, BONE, AND HORN

	PAGE
1. Packing needle (?) of horn. Pit XL.	314
2. Portion of iron rod with brass terminal,—a linch pin. Pit LVIII.	315
3. Small plate of brass, possibly a hair ornament. Pit LVIII.	315
4. Bone object, part of the hilt. Pit LVIII.	315
5. Ring of bronze. Pit LX.	
6. Cylindrical tube of brass. Pit LVIII.	315
7. Thin plate of decorated brass. Pit LVIII.	315
8. Mounting of brass. Pit LVIII.	315
9. Small hemispherical cup with hole in the bottom. Pit XXVI.	316
10. Same as No. 4, but imperfect. Pit LVIII.	315
11. Object of brass. Pit LVIII.	315
12. Circular object of bone perforated in centre. Pit I.	314
13. Brass object with tang of iron. Pit LVIII.	315
14. Disc formed from the base of a deer horn, with phallic emblem carved in relief. Pit LIX.	314



CHAPTER XVI

Ornaments

THE makers of the helmets and of the vessels of bronze described above drew their inspiration from Greek sources, while the Terra Sigillata is a product of the hybrid art of Gaul. Doubtless some of the coarser pottery came from British workshops. It is, however, in the personal ornaments, such as the fibulae, and in some of the smaller articles of metal that the skill and taste of the native craftsman find their most characteristic expression. The reason is not far to seek. The decorated fibulae were the ornaments of the women, whose presence in the fort or its annexes is revealed quite plainly by their own and their children's shoes, worn out and cast aside into pits and ditches. We may assume that most of them were native. The little trinkets they have left behind have nothing to compare with such examples of Celtic craftsmanship as the horned mask from High Torrs, now at Abbotsford, or the beautiful shield from the Thames, now in the British Museum. Yet they are beyond all question members of the same family, and they have the additional interest that their association with Roman objects on a Roman site enables them to be approximately dated.

Fibulae

Fibulae, which were primarily intended to serve as a means of attachment, gradually passed into the category of ornaments. Beginning with a simple pin form, they developed on different lines in different parts of Europe, local groups with distinct characteristics being gradually evolved. The changes which they passed through in the course of their evolution give indications of date as well as of origin. The Newstead collection contains some thirty or forty specimens. They probably form a typical series of the varieties of brooches worn in Northern Britain from the end of the first to the close of the second century.

Hitherto very few fibulae of the Roman period have been found in Scotland. Generally speaking, they appear to be less common in the forts

of the second century than in those of earlier date. Thus, in Germany they are very much more numerous at Hofheim than in the later Limes forts. The examples now to be studied do not present any rare or unusual designs. There is not a single brooch among them to which parallels cannot be found in Britain or on the Rhine. There is not one which could be claimed as the invention of some early craftsman at Newstead. Each and all of them have reached the forms in which we find them, by gradual processes of evolution, and they can consequently be to some extent arranged in homogeneous groups.

First in the series may be placed a specimen of the brooch known as the 'poor man's fibula' (Plate LXXXV., Fig. 1). It was found at the lowest level, in clearing out the Principia. It is made of a single piece of bronze wire, one end of which is twisted into a spiral spring and pin, while the other is flattened out to form a catch. Such fibulae were common at Hofheim, abandoned about A.D. 60. The present example is thus interesting as representing a survival of a very early type, which must have continued in use side by side with many much more highly developed forms which were really its own descendants. Probably Fig. 2 is also early. It appears to belong to the class known in Germany as 'Augen'-fibulae. A type closely resembling it occurs at Vindonissa.

The exposed spiral spring is characteristic of the older forms of fibulae wherever they are found. As the evolution of a fibula type proceeds, the component parts tend to increase, and the spiral spring is covered over or even disappears entirely, giving place to a hinge. Several well-known types passed through such a process in different parts of Europe at different periods. The fibula shown in Plate LXXXV., Fig. 3, offers an illustration of this tendency, the upper end of the bow having been split to form a covering for the spring. The spring is of course made of a piece of bronze wire, one end of which forms the pin, while the other end is brought back over the coils and bent across above them, passing through a small loop which is fixed into the head of the brooch by a stud. The actual stud has in this case disappeared, but it probably fitted into the small hole which is still discernible. As we shall see from some of the later types, this stud was destined to become in time a purely ornamental feature.

Figs. 4 and 5 obviously represent a closely related pair of brooches. Both forms are met with on the Continent as well as in Britain. Fig. 4, which is perhaps the earlier type, has its spiral spring still uncovered, the

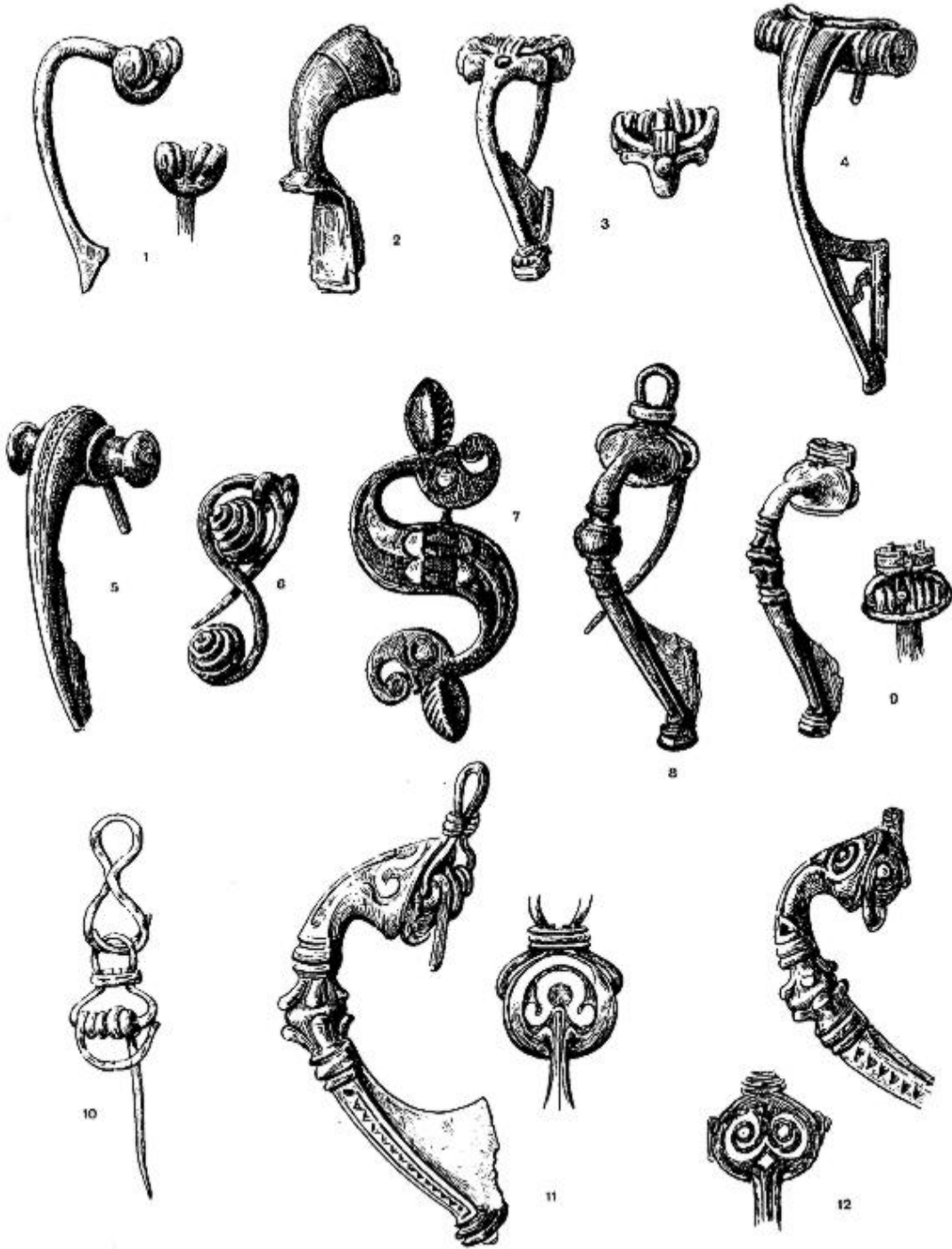


PLATE LXXXV. FIBULAE.

end of the wire being bent across above the coils of the spring, as in Fig. 3. The bow of the fibula is undecorated, but the catch for the pin is perforated so as to form a step pattern. This brooch was found in the Baths above the cobbling of the rampart, a position which would indicate that it had been lost not earlier than the middle of the second century. A brooch which has many affinities to it occurred among early finds at Polden Hill,¹ and in a grave at Colchester the type was associated with the 'poor man's fibula' and with an urn which is assigned to the first century A.D. Its position at Newstead, however, certainly indicates that it belongs to the second century, and this is confirmed by the recent discovery of a fibula, almost identical in shape, in a Mile Castle on the wall of Hadrian, at Gilsland, in the course of excavations carried out by Mr. J. P. Gibson and Mr. F. G. Simpson. The pottery of the Mile Castle gives no indications of any inhabitation before the end of the first century. Fig. 5 differs from the preceding in that its spring is entirely covered, while an undulating line is incised down the back of the bow, a form of decoration that occasionally appears on early brooches. The catch for the pin is gone. Probably, however, it was perforated much like the catch of Fig. 4. Fig. 5 was found in the South Annexe, while a similar specimen came from the Praetentura. An enamelled example from Procolitia is to be seen in the Museum at Chesters, and there are several at the Saalburg, one of the latter having been found in association with a coin of Pius. The type seems to belong to the second half of the second century.

S-shaped or 'dragonisque' fibulae

Figs. 6 and 7 are probably akin to one another. Fig. 6, which was found outside the West Gate, some 3 feet 6 inches below the surface, is made from a single piece of bronze wire beat into the form of the letter S, the ends being coiled into spirals. The pin is formed of a separate piece of wire attached to the main stem of the brooch by a loop. In the Victoria Cave, Derbyshire, a similar brooch² was associated with brooches resembling Fig. 7, and it seems probable that in this simple little ornament there survives the early type from which the decorated S-shaped or 'dragonisque' brooches, such as Fig. 7, took their origin. Both have the same outline and the same method of attaching the pin. A few specimens of these S-shaped brooches have been found on the Continent. But they are by no means common there, and the

1 Romilly Allen, *Celtic Art*, p. 102.

2 Boyd Dawkins, *Cave Hunting*, frontispiece.

type may well be one which we should be justified in describing as British.¹

Fig. 7 is inlaid with enamel. An illustration in colour is given in Plate LXXXIX., Fig. 8. The centre is occupied by a transverse band of lozenge decoration in blue and red, on either side of which are double semi-circular panels of pale yellow. The remainder of the body is divided into four panels, alternately blue and brown, the latter having probably been at one time red. In the eye of each of the animal-like heads there is a setting of yellow, with blue on the curved snouts. The pin is awaiting. Brooches like this are a true product of Late Celtic art. All the elements of the design can be traced in the winding honeysuckle pattern which decorates the bronze mask from High Torrs, while an example from Lakenheath, in Suffolk,² shows a stage in the evolution of the type intermediate between the simple wire fibula and the solid enamelled brooch. In the Lakenheath specimen there is no suggestion of animal form, the terminals and the central ornament being derived from foliage. In our brooch the head is beginning to assume animal characteristics,

and this feature is more marked in some presumably later examples.



FIG. 46. BROOCHES FOUND AT LAMBERTON MOOR

Fig. 7 probably represents the point of development which the S-shaped brooch had reached by the end of the first, or at least not later than the first half of the second, century. It lay beneath the cobbles of the clay rampart surrounding the Baths, and must therefore have been placed there before the reduction in the size of the fort. A similar brooch was discovered sixty or seventy years ago on Lamberton Moor, Berwickshire,³ in association with a pair of enamelled fibulae which might be earlier than

A.D. 100. When found, these Lamberton Moor brooches were all adhering together. They must, therefore, be approximately contemporary. Since their acquisition for the National Museum of Antiquities they have been separated so that we are able to illustrate two of them here (Fig. 46 *a* and *b*). The simplicity of the

1 See list of the known specimens of these brooches by Professor Haverfield (*Archaeologia Aeliana*, 3rd ser. vol. v. Appendix I.). To this may be added an example in the Kam Collection, Nymwegen.

2 *The Reliquary*, vol. xiii. p. 62.

3 *Proceedings of the Society of Antiquaries of Scotland*, vol. xxx ix. p. 367.

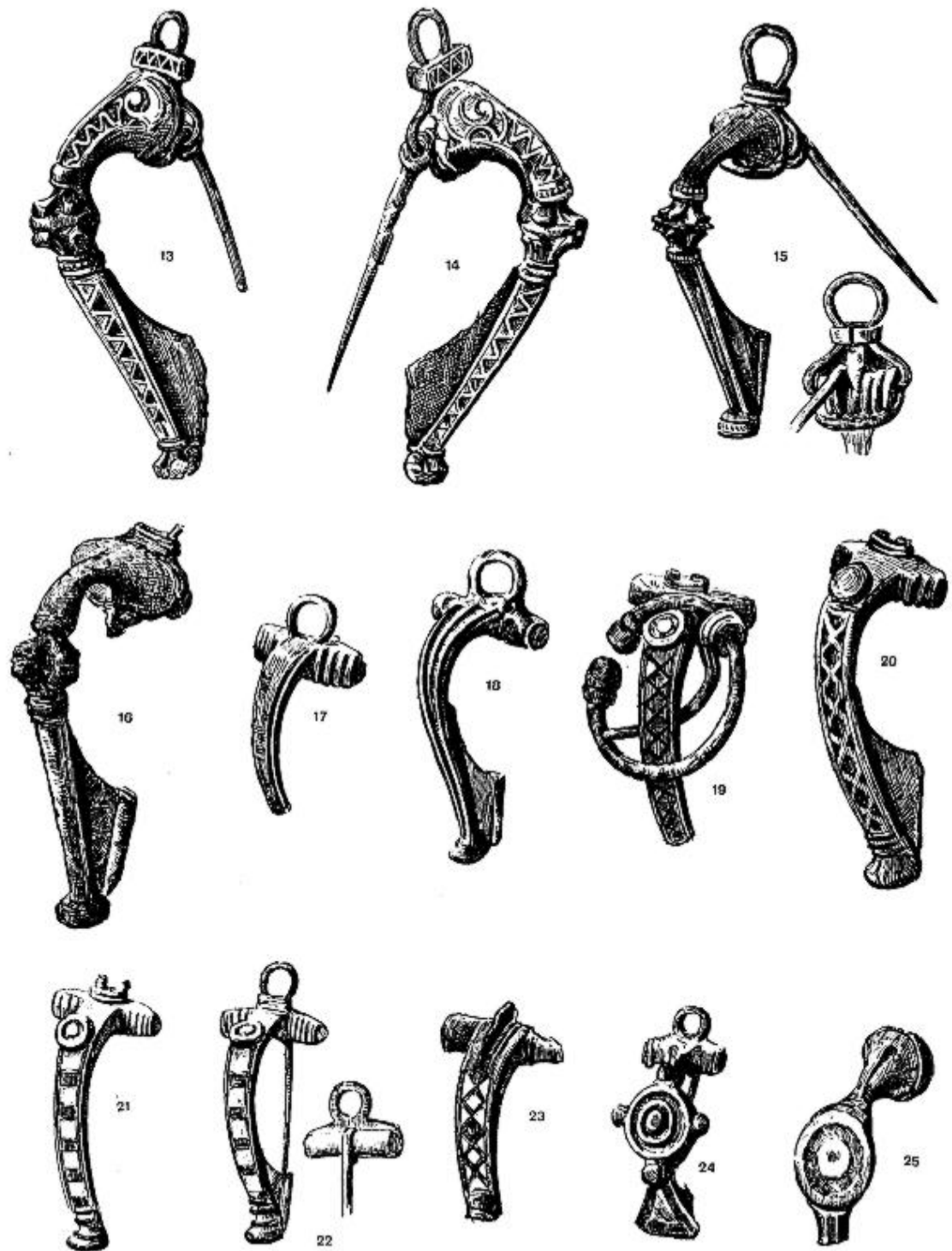


PLATE LXXXVI. FIBULAE.

enamel treatment in both forms should be noted. In the S-shaped brooch (*a*) the coloured material is laid on in large masses, while down the stem of the fibula (*b*) the enamel is inserted in squares, there being no cutting of elaborate cloisons such as we see in Plate LXXXVI., Figs. 19 and 20. The same method may be noted in a brooch from near Duntocher,¹ and a similar brooch is one of the few enamelled objects in the large collection from Vindonissa preserved at Königsfelden, near Brugg. In Germany, where enamel begins to appear in the Flavian period, a like simplicity of treatment may be observed in a pair of brooches found at Xanten with a coin of Titus.² One of the best examples of an early type of such enamelled fibulae is the specimen from Kingsholm, Gloucester, now in the British Museum,³ in which the enamel is arranged in rectangular masses of red and yellow.

Both the Lamberton Moor and the Kingsholm fibulae resemble Plate LXXXV., Fig. 3, in having the end of the wire that forms the spring brought back over the upper side of the head, where it is kept in place by a loop fastened to the head with a stud. In the Newstead collection there are a number of brooches which are more or less direct descendants of this Lamberton Moor fibula. But before dealing with these it will be convenient to examine another group. Figs. 8 to 16 (Plates LXXXV. and LXXXVI.) all belong to the same family. It is probable that in some form this variety was in use during the whole period of occupation. About ten specimens in all were found. These brooches represent a British type more common in the North and West of England than in the East. A few examples have been found on the Rhine, but so unfamiliar are they there that one which came from Heddernheim is classed by Professor Riese as perhaps of African origin. The characteristic trumpet-shaped ending and also the rudiments of the decorative collar on the bow are to be seen in a fibula from Aylesford, which is probably as old as the first century B.C.⁴ The collar itself is, of course, a survival from an early brooch of the safety-pin class, in which one end of the wire after forming the catch for the pin is brought back and fastened by winding it round the body. Mr. Arthur Evans has traced the evolution of this type through a brooch of Pannonian origin.⁵ One of the Newstead specimens (Fig. 8) came from the ditch of the early fort, and

1 Stuart, *Caledonia Romana*, 2nd ed. plate viii. fig. 6. p. 295.

2 Houben and Fiedler, *Denkmäler von Castra Vetera*, Taf. xvii. Figs. 4 and 5.

3 Illustrated by Mr. Arthur Evans in *Archaeologia*, vol. lv. p. 153, fig 7.

4 *Archaeologia*, vol. lii. p. 351.

5 *Archaeologia*, vol. lv. p. 153

may therefore be regarded as belonging to the end of the first century. Apparently, then, the peculiarly British characteristics of the group had been fully developed at a comparatively early date.

Fig. 8 is without any enamel decoration. Here, as in all the members of the group, the foot is well developed. In the centre of the bow is a circular knob, while the head is trumpet-shaped so as to cover the back of the spring. The wire of the spring is looped through a collar, forming a ring on the top by which the brooch could be fastened to a chain, for the fibulae of this group seem to have been regularly worn in pairs. The spring of such a fibula with part of the chain still attached is seen in Fig. 10. It was found in Pit LXV with coins of the first century. Though smaller in size, Fig. 9 closely resembles Fig. 8, showing as it does the characteristic treatment of the knob on the bow. It was found in the Praetentura, and is probably early. Figs. 11 and 12, the latter imperfect, both appear to be earlier than 100 A.D. They were found on the south side of the fort between the ditches cut for the second occupation, and were possibly dropped before the latter were constructed. Both are characterised by the simple and graceful ornamentation of the trumpet-shaped head.

There are no traces of enamel on Fig. 11, but on Fig. 12 the background has been filled entirely with red. An earlier stage of the pattern they display occurs in the decoration of a silver-gilt brooch found at Birdlip, Gloucestershire, now in the Gloucester Museum. This beautiful example of Late Celtic Art has recently been described by Mr. Reginald Smith,¹ who assigns it to the middle of the first century. As we have already noted in dealing with the horse trappings, there can be little doubt that at Newstead the Late Celtic Art was beginning to lose something of its inventiveness and the charm of its wayward designs. On the Newstead brooch the Birdlip pattern has developed into a much more conventional device. The same pattern is repeated in a still later and more degraded form on the well known pair of silver-gilt fibulae, found near Backworth, Northumberland,² with coins showing that the deposit cannot be earlier than the year A.D. 139.

Figs. 13 and 14 were found together beneath the cobbled base of the rampart surrounding the Bath Building. Probably, therefore, they were deposited prior to the reduction in the size of the fort in the second century. If so, we shall be safe in placing them before 150 A.D. In shape they do not differ materially from the two immediately preceding. The treatment

1 *Archaeologia*, vol. 61, pt. 2, p. 341.

2 Romilly Allen, *Celtic Art*, p. 104.

of the floriated knob on the bow is the same. The main difference is in the intricate and somewhat confused pattern which covers the trumpet-shaped head, and which probably also owed its origin to a design such as decorates the head of the Birdlip brooch. To form this pattern, the surface of the metal is cut out and the hollows filled with enamel of different colours—blue, yellow and red. The collar at the base of the terminal loop on the head is solid. Like the rest of the brooch, it is ornamented with enamel. Fig. 15, which is in good preservation, came from one of the chambers at the rear of the Principia. It has no enamel decoration. The 'find-spot' suggests that it is probably later than any of the members of the group already dealt with. Fig. 16 was found in the upper levels at the Baths.

One or two pairs of these brooches have come to light in the north of England, associated with coins. The set from Backworth was alluded to above. Another pair, made of silver and decorated with enamel, was discovered at Chorley, Lancashire, with a chain and a series of coins dating from the reign of Galba to that of Hadrian, A.D. 69 to 138. In the Backworth brooches the trumpet-shaped head has broadened out, and the wire collar at the base of the terminal loop has coalesced with the head, while the loop itself has become fixed and heavy. As already noted, all of these features are suggestive of the degradation which so often precedes the extinction of a type, a process still further advanced in the case of the great Aesica fibula,¹ which is attributed to the beginning of the third century.

Figs. 17 to 23 (Plate LXXXVI.) are nearly akin to the Lamberton Moor fibula described above, but all of them show signs of development which prove them to be later. Thus the spiral spring has disappeared, having given place to a hinge, and the collar at the base of the terminal loop on the head has become an integral part of the body. As a rule, too, the stud no longer serves any useful purpose, but retains its place solely as a survival. The vertical lines incised on the cross-bar are a reminiscence of the spiral spring. Here again we have a common British type which occurs sporadically on the Rhine. Two of these fibulae, decorated with enamel and attached together by a chain of woven strands of fine bronze wire, were discovered in a tall glass vessel in a grave in the Maximinstrasse in Trier in 1878. The glass vessel is attributed to the end of the first century. In no case did the circumstances under which the Newstead examples of this particular group were found afford conclusive evidence as to date. All of them were

¹ *Archaeologia*, vol. lv. p. 181, fig. 4.

lying near the surface, with the exception of Fig. 21, which was taken from one of the outer ditches of the extended fort, and could not therefore be as early as the first occupation. The signs of degradation, to which attention has been drawn, probably indicate that the majority of them should be assigned to the Antonine period. Figs. 19, 21, 22 and 23 are enamelled. The enamel has disappeared from Fig. 20. On Fig. 19, which has had a penannular brooch fastened to it, perhaps to take the place of a broken pin, blue lozenges are inlaid against a red ground, while in Figs. 21 and 22 the bars of colour are alternately blue and brown, though possibly the latter may originally have been red. The excavation of the Lochlee Crannog furnished an excellent example of a brooch belonging to this group found on a purely native site.¹

The most characteristic feature of Figs. 24 and 25 (Plate LXXXVI.) is the expanded circular ornament on the bow, possibly in itself evolved from the smaller stud to be seen on Figs. 19 and 20. Both are decorated with enamel. The expanded foot of Fig. 24 has been filled with small triangular patches of yellow and blue. A similar brooch from Heddernheim is dated by Professor Schumacher to the second half of the second century.² The same type occurs at Camelon.

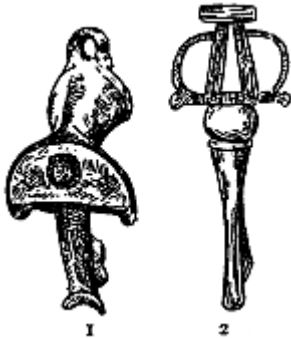


FIG. 47. FIBULAE
FROM ILCHESTER
AND HOD HILL

Figs. 26 and 27 (Plate LXXXVII.) obviously go together. Fig. 26 belongs to a class that is not uncommon in England; several specimens found in London are preserved in the British Museum. The hollow foot at the end of the stem appears to be reminiscent of a ring, and in some specimens the ring is actually to be seen. In the subsequent evolution of the brooch, the pierced ornament on the bow, with its spiral-like expansion on either side, becomes solidified, the tradition of the earlier open-work, being preserved in the enamel decoration, as in a specimen from Ilchester, Somersetshire, in the British Museum, illustrated in Fig. 47, No. 1, and also in an imperfect specimen from Camelon.³ Fig. 27 represents a still later type. The trumpet-shaped head of the fibula has disappeared,

1 Munro, *Ancient Scottish Lake Dwellings*, p. 130.

2 *Mittheilungen über romische Funde in Heddernheim*, Heft. ii. Taf. ii. Fig. 17.

3 *Proceedings of the Society of Antiquaries of Scotland*, vol. xxxv. p. 402, fig. 39.



PLATE LXXXVII. FIBULAE, SILVER NECKLACE AND INTAGLIOS

and the central ornament has become solidified and has considerably expanded in size. The small projecting peaks at each end of the base of the semi-circular ornament are a tradition of the older form, as is plain from a comparison with the Ilchester specimen. The stem and the hollow foot are unchanged. The upper part of the fibula has been filled with dark blue enamel while a triangular patch, which was probably originally red, occupies the centre. An illustration in colour is given in Plate LXXXIX., Fig. 23. Probably both Figs. 26 and 27 belong to the second century, Fig. 27 perhaps to the latter half of it.

It is difficult to trace the origin of this peculiar type with any confidence. It is not common on the Continent, although a specimen from Flossheim, illustrating the intermediate stage of evolution described above, the stem terminating in a ring, is preserved in the Wiesbaden Museum. Another occurs at Stockstadt.¹ It seems not unlikely that the brooch is a British adaptation of a type which is found in Northern France and on the Rhine. It occurs in the Andernach Cemetery in the first century, and analogous forms have been recognised at Xanten. In England it appears at Hod Hill (Fig. 47, No. 2) and on many other sites.

Next comes a group of brooches (Figs. 28 to 32, Plate LXXXVII.) of a type common both in Britain and on the Continent. They belong to the second century, and probably made their way north in the period following the Antonine advance. Fig. 28 is perhaps the earliest. Its relation to such a brooch as Fig. 31 is obvious. Both have the same spiral spring, with its box-like cover, and the same long pin-catch. The expansion of the bow in Figs. 31 and 32 is clumsy. Fig. 28 was found in the South Annexe, Fig. 31 in the Praetentura, and Fig. 32, which shows some trace of having been plated with tin, above the inner ditch of the East Annexe. Fig. 29 is clearly a variant. The bow is broadened out as in the others, but is distinguished by having its surface divided by parallel flutings; the pin-catch is wanting. This brooch, too, appears to have been overlaid with tin, which is frequently employed to replace silver in the second century. It was found about two feet from the bottom of the inner ditch of the later series in the West Annexe, where it passed through the Bath Buildings. Its connection with the later period is therefore undoubted. Fig. 30, another variant, was found within the fort close to the surface, near Block XIII. It, too, bears marks of tin-plating. The catch for the pin is wanting.

¹ *Der Obergermanisch-Raetische Limes*, Lief. xxxiii. 'Kastell Stockstadt,' Taf. vii. Fig. 20.

Fig. 33 (Plate LXXXVII.) is of the type known as a 'knee fibula,' which is not uncommon in this country, and which also appears on the Continent. It came from the Retentura, where it was lying above the filled-up ditch of the early fort. It probably belongs to the end rather than to the beginning of the second century. In Germany specimens occur at Hedderheim,¹ at the Saalburg,² and at Osterburken.³ Professor Schumacher, in describing the last of these, dates the type to about the year A.D. 200. He mentions that it is found at Regensburg with coins dating from A.D. 180 to 210. It should therefore be assigned to the close of the occupation of Newstead.

Penannular Brooches

Examples of the penannular brooch were found at all levels. A well-preserved specimen of brass came from the ditch of the early fort (Plate LXXXVIII., Fig. 17). Like the majority of these brooches, it is quite small, measuring little more than an inch in diameter, while the ends are bulbous. The pin, which is hinged by being simply wound round the brooch, describes a considerable curve in crossing it. A brooch of the same type, rather smaller in size, was taken out of Pit LXXX, which belongs to the later period. As the British Museum possesses a very similar brooch discovered at Elton in Derbyshire along with a coin of Constantine, it is probable that the type remained in use for a very long period. Among the specimens found at Newstead we may, however, note the beginnings of the evolution which in time produced the great Celtic fibulae with expanded ends covered with intricate decoration. One brooch, which came from the Barracks of the Praetentura, shows terminals of trumpet shape. Another from the same area has the terminal ends flattened out.

A brooch of silver (Plate LXXXVIII., Fig. 13) was picked up on the sloping ground above the Tweed, a few feet to the east of Pit LXV. The metal is rectangular in section, and the sharp edges are notched to suggest plaited wire. The terminals, one of which is awaiting, are of somewhat unusual, perhaps of phallic, shape.^[4] The pin works loosely on a flattened loop. Looped to the brooch is a small ring formed of a single strand of fine wire. It is very probable that such brooches were worn in pairs, and that the loop was intended for the passage of the chain which held the two

1 *Mittheilungen über römische Funde in Hedderheim*, Heft ii. Taf. iii. Fig. 52.

2 *Jacobi, Das Römerkastell Saalburg*, Taf. 50, Fig. 3.

3 *Der Obergermanisch-Raetische Limes*, Lief. 2, 'Kastell Osterburken,' Taf. vi. Fig. 9.

4 An analogous type may be seen at the Saalburg. *Jacobi, Op. cit.* Taf. li. Fig. 3.

PLATE LXXXVIII. PENANNULAR BROOCHES

	PAGE
1. Penannular brooch of bronze.	326
2. Penannular brooch of bronze.	326
3. Penannular brooch of bronze. Principia.	326
4. Ring with animal's head. Retentura.	
5. Ring of bronze. Retentura.	
6. Penannular brooch of bronze. South Annexe.	
7. Penannular brooch of bronze with decoration in enamel and silver. Pit No. I.	327
8. Penannular brooch of bronze. Principia.	
9. Penannular brooch of bronze.	
10. Small fragment of woven chain of silver found beside No. 13.	327
11. Penannular brooch of bronze. Retentura in late drain.	
12. Penannular brooch of bronze. Retentura.	
13. Penannular brooch of silver. Riverbank field.	326
14. Small buckle found beneath rampart clay. South front.	
15. Penannular brooch of bronze. Barracks, Praetentura.	326
16. Penannular brooch of bronze.	
17. Penannular brooch of brass. Ditch of early fort.	326
18. Penannular brooch of bronze. Baths.	



INCHES 0 1 2

CENTIMETRES 0 1 2 3 4 5

together. Confirmation of this was afforded by the finding, along with the brooch, of a small piece of a very finely plaited chain of silver wire, $\frac{1}{8}$ of an inch square in section (Plate LXXXVIII., Fig. 10). Elsewhere chains have been found actually attached to pairs of fibulae. In the find from Chorley in Lancashire already mentioned, the connecting chain is of silver, while the pair of fibulae found in the Maximinstrasse, Trier, was fastened together by bronze wire. That the fashion was not purely Roman may be seen from the occurrence in Ireland of gold chains of this type in association with the great gold torc from Limavady. Mr. Arthur Evans has dealt with the question in describing the latter find, and he arrives at the conclusion 'that these chains were in use among the Celtic peoples during the first two centuries before and after our era.'¹

Perhaps the most interesting of the series of penannular brooches is one which came from the upper levels of the pit in the Principia (Plate LXXXVIII., Fig. 7). The exact period at which this pit was filled in is uncertain, but it was probably open till the end of the final occupation. In all probability, therefore, we are justified in attributing the brooch to the second half of the second century. It is of bronze, 2 inches by $1\frac{3}{4}$ inches in diameter. The pin is $2\frac{3}{4}$ inches in length and flattened towards the point. A brooch with a long pin, not unlike it, was included in the finds from Camelon,² and there is another in the National Museum from the Culbin Sands, Morayshire. The most interesting features are, however, the broadening out of the ends and their decoration. On one side the latter consists of a narrow panel of dog-tooth ornament filled in with blue enamel and silver. On the opposite side is a small inlaid pattern in silver of an entirely different character. It is altogether very slight, but the curved design at once recalls the decoration of the wooden bowl from the Glastonbury Lake village now in the British Museum,³ and thus shows the influence of Celtic art.

The penannular brooch is worn today in Algeria. In the ninth and tenth centuries it was common in the Baltic countries. But it was in Celtic Scotland and in Ireland that it reached its highest development. The late Mr. Romilly Allen, in his *Celtic Art*, commenting on the occurrence of the penannular form of brooch in Great Britain and in Algeria, expressed the

¹ *Archaeologia*, vol. lv. p. 398.

² *Proceedings of the Society of Antiquaries of Scotland*, vol. xxxv. p. 402, fig.

³ *Guide to the Antiquities of the Early Iron Age*, p. 126, fig. 107.

opinion that it came to both countries from the East, and that its introduction into our own islands dates from the time when the traffic in silver bullion from the East commenced.¹ This traffic, which passed through Russia to the Baltic Islands and to Scandinavia in the ninth and tenth centuries, has certainly left its traces on our own shores. But the penannular fibula was in use in Western Europe at a much earlier period. It occurs in the Lake village at Glastonbury, also in several of the Limes forts, and here at Newstead it appears in the second century, under Celtic influence and already exhibiting something of the form which was to reach its highest development in ornaments like the Hunterston and Tara brooches.

The fibulae just described are not the only objects on which enamel decoration was employed. We have it on a number of circular brooches and studs as well as on buckles, harness and other articles. No doubt it was an art in which the Celtic peoples attained a high degree of skill, and which they developed, to a large extent, independently. The horse-trappings from Polden Hill, and the bridle-bits from Rise and from Birrenswark, for instance, probably owe nothing to Roman models. Again, in dealing with the fibulae we have noted certain types which may be classed as British, and which show in their peculiar treatment the influence of the Celtic art of this country. On the other hand, in regard to the finds now to be dealt with, we must recognise that, while many of the specimens included have doubtless been made in Britain, we are dealing with a group, representatives of which are common on the Rhine and in the forts of the German Limes. Not infrequently the resemblance is so close that one might well believe all to have been supplied from the same source.

The early British enamel was of the type known as 'champlevé.' To produce it, the outline of the design was first traced upon the surface of the metal, and then the space to be filled with enamel was cut out, small partitions of metal being left to divide the different colours and so provide a framework. Into these spaces the enamel was inserted in the form of a paste, and subsequently vitrified in a furnace, after which it was polished. Champlevé enamel was employed in the decoration of many of the trinkets found at Newstead. There is, however, another method generally known as 'millefiori' enamel which, as applied to the decoration of metal ornaments, probably came into use in the second century. Here the procedure was to arrange rods of different coloured glass together so as to form a design—

¹ *Celtic Art*, p. 226.

a tiny flower, chequers, alternate lines of colour—and then to fuse the whole together into a single rod, the design being increased or diminished in size at will, as the rod was thickened or rolled out into a longer piece. While the rod was still hot, slices of the enamel could be cut from it, each reproducing exactly the same pattern. These slices formed a glass mosaic, and could be inserted on the flat metal surface of a brooch or buckle, and fixed there by the application of heat. Millefiori enamel occurs on several specimens. We even have it side by side with the simpler *champlevé* enamel on the same ornaments.

The various examples of enamel decoration found at Newstead are grouped together in Plate LXXXIX. The largest is the bronze plate (Fig. 25). It is 2 inches long by 1¼ inches wide, and was found near the West Gate, at no great depth from the surface. Probably it was intended for a belt mounting; it is slightly curved as if to fit a girdle, while on the back are two studs to fasten it to leather, and at one end two projections which seem to have formed part of a hinge. The surface of the mounting is divided into six panels, the four outermost of which are inlaid with *champlevé* enamel of a sulphur yellow, powdered with spots of brown, while the two central ones are filled with millefiori enamel, the millefiori being arranged in small squares, showing alternately a chequer pattern of pink upon a white ground, and a yellow floweret with a red centre on a black ground.

The methods of enamelling and the patterns employed connect this object with a class of somewhat larger and more important belt mountings, a consideration of which will show how widely the fashion they illustrate was spread along the Roman frontiers. The specimen here reproduced in Fig 48 was found in the Roman fort at the Lawe, South Shields.¹ The central projection is enamelled in dark blue, while the flat plates on either side are covered with tiny flowerets of white on a ground of dark blue, and the 'pelta'-shaped extremities are of sulphur colour with dark brown spots. A

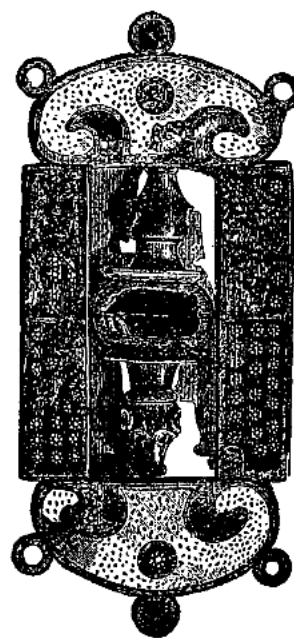


FIG. 48. BELT MOUNTING FROM SOUTH SHIELDS

¹ *Archaeologia Aeliana*, vol. x. p. 223. I am indebted to the Society of Antiquaries of Newcastle-on-Tyne for the use of this illustration.

similar buckle was found at the Saalburg. There the long panels are filled in with rosettes of light blue on a dark blue ground, and one of the ends is squared and shows, instead of the rounded extremity, two loops for a hinge.¹ A third specimen occurred at Carnuntum. Except for a slight difference in the central rod, the form is the same. The long panels are of sulphur-yellow enamel, with spots of a darker colour, while round the edge of the extremities runs a band of millefiori mosaic formed of alternate plates of white chequers on a dark blue ground, and a white cross on a red ground. The mounting on the back has studs for attachment to leather exactly like our Fig. 25.² None of these three specimens appears to have been found in circumstances which would enable it to be dated with certainty, but the Saalburg example was taken from a pit in the Civil Settlement, which is not believed to be earlier than the reign of Hadrian. At Newstead no trace of glass mosaic was detected in the early pits or ditches, and its absence from the finds at Hofheim and at Vindonissa may be taken as indicating that it was not until the beginning of the second century that any considerable body of enamelled trinkets found their way to the Limes Forts, and that the articles which exhibit this kind of decoration are not likely to have come north during the advance of Agricola. Probably they belong to the period which began with the Antonine occupation. Particulars of the various circular brooches, studs, etc., found are given in the appended list:

I. Circular Brooches or Disc Fibulae

1. Brooch of bronze (Plate LXXXIX., Fig. 14). Found in the courtyard of Block XIII. The ground is decorated with pale blue enamel, into which are set six mullets of red, each with a central point of darker colour. No doubt the empty setting in the centre was filled in the same way with enamel. A similar brooch from Pont y Saison, near Chepstow, is now in the British Museum; the colours are identical. Another was found at Silchester; but there the field is green, the central mullet red, and the others blue.

2. Brooch of bronze (Plate LXXXIX., Fig. 7). Found on the surface near East Gate. The ground is of pale blue. In the centre is a pointed leaf of bright orange red) with a stalk and tendril surrounding it. A similar brooch was discovered in the Victoria Cave, near Settle.³ Two examples have been found at Colchester. A closely analogous specimen was dug up at the Saalburg.⁴

¹ Jacobi, *Das Römerkastell Saalburg*, Text Fig. 53.

² *Der römische Limes in Österreich*, Heft viii. p. 12, Fig. A.

³ Boyd Dawkins, *Cave Hunting*, plate i. Fig. 6.

⁴ Jacobi, *Das Römerkastell Saalburg*, plate lxviii. fig. 5.

PLATE LXXXIX. ENAMELS

	PAGE
1. Brooch. Praetentura.	331
2. Lid of a locket or seal box. Block VIII.	333
3. Brooch. Retentura.	332
4. Stud. Praetentura.	331
5. Disc with loops on the back. Principia.	333
6. Brooch. South Annexe.	331
7. Brooch. Near East Gate.	330
8. Dragoneseque fibula. Baths.	320, 332
9. Stud. Praetentura.	332
10. Stud. On line of reducing wall.	331
11. Brooch. Block VIII.	331
12. Brooch. On line of reducing wall.	331
13. Bar for fixing to leather. Praetentura.	333
14. Brooch. Block XIII.	330
15. Stud. Praetentura.	332
16. Stud. Retentura.	332
17. Stud. Praetentura.	332
18. Perforated disc. East Annexe.	333
19. Stud. Praetentura.	332
20. Brooch. Baths.	331
21. Stud. Baths.	331
22. Stud with loop. East Annexe.	333
23. Brooch. South Annexe.	325 and 332
24. Stud. Praetentura.	332
25. Belt mounting. West Annexe.	329 and 332
26. Locket-like object. Block VIII.	333
27. Pendant. West Annexe.	332



3. Brooch of bronze (Plate LXXXIX., Fig. 1). Found in the Praetentura, north end. Decorated with two concentric bands of enamel. The inner band is red, with raised spots of metal appearing at intervals. The central ornament, which was probably a raised boss, is missing.
4. Circular bronze brooch (Plate LXXXIX., Fig. 6). Found in the South Annexe. Decorated with two concentric circles of enamel. The inner is red, with raised spots of metal appearing at intervals; the outer is green. The centre of the brooch has disappeared.
5. Circular bronze brooch, imperfect (Plate LXXXIX., Fig. 11). Found in Barrack Block No. VIII) Praetentura. In the centre is a circular perforation, round which runs a band of enamel alternately white and blue. The petal-like edging is filled with alternate spots of red and blue enamel. The pill has disappeared, but the catch and hinge remain upon the back.
6. Circular bronze brooch, imperfect (Plate LXXXIX., Fig. 20). Found in the Baths. The centre is raised and decorated with a double line of triangular spaces cut in white metal. The inner row is red, the outer blue.
7. Circular bronze brooch, imperfect (Plate LXXXIX., Fig. 12). Found in the Retentura, on line of reducing wall. The ground is of dark blue. The spots are filled with yellow.
8. A single example of a disc fibula without enamel may be added here. Circular bronze brooch (Plate LXXVII., Fig. 15). Found in the Praetentura. The centre is domed with a projecting boss at the apex. Around the rim small projections have appeared at intervals. The type is known in Germany; one example is illustrated by Ludowici from a grave at Rheinzabern.¹

II. Enamelled Studs of Bronze

1. Circular stud (Plate LXXXIX., Fig. 10). Found in the Retentura, on the line of the reducing wall. The centre is red. The rest of the surface is covered with enamel of a dark blue, in which is left a zigzag line of metal, forming a star pattern. In each ray is a metal-point.
2. Circular stud (Plate LXXXIX., Fig. 21). Found in the Baths. Round the centre, from which the ornament has disappeared, runs a band of enamel, divided into patches alternately (lark-green and white. Each of the white patches contains a small dark blue flower with a red heart. The tang on the back is preserved.
3. Circular stud (Plate LXXXIX., Fig. 4). Found in the Retentura. The design resembles a Maltese Cross. The arms are of blue. In the centre is a circle of bright orange-red, surrounded by a ring of dark blue. The spaces between the arms of the cross are filled in with enamel of a yellowish white. A stud of similar pattern was included in the Pont y Saison find. There, however, the ground is of red.

1 Ludowici, *Urnen-Gräber*, p. 197, fig. 112.

4. Circular stud (Plate LXXXIX., Fig. 17). Found near the East Rampart, above the filling of the ditch of the early fort in the Praetentura. The centre is white and contains a single tiny flower in blue, with a red heart. Around is a border of pale-green and white millefiori enamel.
5. Small circular stud or setting (Plate LXXXIX., Fig. 16). Found in the Retentura. The centre spot is of blue, with concentric circles of yellow, black and blue.
6. Circular stud (Plate LXXXIX., Fig. 9). Found in the Praetentura. The centre is green, and is surrounded by a band of red and a band of millefiori, showing a small red flower on a blue ground.
7. Circular stud (Plate LXXXIX., Fig. 24). Found in Praetentura, near East Rampart. The centre probably originally of niello. The outer circle is divided into alternate patches of millefiori enamel in pink and white, with two shades of green.
8. Stud of irregular shape (Plate LXXXIX., Fig. 15). Found near north-east corner of Praetentura. The upper panel is filled with red enamel, while below runs a band of white, with blue spots, arranged in groups of five. The setting has disappeared from the circular projection.
9. Circular stud (Plate LXXXIX., Fig. 19). Found in Praetentura. The enamel has disappeared from the centre. It was surrounded by concentric bands of blue and red.

III. Miscellaneous Enamelled Objects of Bronze

1. Brooch in the form of a dolphin (Plate LXXXIX., Fig. 3). Found in tracing line of reducing wall, Retentura. Plated with tin. The eye is enamelled in white and blue.
2. Brooch of S-shape or dragonesque form (Plate LXXXIX., Fig. 8). Found in Baths below cobble base of surrounding rampart. Along the centre runs a band of chequers, alternately blue and red, bordered on each side by semicircular patches of yellow. The remainder of the surface of the body on either side is divided into two panels, alternately red and blue.
3. Brooch (Plate LXXXIX., Fig. 23). Found in the South Annexe. The stem has been plated with tin. The semicircular enlargement of the head is filled with dark blue enamel, having in the centre a triangular setting of reddish brown.
4. Plate, 2 inches long by 1½ inches deep, slightly curved, with studs for attachment to leather (Plate LXXXIX., Fig. 25). Found on the edge of the road beyond the West Gate. At one end are the remains of a hinge, suggesting that it had formed part of a belt-clasp. The surface is divided into six panels. The four outer panels are filled with millefiori enamel of a yellow-brown colour. The two central panels are arranged in small squares, containing alternately a small yellow flower, with a red corolla, on a black ground, and pink and white chequers.
5. Pendant of bellows shape, 1½ inches long (Plate LXXXIX., Fig. 27). Found in the filling of the inner ditch (later system) of the West Annexe. The centre is a red

spot on a white ground. The outer ring is of pale blue, with spots alternately of red and black.

6. Small locket-like object of bronze, with loop for suspension, $\frac{3}{4}$ inches by $\frac{5}{8}$ inches (Plate LXXXIX., Fig. 26). Found in Barrack Block No. VIII in the Praetentura. The upper surface is decorated with alternate squares of greenish-blue, and brown enamel.

7. Lid of a small leaf-shaped locket or seal box, with phallic emblem decorated in red enamel (Plate LXXXIX., Fig. 2). Found in the Barracks of the Praetentura. Similar specimens are common in Germany, occurring at Ober Florstadt and Saalburg, on the Limes, as well as at Heddernheim and Novaesium.

8. Circular disc of bronze, having double loops on the back and a small circular hole in the centre (Plate LXXXIX., Fig. 5). Found beneath the Ambulatory, on the south side of Principia. Around the centre runs a band of small inlaid patches of silver.

9. Circular disc, perforated in the centre, having a loop across the back (Plate LXXXIX., Fig. 18). Found in Praetentura. Ornamented with four circular settings of red enamel.

10. Circular stud of bronze, with triangular loop attached to it (Plate LXXXIX. Fig. 22). Found in East Annexe. The surface is decorated with bright blue enamel arranged in twelve petal-like patches.

11. Small bar of bronze, with alternate panels of blue and brown enamel (Plate LXXXIX., Fig. 13). Found in Praetentura. Upon the back are two short pins, one at either end, to enable the bar to be fastened to wood or leather.

Enamel was also employed in the settings of rings; part of a bronze ring, the bezel filled with blue, was noted. Rings, however, were scarce, and all of those found were of base metal. Two seals that must have dropped from rings were picked up. One bears a representation of Ganymede feeding the eagle (Plate LXXXVII., Fig. 36), the other shows Helios standing with his right hand raised and a chlamys over his left arm. In his left hand he holds a whip, while before him is an ear of corn (Plate LXXXVII., Fig. 35). Both types are well known.

A personal ornament of much interest, but unfortunately incomplete, came from one of the inner ditches in the West Annexe. In clearing out this ditch some links of a silver chain were picked up, very brittle and much decayed. With them was a terminal hook and a small crescent-shaped pendant. The chain was about 10 inches in length. When the ditch was being filled in some months later, there was discovered near the same spot a miniature nine-spoked wheel in silver filigree with a solid bar across the back, ending on either side in a loop for suspension. The two finds seemed to

be obviously connected (Plate LXXXVII., Fig. 34). They had, in fact, belonged to an article exactly like the gold chain said to have been found near Backworth, Northumberland, and illustrated in Bruce's *Roman Wall*.¹ This latter chain, together with two others found at the same place, one of which differs somewhat in the link and has no crescent, is now preserved in the British Museum, where are also a similar chain of gold with the wheel, but without the crescent, and an isolated wheel-pendant from Llandovery, Carmarthenshire.²

No doubt both the wheel and the crescent, ancient symbols of the sun and moon, were used as amulets. The crescent is often to be seen on Roman monuments and metal work, and in such little charms as the one under consideration. The *lunula* was intended to serve as a protection against the evil eye. An almost similar crescent of silver was recently found under the chin of a child's skeleton at Nida, the Roman station at Heddernheim near Frankfurt; it had probably been worn on a cord which had perished. We may infer that it had been hung round the neck of the new-born child, just as small heart-shaped brooches of silver were used in later times in Scotland for the same purpose. The amulets from a necklace of the kind, consisting of four *lunulae* of silver, were found in a grave at Trier associated with a tall urn of glass and a coin of Domitian, which showed little or no sign of use,³ A bronze chain with its *lunula* was found at Pfünz.⁴

Wheels, which were clearly amulets, have been found in large numbers on pre-Roman sites in Gaul, which we may suppose to have been centres of religious ceremonies. As the worship of the Roman gods spread beyond the Alps, the sun-symbol apparently became an attribute of the Gaulish Jupiter. A bronze statuette in the Museum of St. Germain-en-Laye shows a male figure standing holding a six-rayed wheel; it bears the inscription IOVI · OPTIMO · MAXIMO · ET · NVMINI · AVGVSTI. A second example in the same collection grasps a thunderbolt in his right hand and a wheel in his left.⁵ An earthenware mould discovered at Corbridge-on-Tyne during the recent excavations provides a third instance of the combination. The figure which it produces is illustrated in Fig. 49. It stands about 4½ inches high, and probably represents some Gallo-Roman or Romano-British conception of Jupiter.

1 P. 427.

2 *Archaeological Journal*, vol. viii. p. 39.

3 Kropatscheck; 'Zwei römische Amulette,' *Römisch-germanisches Korrespondenzblatt*, Jahrgang ii. p. 24.

4 *Der Obergermanisch-Raetische Limes*, Lief. 14, 'Kastell Pfünz,' Taf. xiii. Fig. 9.

5 Reinach, *Bronzes figurés de la Gaule romaine*, figs. 4 and 5.

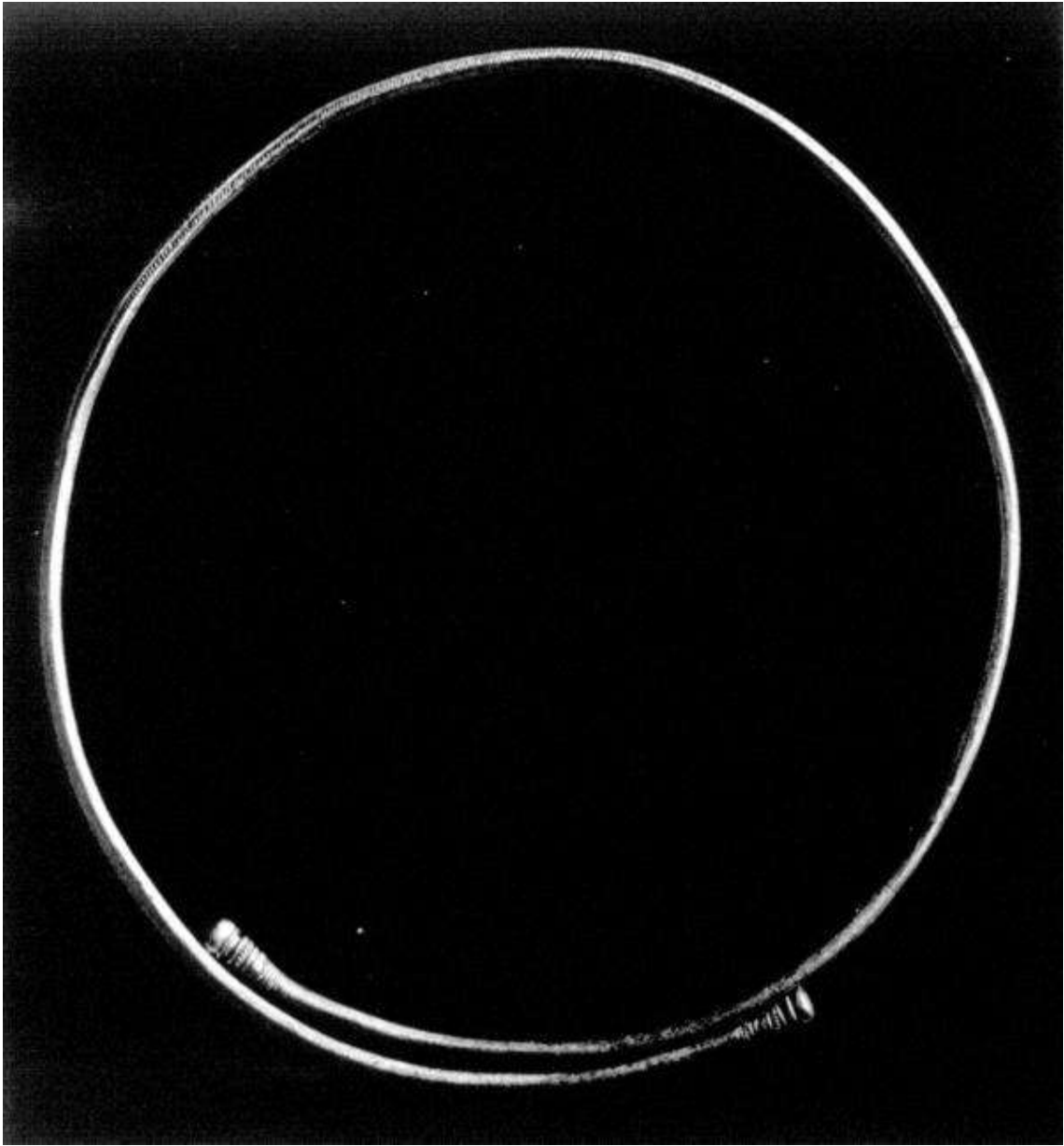


PLATE XC. BRASS TORC
Ditch of Early Fort

He is clad in a chiton fastened on the right shoulder by a clasp or brooch, while below is a fringed undergarment which descends to the right knee.

On his head is a helmet, terminating in a high, rounded crest, a headpiece more nearly related to the tall peaked metal cap worn by the Gaulish warrior of the Tombeau de la Gorge-Meillet,¹ or to the well-known helmet of Berru,² than to the headpiece of the Roman legionary. In his right hand he carries an object which looks like a heavy carved staff, but which is possibly meant for a thunderbolt. The shield on his left arm shows the raised boss and the studs that fastened the leather covering. On the ground beside him is a wheel with eight spokes, the large hub and the raised tyre being distinctly indicated. The same association of ideas appears on two altars dedicated to Jupiter by the Second Cohort of the Tungrians and found at Walton House on the wall of Hadrian; they are sculptured with the thunderbolt and the wheel.³

Another highly interesting ornament was found at the bottom of the ditch of the early fort. It is made of rounded brass wire of a bright golden colour (Plate XC.). The length is $37\frac{3}{4}$ inches, and the wire is $\frac{3}{4}$ of an inch thick. The trumpet-shaped terminals are neatly tooled, while along the back, for a length of 12 inches, the surface takes a pentagonal form and is tooled on three sides with an ornamental design, consisting of a band of S-shaped curves forming a wavy line with hatching on either side. When found, it was twisted entirely out of shape; the whole had been doubled, with the trumpet-shaped ends brought together, and had then been folded back a



FIG. 49. FIGURE FROM A CLAY MOULD, CORBRIDGE

1 Fourdrignier, *Double Sépulture gauloise de la Gorge-Meillet*, plate viii.

2 Bertrand, *Archéologie celtique et gauloise*, p. 357, plate xi.

3 Bruce, *The Roman Wall*, pp. 278, 280.

second time. There was nothing to indicate its original form, but it seems probable that it was a torc. Its size is larger than is usual for such ornaments, and might suggest that it had been a girdle. The metal, however, is not sufficiently pliable for such a purpose; and, large though it be, torcs have been found in Ireland having a length of 5 feet 7 inches and 5 feet 6 inches.¹ The wave-line decoration on the back, shown with the terminals the natural size, occurs on early fibulae both in Britain and on the Continent; it can, for instance, be faintly seen on the fibula illustrated in Plate LXXXV., Fig. 5. It appears on brooches from the Romano-British village at Rushmore, excavated by General Pitt-Rivers, and it may be noted on an early fibula from the villa of Anthée in the Museum of Namur. The whole treatment of the ornament, and especially of the trumpet-shaped ends, suggests that the Newstead torc is of purely native manufacture.

Beads

A group of personal ornaments of another kind will be found in Plate XCI. Some sixty beads, complete or fragmentary, were collected in the course of the excavations. They were for the most part found within the fort. The majority belonged to the class of opaque melon-shaped beads, often of a bright blue colour, common on all Roman sites. A certain number, while of much the same shape, were made of clear, dark-blue glass. Some of these latter came from the ditch of the early fort. Two of unusual size and somewhat irregular shape (Figs. 8 and 10) were lying beneath the Via Quintana. In the pit in the Principia, at a depth of 8 feet and near the head of a skeleton, were four tiny specimens which had evidently formed part of a necklace (Fig. 24). They were of clear glass decorated with gold leaf, which was in turn covered by a thin layer of glass. Beads of the same sort from the Well of Coventina, at Procolitia, are now in the Museum at Chesters. The Newstead find probably belongs to the second half of the second century.

Decorated beads were rare. Three are ornamented with projecting bosses of different colours. One of pale green glass has bosses of dark blue with white curving lines (Fig. 12); another of dark blue translucent glass has bosses of opaque white, each with a blue centre (Fig. 16); a third of grey-green glass has two bosses of opaque white with yellow centres (Fig. 18). Five are decorated with wavy lines of opaque white. Four of these are of blue glass (Plate XCI., Figs. 17, 19, 23 and 26) and the fifth is of greenish glass, with wavy lines of white, while round the perimeter are the remains of a band of

¹ *Archaeologia*, vol. xxxix. p. 505.

PLATE XCI. BEADS

	PAGE
1. Portion of an armlet.	337
2. Melon-shaped bead of vitreous paste.	336
3. Portion of an armlet.	337
4. Melon-shaped bead of vitreous paste.	336
5. Portion of an armlet.	337
6. Bead.	336
7 to 11, 13 to 15. Melon-shaped beads.	336
12, 16 to 20, 23 and 26. Decorated glass beads.	336
24. Glass beads decorated with gold foil. Pit I.	336
25. Bead of glass.	337
30. Bead of bronze.	337
31. Inlaid bead of vitreous paste. Riverbank field.	337
32. Bead of marble. Block XIV.	337
35. Bead of bronze.	337
21, 22, 27 to 29, 33 and 34. Melon-shaped beads.	336



inlay, the colour of which can no longer be determined (Fig. 20). All of these decorated beads associate themselves with types of pre-Roman beads found in Central Europe, and are probably therefore of native manufacture. One other decorated bead is somewhat different in character. It is of bright-red vitreous paste, and has running round it a band of dark green, in which a wreath with stems and leaves is inlaid in yellow (Fig. 31). It was found outside the North Gate.

Other beads which may be mentioned as of less common occurrence are of clear green glass (Fig. 14), of emerald green, very tiny (Fig. 25), of amber, of bronze (Fig. 30), of jet (Fig. 6), and of red and white veined marble (Fig. 32). The last named was found in Block XIV, near the remains of a human skeleton, along with coins of Trajan and Hadrian. Four fragments of glass armlets must also be noted. One, which came from beneath the clay of the rampart on the south front, is of two shades of blue, dark and pale, with white opaque lines and a small spiral of opaque white (XCI., Fig. 1). Another piece is of pale green with a rope pattern in double lines of dark and light blue (Fig. 5). The other two pieces are of greenish glass without decoration (Fig. 3). Probably the portion of a boar's tusk, perforated at one end, shown in Plate XCIII., Fig. 19, had been worn as a pendant on a necklace of beads.

Pins of various patterns represented the smaller objects of toilet; but their number was not large. They were on the whole of most common occurrence at the Baths, whence came three bronze pins (Plate XCII., Figs. 18 to 20), three bone pins (Plate XCIII., Figs. 14, 15, 17), and one bone needle (Fig. 18). A needle of bronze came from Pit LXXIII, and a brass pin from Pit LXXVIII; both are figured in Plate LXXIII., Figs. 7 and 8. A bronze pin found on the level of the early building near Block XVII (Plate XCII., Fig. 11), 6 inches in length, seems to have had a small circular setting of red enamel on the head. A pin of the same pattern but somewhat longer has been found at Corbridge. The most decorative of all the pins was recovered among the black deposit from Pit LVI (Plate XCIII., Fig. 16). It is of horn, 4½ inches in length, and is quite uninjured. On the head is a carefully executed bust, doubtless intended to represent a lady with a high coiffure. Many imperfect specimens of such pins have been found in London.¹ An example was also recorded from Okarben.²

1 Roach Smith, *Roman London*, Plate xxxiv.

2 *Der Obergermanisch-Raetische Limes*, Lief. 16, 'Kastell Okarben,' Taf. iii. Fig. 2,

Another object of bone (Plate XCII., Fig. 21) found in the ditch of the early fort is worthy of particular mention. It resembles in shape a small spoon $5\frac{1}{2}$ inches in length, having a circular hole cut in the bowl. Dr. Munro figures a similar object found in the excavation of the crannog at Lochlee, Ayrshire, describing it as "a tiny little spoon only $\frac{3}{4}$ of an inch in diameter and worn into a hole in the centre, the handle being only 2 inches long and about the diameter of a crow quill."

These articles are by no means uncommon on Romano-British sites. They are certainly not worn-out spoons as one might easily suppose from a single specimen; the hole in the bowl is of too common occurrence, and the fact that it is an intentional perforation is frequently obvious. The British Museum has seven, all with perforated bowls, from Dowkerbottom Cave and two from other caves near Settle. There are several in the Museum at York. Specimens are also to be noted in the Black Gate Museum at Newcastle and among the objects found in the excavations now in progress at Corbridge. On the other hand, they do not seem to occur among the finds from the German Limes forts, nor do they appear in Museums on the Rhine. They are, therefore, probably purely Celtic. The precise manner of their use is uncertain. Such a specimen as that found at Newstead might have been employed as a hair-pin, a cord being passed through the broad end, the better to secure it. Many examples, however, show, at what would be the point of the pin, a short cross bar or a square terminal, which would render such use impossible. It may be that they were employed, with a cord attached, to thread together, and so fasten, the two sides of a garment.

Among the miscellaneous small articles was a surgeon's probe (Plate XCIII., Fig. 13). It came from Pit LXV, and is made of brass, 4 inches long. At one end it expands into a solid bulbous head. At the other the stem, for a distance of 2 inches, is wound round with a thin flat brass wire. Probes of various sizes are common both at Novaesium and at the Saalburg, but this is probably the first that has been found in Scotland. With it should be associated the small spoon of bronze from Pit LXXXV, Plate LXXIII., Fig. 6, probably also part of the surgeon's outfit.

Scattered up and down over the fort were found what appeared to be 'men' for playing a game. These were got at all levels. They are chiefly of bone or of vitreous paste, but one or two are of stone. Those made of bone are flat button-like objects, decorated with concentric rings, while those

1 Munro, *Ancient Scottish Lake Dwellings*, p. 112, fig. 76.

PLATE XCII. BRONZE PINS

	PAGE
1. Object of unknown use.	
2. Mounting.	
3. Mounting.	
4. Mounting with tangs for insertion into wood or leather.	
5 and 9. Loops used for inserting into straps, or as fastenings for garments.	
6. Tweezers. Block XIII.	307
7. Mounting.	
8. Tweezers. Baths.	307
10. Object, perhaps part of a knife handle.	
11. Pin. Near Block XVII.	337
12 to 15. Pins.	337
16. Pin for teasing the wick of a lamp.	307
17. Pin.	337
18 to 20. Pins. Baths.	337
21. Spoon-like object of bone. Ditch of the early fort.	338

The objects figured, with the exception of No. 21, are of bronze.



INCHES 0 1 2

CENTIMETRES 0 1 2 3 4 5

of vitreous paste resemble them in size, but are without ornament and of different colours—black, white, yellow and blue. Probably the game resembled draughts, and was played on a board divided into squares by lines drawn at right angles. Such a board has recently been recovered at Corbridge, in the shape of a slab of stone having 56 squares roughly incised on it (Fig. 50). A bone die, indicating a game of chance rather than of skill, (Plate XCIII., Fig. 3) was found in Pit LVII, the Well at the Baths. It is $\frac{5}{8}$ of an inch wide by $\frac{3}{8}$ of an inch deep, and the points, which run from one to six, are marked by incised circles with a hole in the centre. Perhaps it is also to a game that we should refer the circular pieces formed from the bottoms of vessels from which the sides have been carefully chipped. Many of these came from the pits, and they frequently have the appearance of being worn by rubbing on a stone. Similar pieces are common at the Saalburg. More than once discs neatly fashioned from red sandstone were found along with the chipped jar bottoms; one of these is illustrated in Plate LXXXIII. (Fig. 5). These also were probably used to beguile the tedium of garrison life in Caledonia.

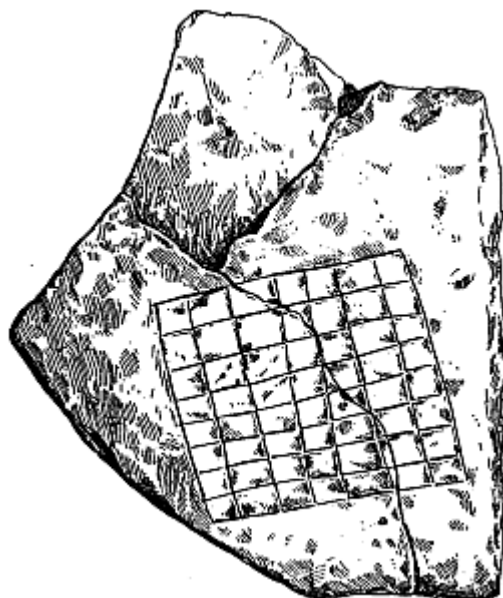


FIG. 50. 'DRAUGHT BOARD' FROM CORBRIDGE

CHAPTER XVII

Conclusions

THE description of the Roman operations in Caledonia, as we find it in written history, is too vague and obscure to enable us to identify the part played by the Newstead garrison in the drama which passes before our eyes in the pages of Tacitus and later writers. And yet it is tempting to speculate upon the place the fort occupied, in those years of struggle, and to try to identify its successive alterations with the advances and retreats of which historians have preserved for us an all too brief outline. Certain points seem clear enough.

To begin with, the limits of time into which we must compress the various changes which it reveals, are tolerably clear. It is evident that they are comparatively, narrow. This is borne out by the coin finds, which strikingly confirm the conclusions arrived at earlier from similar discoveries on other Scottish sites. Professor Haverfield in his Appendix to the *Antonine Wall Report*, published by the Glasgow Archaeological Society in 1899, dealt with the Roman occupation of Scotland, and more particularly with the evidence as to its duration which was furnished by coins. Bringing together statistics of the various recorded discoveries in or near the Vallum or its forts, together with the hoards and isolated finds which had come to light throughout the country, he noted that the silver coins of Domitian, Trajan, Hadrian and Pius, and the bronze coins of Trajan, Hadrian and Pius were common on the Vallum and chief Roman sites, and that Marcus Aurelius, still more Commodus (177–192), were scantily represented, and later Emperors practically absent. From this he concluded that, while it was always possible that silver denarii of Domitian might go back to an occupation by Agricola, the rest of the finds very clearly pointed to an occupation which began in the reign of Pius and terminated after a comparatively brief period—in short, that the whole land north of the Cheviots must have been lost before or about A.D. 180.

PLATE XCIII. HAIR PINS, A COMB, PIECES FOR A GAME

	PAGE
1. Piece for a game, bone. Courtyard, Principia.	338
2. Piece for a game, bone. Courtyard, Principia.	338
3. Dice, bone. Pit LVII. Baths.	339
4, 5, 6. Piece for a game.	338
7. Portion of haft of a knife, bone. Ditch of early fort.	281
8. Piece for a game, hone. Courtyard, Principia.	338
9. Piece for a game, bone. Courtyard, Principia.	338
10, 11. Piece for a game, pottery.	338
12. Piece for a game, vitreous paste.	338
13. Surgeon's probe of bronze. Pit LXV.	338
14, 15. Hair pins of hone. Baths.	337
16. Pin of bone with carved bust. Pit LVI.	337
17, 18. Hair pin and bodkin, bone. Baths.	337
19. Boar's tusk worn as an ornament. Ditch of early fort.	337
20 to 32, 34 and 35. Pieces for a game.	338
33. Toilet comb of wood. Inner ditch, west front.	311



Professor Haverfield's note was published in 1899. Since then, excavations have taken place at Camelon, Lyne, Inchtuthil, Castlecary, Rough Castle, and Bar Hill. Castlecary and Rough Castle produced no coins, Inchtuthil only a single piece, probably of Domitian, while, except for a denarius of Mark Antony—a variety which is well known to have remained long in circulation—the series from Bar Hill and from Camelon begin with Vespasian and end with Marcus Aurelius. In both, the issues prior to the reign of Pius largely predominate. The agreement with statistics previously available is thus complete.

The same is the case at Newstead. The coins discovered in the course of the excavations numbered 249. These have been most carefully examined by Mr. George Macdonald, who has dealt with them in an appendix to this volume. Mr. Macdonald has been able to identify no fewer than 234—a series much larger than any that has as yet been obtained on an excavated site in Scotland; to these he has added 26 whose discovery is recorded by earlier observers, so that the total is 260. All save 4, which were found in the Baths adhering through corrosion, were picked up singly, scattered over the fort and its annexes. The earliest are 9 Republican denarii and 8 denarii of Mark Antony. Augustus is represented by one denarius and one second brass, and Tiberius by a denarius; Nero by 2 bronze coins and one denarius; Galba by 2 denarii; and Otho and Vitellius each by a denarius. Then come large numbers of Vespasian, 28 bronze and 22 silver coins. Of Titus there are 10 bronze and 2 silver, of Domitian 25 bronze and 12 silver, and of Nerva one bronze and 3 silver. Trajan is represented by 27 bronze and 15 silver. Hadrian with the Empress Sabina is responsible for 29 bronze and 22 silver. With Pius the numbers decrease. To this reign, including the coins of the elder Faustina, belong 13 bronze and 10 silver. Of Marcus Aurelius, and his wife Faustina the younger, there are 5 bronze and 2 silver. The list closes with a single denarius of Crispina, who married Commodus in 178. The series thus exhibits precisely the same features as were noted by Professor Haverfield in earlier lists from Roman sites in Scotland. There is the same preponderance of early issues, the same scarcity of coins of the period following the death of Pius. The coin of Crispina carries us down to Commodus, and so confirms Professor Haverfield's conclusion that in or about the beginning of the reign of that Emperor, the Romans lost their hold of Southern Scotland.

The coins found during the excavation are not, as indicated, the only ones that have been discovered on the site. The *Proceedings of the Society of Antiquaries*

of Scotland contains a list compiled in 180 by Dr. J. A. Smith.¹ Thirty-one coins are there enumerated more or less specifically. Twenty-three of these belong to very nearly the same period as those unearthed in the excavations the earliest are consular denarii, while all the more important reigns from Nero to Pius are represented. This is just what we should expect. Dr. Smith, however, goes on to mention a coin of Victorinus, followed by coins of Diocletian, Carausius, Galerius Maximianus and Constantine. Nothing that was turned up during our five years' digging gave any support to the view that there had been an occupation in the third century or later. No coin of that period was found. The characteristic fibulae and the pottery were both wanting. Dr. Smith does not say exactly where any of these late coins were discovered. It is evident that he saw them, but the proof that they were actually found in or near the fort is lacking. It is possible that they had been picked up on the site or in its immediate neighbourhood, and that they came there long after the abandonment of the fort. On the rising ground south of the village of Newstead earth-houses have been discovered, and into the doorway of one of these there was built a characteristic piece of Roman moulding.² Roman Stone work was also noted in one of these constructions at Crichton Mains in Midlothian,³ showing that they belong to a post-Roman period, but that period cannot be a very late one, as elsewhere in Scotland their contents have included pieces of vessels of Terra Sigillata.⁴ The discovery of an earth-house at Newstead, then, points to native occupation in the neighbourhood of the fort at no long period after the final abandonment; and, in view of the whole results of the excavation, it would appear safest to assume that Dr. Smith's late coins should be connected, not with a subsequent Roman occupation, but with a traffic which, after the period of withdrawal, had gradually been resumed between the Romanised portion of Britain and the people who dwelt to the north of the English wall.

The latest date to which the occupation of the fort by Roman troops could be assigned is the campaign of Severus, A.D. 208 to 210. Severus, however, has, so far as we know, left no clear trace of his presence behind him in Scotland, and we have no definite evidence of his having been at Newstead. The permanent occupation must certainly have ended earlier,

1 Vol. i. pp. 33–38; also vol. v. pp. 105, 108, 362.

2 *Proceedings of the Society of Antiquaries of Scotland*, vol. i. pp. 213, 217.

3 *Ibid.* vol. viii. p. 105.

4 *Ibid.* vol. viii. p. 25.

It is probable that the whole period of its history lies within the century that elapsed between the year A.D. 80 and the earlier part of the reign of Commodus. Within this period fell the two great invasions chronicled in history—that of Agricola and that of Lollius Urbicus, and, were we to argue from a superficial view of the list of coins, we might hold that during the whole of it the occupation of Newstead was well nigh unbroken. History, however, tells us of the recall of Agricola, and indicates in no uncertain way the undoing of his work, while the expedition of Lollius Urbicus was itself a reconquest, not simply a new phase in the policy of a continued occupation. Of the intervening period of withdrawal, the debris gathered from the pits and wells at Newstead provides abundant evidence. One hundred and seven of these receptacles were cleared out. They could be divided into two distinct classes, an earlier and a later.

Save in a very few cases, their position gave no clue to their age; pits of different periods often lay side by side. But as has elsewhere been noted, the pottery fell quite naturally into two groups, and those two groups were never mingled. The early Terra Sigillata, with its arrow-point patterns and its winding scrolls of the transition period, was never mixed with the later ware, decorated with large medallions, coarser wreaths and free figures, while differences in the coarse pottery were no less strongly marked. Between the deposits of such fragments in the two groups of pits there must have elapsed a period in the course of which the sources of supply of the pottery, no less than the fashions in its decoration, had undergone a decided change. The Terra Sigillata of Pit LXXVI, bearing the stamps of Firmo, Masculus, Sabinus, is typical of the end of the first century. That of Pit LXXII, closely adjoining, turned out from the potteries of Cracuna, Ruffus, Suobnillus, is no less typical of the second century; some of it, from its similarity to pieces in the ditch of the earthen fort at the Saalburg, might date from the end of the Hadrianic period. Similarly, the dishes of Pit LIV with the stamps DAGO, OF·COTTO and OF·IVCVN are entirely distinct from those of Pit XLIX with REGINI·M, AVITVS, RVFFI·MA, and the imperfect stamp of CINNAMVS.

It would be rash to put forward the theory that all the fragments found in association in one of these pits were necessarily contemporaneous. But there can be little doubt that most of the pits were open for a comparatively short period, and certainly no example was observed in which the forms characteristic of the two groups of pottery were found at the same level.

The evidence of the pottery thus goes to prove that somewhere at the end of the first or early in the second century there was an abandonment of the site followed by a second-century reoccupation.

There need be little hesitation in attributing this break in the occupation to the first half of the second century. History gives no support to the theory that Agricola's 'conquest' resulted in a permanent acquisition. Agricola himself is represented as having been recalled by Domitian, and the fruits of his victories sacrificed—*perdomita Britannia et statim missa*. The account by Tacitus of his father-in-law's expedition conveys no impression that its results were abiding, and so far archaeology has failed to produce, north of the Tweed, any records of a permanent nature which can be associated with him.

We cannot tell how soon the recall of Agricola was followed by a general withdrawal of the troops which he may have left behind to hold what he had won. But it is certain that about the year A.D. 120 Hadrian established his frontier line between the Tyne and the Solway, and we know that that event was preceded by serious troubles in Britain, involving probably the whole land north of the Humber, and that in some great disaster of that troubled time the Ninth Legion was apparently overwhelmed. With the first mutterings of rebellion in the rear, the position of the garrisons guarding the long line of communications would become insecure, and the forces would retreat to the south. Somewhere, then, in these early years of the second century, if not in the end of the first, we must place the earliest abandonment of Newstead. There can be little doubt that the fort remained deserted till the advance of Lollius Urbicus soon after the year 140.

The history of the fort would thus appear to be divisible into two main periods, corresponding respectively to the expedition of Agricola, and to the building of the Vallum under Urbicus. To the earlier period may be assigned, not only the early fort, but also the first occupation of the enlarged fort which succeeded it. The ditch of the early fort was certainly open as late as the year A.D. 86. Two bronze coins struck in the Twelfth Consulate of Domitian had dropped into it before it was covered by the clay rampart that subsequently concealed it. These were recovered, one from the west, the other from the south front. The year is the year of Agricola's departure. Now we know of no Roman mints in Britain, and it is highly improbable that these coins reached Newstead and were lost in the very year of their minting. Another coin, a denarius of Domitian of the year A.D. 92, almost unused,

lay below the level of the road constructed for the second occupation, where it passed between the later ditches on the south. We cannot, of course, rely altogether upon such a find as evidence of the prolongation of the first occupation. All that we can say with certainty is that the latest coins found in the ditch of the early fort date from A.D. 86, and that it is well nigh certain that a garrison was still there at that date. But indications already alluded to suggest that the earlier of our two main periods did not end with the evacuation of the Agricolan earthwork, but included also the earliest occupation of the enlarged fort.

Here again the strongest of these indications is obtained from the pottery, particularly that taken from the overlapping ditch in front of the West Gate, a ditch which, as we have seen, must have been filled up at a comparatively early period. It is a mere handful of fragments—some twelve pieces of Terra Sigillata. Four belong to decorated bowls. One is the rim of Dragendorff, Type 29. Two show the well-known arrow points. A fourth has a border of long, pointed leaves, resembling those illustrated on page 211, Fig. 4. The undecorated vessels comprise pieces of Dragendorff, Types 18, 27 and 35, as well as of the bowl-like vessel with flat rim, ornamented with lotus buds, figured in Plate XXXIX., Type 11. Of the coarse dishes there is a fragment of a dark-grey colour, exhibiting the technique of 'rustic ware,' and also a portion of the neck of a large urn-like vessel of a close-textured reddish-brown ware, such as was noted in Pit LIV. There is not among these pieces a single one which is characteristic of the late period. Unfortunately the corresponding ditches in front of the North and South Gates yielded little, though 'rustic ware' came from the former. It must further be noted that most of the types of Terra Sigillata mentioned above were present in that portion of the inner ditch of the enlarged fort cleared out on the west front. As a rule, the evidence of ditches is less to be relied upon than that of pits. The latter do not seem to have been open for any length of time. After they had once been filled up with rubbish, they were probably closed for sanitary reasons. The clay stopping near the surface was no infrequent feature. Ditches, on the other hand, must have lain open for a long period. Yet in this case the pottery of the ditches entirely supports the theory put forward. The ditch of the enlarged fort, open no doubt for a comparatively long time, produced not only the early fragments, but also many of later date, including one or more which seem to belong to the export from Rheinzabern, while the branch of the same ditch in front of the gate, filled up early, showed only early pottery.

There are other indications that the first occupation of Newstead was prolonged beyond the period of Agricola's campaigns; in other words, the years lying between A.D. 80 and A.D. 86. These are to be found in the coin series and in the large proportion of relics from the early rubbish pits. In examining the former, one cannot but be struck by the comparative paucity of the issues of Nero. As representing the coinage of his reign of fourteen years we have two bronze and one silver pieces, while the bronze coins of Vespasian and Domitian number twenty-eight and twenty-five respectively. This would suggest that by the reign of Domitian the bronze issues of Nero did not form any large proportion of the currency. If between the death of Nero in A.D. 68 and the year A.D. 86 the Neronian issues of bronze coins had so far exhausted themselves, it is difficult to believe that the later coins of Domitian, and the coins of Nerva and Trajan, were all of them brought into Caledonia in the reign of Antoninus Pius. Further, Mr. Macdonald's study of the coin-finds has established the interesting fact that they include a number of coins struck in the reign of Domitian subsequent to the date of Agricola's departure, as also pieces dating from the reigns of Nerva and Trajan, which are in such good condition that they cannot have been in circulation for any length of time, a state in which we could not expect to find them had they been dropped in the reign of Pius. It is, to say the least, probable that some of the coins of these Emperors belong to the first period of the enlarged fort, the occupation of which began after the recall of Agricola. The rubbish-pits tell the same tale of continuous activity in the early period. Of the one hundred and seven pits and wells discovered since 1905, at least thirty-six could be attributed to the early period as against twenty-nine which were late, but the great majority of the objects found were taken from the early pits. Indeed, the preponderance of early finds is even greater in the general collection than in the collection of coins.

There is nothing in history to tell us what happened in Scotland immediately after Agricola's return to Rome. The impression generally conveyed is that the early advance was very much shorter in its duration, and less effective in its character, than that which followed in the reign of Pius. This is doubtless a true presentment of the facts taken as a whole. But the abundance of relics of the early period at Newstead suggests that that fort at least was a centre of considerable activity, and held a considerable population for some time after A.D. 86. It is quite possible that with the abandonment

of Agricola's forts between the Forth and Clyde some strategic line further to the south, including Newstead, was held until increasing pressure from the north, or an uprising in the rear, rendered a further retreat necessary.

It must at the same time be admitted that any impression of the length of an occupation based largely on the quantity of the relics left behind may easily be erroneous. The relative strength of the garrison in the two periods is an important factor which has to be reckoned with. A large force concentrated on a site for a comparatively short period would leave a comparatively large deposit of refuse behind. A sudden abandonment would also tend to increase the quantity of relics remaining on the ground, and that some disaster terminated the early period at Newstead seems probable. It is difficult to account for the presence of many of the objects found in the early rubbish pits, except on the hypothesis that they were concealed on the eve of a hurried evacuation.

Passing from the early period, we would fain distinguish the exact phase in the evolution of the fort which marks the reoccupation of Newstead after its abandonment. There need be little doubt that the later period coincides generally with the Antonine occupation. Its pottery belongs to a distinct period of Roman activity in Scotland. The same potters supplied the ware used alike at Newstead and in the forts of the Vallum; decorated bowls in the style of Cinnamus and Divixtus were common in both. And in both we have the occurrence of the stamps of the same potters, who can be definitely assigned to the second century.

The phase in the evolution of the fort, which it seems safe to assign to the later period, is the reduction in its size at the beginning of the fourth occupation. It also seems safe to assume that the cutting down of the West Annexe belongs to the same time. A coin of Hadrian came from the bottom of the inner ditch covering the Bath buildings; the pottery found in it was entirely of the later period. But the reduction in size can hardly have marked the beginning of the Antonine period. Pottery of the later period was lying in the upper levels of the pit in the Baths, but beneath the cobble foundation of the rampart that passed above it; and the rampart obviously belongs to the same period as the ditch beside it. It would therefore follow that the beginning of the Antonine occupation preceded the reduction in the size of the fort, and that it coincided with the phase which has been termed the third occupation, in which the overlapping ditches in front of the gates were filled up, but in which the entrance from the south was still on the

line of the later Via Quintana. Such a conclusion might well have been anticipated. The forces of Urbicus about A.D. 140 would find the enlarged fort with its earthworks much as its earlier Flavian or Trajanic garrison had left it. Its reoccupation and the repair of its defences would naturally follow. Probably the opportunity would be taken to strengthen it by building the surrounding wall. It has been noted elsewhere that the overlapping ditches in front of the earlier gates on the north and south, and of the gate on the west, were filled up when the wall was built. The more substantial defence seemingly enabled the device to be done away with.

A reduction in size of the fort area followed. This might perhaps be interpreted as the result of more settled conditions on the Vallum and a consequent decrease in the garrison, but it does not seem probable that the change was prompted by peaceful conditions. Rather it appears to indicate an attenuated garrison alive to the possibility of attack. The building of the reducing wall, the alteration of the main buildings, the raising of the rampart encircling the outlying Bath building were works which can only be interpreted as defensive and rendered necessary by the imminent presence of danger, a danger which ultimately caused a second, but not yet final, abandonment.

We have evidence that some eighteen or twenty years after the building of the wall, shortly before the close of the reign of Antoninus Pius, there were troublous times in Northern Britain, at the close of which forts were once more rebuilt and Rome resumed for a time the mastery.

Thus at Birrens we have distinct evidence of a reconstruction of the fort, and we have further a dedication to the Emperor by the Second Cohort of Tungrians, on a slab which no doubt formed part of a building, which gives us the date A.D. 158, and in part the name of the Governor of Britain, Julius Verus. At Birrens there is no trace of any pottery which suggests an occupation earlier than Pius. That it may yet be found is possible. But in the large collection from the site in the National Museum in Edinburgh, its absence is striking. As far therefore as our material justifies a conclusion, we must place the building of Birrens in the reign of Pius (or possibly Hadrian) and its rebuilding, shown by the alterations on its plan, in the Antonine period, and it is highly probable that this tablet of the Tungrians gives us the date. We have evidence of the same process along the Vallum, for Mr. George Macdonald's researches have proved that there also some forts underwent reconstruction in the Antonine period.¹

1 *The Roman Wall in Scotland*, chaps. vii. and xii.

Professor Haverfield has gathered together other signs of rebuilding further south in inscriptions at Brough in Derbyshire, at Newcastle, and at Netherby. ^[1] In all of these he has pointed out that there occurs, as at Birrens, the name of the Governor Julius Verus, and that all of these sites, including Birrens, lay within the limits of the territory of the Brigantes, a tribe to which more than one allusion, significant of their fighting strength and love of freedom, has survived in the pages of Roman writers. It seems probable then that the necessity of quelling a Brigantian uprising about A.D. 158 involved a loosening of the hold on the Vallum, and that such forts as Birrens and Newstead were then lost at least for a time.

The reoccupation of the fort opens the final chapter of its history. Once more there was considerable alteration and rebuilding. The reducing wall was thrown down, buildings were restored and a larger garrison installed. But if we may judge from such worn foundations as have survived, the reconstructed buildings had less of the element of permanency than those that preceded them. Here and there, built into the later walls, or in the masonry of the main outlet of the drains on the west, or again employed as drain covers, there were found blocks which had obviously formed part of earlier buildings. They were distinguishable from those beside them by their greater size, and by the fineness of their dressing. Clearly, in the final occupation, the hold on the north was slackening. And then, probably somewhere early in the reign of Commodus, when we know that the British war was pressing heavily, must have come the end. The Roman grasp of the Vallum must have given way, and with it their hold of the supporting forts, such as Birrens and Newstead. How these fell it is improbable that we shall ever know, and yet traces of the catastrophe which overwhelmed them have been revealed to us, after the lapse of many passing centuries. It is the secret drawn from the wells and rubbish pits—a tale of buildings thrown down; of altars concealed, thrown into ditches or into pits, above the bodies of unburied men; of confusion, defeat, abandonment; of a day in which the long column of the garrison wound slowly southward across the spurs of the Eildons, leaving their hearths deserted and their fires extinct.

¹ *Proceedings of the Society of Antiquaries of Scotland*, Vol. xxxviii. p. 454.

APPENDICES

I. VEGETABLE REMAINS. BY HARRY F. TAGG, F.L.S.

II. ANIMAL REMAINS. BY PROFESSOR J. C. EWART, M.D., F.R.S.

III. THE SKULLS OF THE CANIDAE. BY B. G. LINTON, M.R.C.V.S.

IV. HUMAN BONES. BY PROFESSOR T. H. BRYCE, M.D.

V. COINS. BY GEORGE MACDONALD, M.A., LL.D.

VEGETABLE REMAINS

BY HARRY F. TAGG, F.L.S.

THE following constitutes a report based upon the examination of material submitted from time to time by Mr. James Curle, of Priorwood, Melrose, during the excavation of the site of the Roman Military Station at Newstead, Melrose.

The nature of the material which was sent to the Royal Botanic Garden, Edinburgh, for investigation was of two kinds:

- (1) Samples of the deposits from the various pits and trenches opened during the work of excavation;
- (2) Definite articles of interest such as implement shafts.

The samples of earths from the pits gave numerous twigs of trees, pieces of bark, branches, chips of wood, and seeds, which had found their way into the pits at the time the latter were being filled with refuse at the station. From the pits and trenches, and mixed with the vegetable debris, came many of the important finds of Roman implements and other articles, and one is justified in assuming that the vegetable remains from the same levels represent species of plants which were contemporaneous with the occupation of the site. In the case of the woods associated with tools as handles, one has, of course, no direct evidence as to their origin.

The general character of the various samples of earths from the pits and trenches, with the vegetable remains identified in each sample, is given in Table I.

Table II gives the results of my identification of the separate objects, such as tool handles.

In Table III I give a summary of the plant remains, arranged systematically according to the various natural orders to which the identified species belong.

GENERAL REMARKS UPON THE MATERIAL INVESTIGATED

I. Examination of Samples of Deposits from the Pits and Trenches

(For detailed descriptions of the deposits *see* Table I)

The plant remains identified among the samples are of three kinds:

- (1) Specimens of woods and twigs identified by microscopic examination of their wood structure;

(2) Leaves and bark fragments recognised by their external appearance

(3) Seeds and fruits.

1. The results obtained by the examination of the numerous twigs and branches are somewhat disappointing. As an analysis of Table I shows, these results tend more to indicate the general prevalence of certain well-known indigenous trees—some probably pre-glacial—than to afford evidence of the presence in Britain at the period of the Roman occupation of this station of species of exceptional interest. Thus, although a great number of twigs and branches have been examined, and the species of plant to which they belong ascertained, I am only able as a result to tabulate some seven separate species of trees, and these are kinds which have always been considered to be indigenous.

The number of specimens which turned out to be hazel was remarkable. The bulk of the twigs and branches among the material from the pits were of this tree, although twigs and branches of birch also were fairly common. Oak was less frequently found, and in most instances the specimens of this wood were in the form of chips of large timber. This is interesting, because while hazel fruits and birch catkins were found, no acorns or small twigs of oak were discovered among the material submitted. It may be noted that pieces of oak bark were recognised, and Mr. Curle, in a letter to me, says that 'oak must have been fairly plentiful, I think, at Newstead. All along the west side the early rampart appeared to lie on a double layer of oak branches.' As Table II shows, ash was employed as shafts and handles of implements, but there is no evidence that it was procured locally. In two cases only was ash wood found not associated with implements. A piece of wood from Pit XVI^[1] proved to be ash, and a portion about two inches long of a branch about an inch in diameter, without bark, was found among the earliest material received. These may have been pieces of broken or discarded implement handles. A few specimens of branches of the rowan (*Pyrus Aucuparia*) and of the white beam (*Pyrus Aria*) were found, and there seems little doubt that these trees have been wild in Scotland from very early times. One or two specimens of the wood of alder were encountered, and similarly a few of poplar (or willow).

Thus it will be seen that the trees, recognised by the wood anatomy of twigs and branches, with portions of bark, which one may regard as growing locally at Newstead at the time of the occupation of the Roman Camp, number seven only: oak, birch, hazel, willow or poplar, alder, rowan, white beam.

2. Leaves and the soft parts of plants were not sufficiently well preserved in most cases to enable one to identify them. However, a few remains of this nature were in fairly satisfactory condition, and among them I was able to identify leaves of hazel, leaves of birch, the stem and leaf-base of an umbelliferous plant, leaves of various grasses and sedges, leaves and flower parts of the common ling, stems and flower parts of nettles, the stems and leaves of a species of dock, a frond of the common bracken, the rhizome and leaf rhachis of a fern, probably the species just mentioned, and several

1 See Table II, Spec. No. 9.

mosses and liverworts. The stem and leaf-sheath of the umbelliferous plant, I have every reason to believe, is that of cow parsnip (*Heracleum Sphondylium*), but a search for remains of fruits of this plant, the discovery of which would have done much to confirm my diagnosis) proved unsuccessful.

The pieces of bark recognised belong to the following species oak, birch, hazel, rowan.

My attention has been directed by Professor Bayley Balfour to a report on the vegetable remains found at the Lochlee Crannog, Tarbolton, Ayrshire, investigated by Dr. Robert Munro.

Dr. Munro's account of the excavations of this Crannog is in the *Proceedings of the Society of Antiquaries of Scotland*, vol. xiii., and the report upon the vegetable remains by Professor Bayley Balfour supplies what appears to me to be some interesting comparisons between the plant remains of that site and those of the Newstead Roman Station.

The brushwood from below the log-pavement of the Lochlee Crannog was, it appears, composed of woods belonging to one or other of the following trees: birch, hazel, alder) willow. The twigs and branches of the nature of brushwood found in the material from the Newstead site are chiefly hazel and birch) while twigs of alder and willow) although not plentiful) were also found.

Alder and willow are trees preferring damp situations, so that their occurrence, perhaps in some quantity, in the vicinity of the Lochlee Crannog at the time of its occupation is easily understood. Hazel and birch, with alder and willow more plentiful perhaps in moist situations, I am inclined to believe) were somewhat dominant trees in the primeval woods of North Britain.

This opinion is supported not only by the results of the examination of the material from Newstead and the records from the Lochlee Crannog, but also by the results of similar investigations which at various times I have made of the plant remains of other sites of Roman and pre-Roman occupation. Thus, to quote the result of one such investigation⁷ only:¹ of a number of logs from a pre-historic pile-structure in Wigtownshire which I examined in 1903, seven were, I found, birch, five alder, three hazel, one poplar (or willow), and one oak.

Oak recorded from Newstead, from the Lochlee Crannog, from the Wigtownshire pre-historic dwelling, and from many other Roman stations, appears to have occurred plentifully in primeval woods of North Britain, in which were also scattered trees of rowan and white beam.

It is rather remarkable that no specimens of coniferous wood have been found in the brushwood deposits either at Newstead or at the Lochlee Crannog) and the absence of beech wood from material from both stations is worth noting.

1 Ludovic Maclellan Mann, Pre-historic Pile-Structures in Pits,'*Proceedings of the Society of Antiquaries of Scotland*, 1903.

Other plant remains mentioned in the summary of plant remains from Newstead, and recorded also from the Lochlee Crannog, are portions of bracken fern, stems of heather, rhizomes of ferns, bark of birch, and hazel-nuts.

3. The number of seeds and fruits obtained from the Newstead deposits is not, I think, inconsiderable, especially when it is remembered that their occurrence in the material examined was to a certain extent accidental, and that it was impossible to select for seeds any special seed-bearing deposits.

Among the samples which contained grain, the associated weed-seeds belong to plants characteristic at the present time of cultivated fields. The occurrence of seeds of *Lychnis Githago* in considerable quantity among the wheat-chaff (Sample C, Table I) is interesting, in that it indicates that a troublesome weed of cornfields in certain districts at the present day was also a pest in the corn crops of the Romans. The plant is essentially a weed of cultivation, and as such is usually considered to be a weed introduced into Britain with the cultivation of grain crops. In the east of Scotland, even at the present time, it is more a casual in cultivated areas than anything else, so that the occurrence of the seeds among the wheat-chaff from the Newstead station fixes its introduction as far back at least as the Roman occupation of this site. Other weeds of the same natural order associated with the cultivation of crops at the present day, and represented by seeds among the material examined containing grain or wheat-chaff, are those of *Stellaria media*, *Lychnis vespertina*, *Arenaria serpyllifolia*, and what I believe to be a species of *Cerastium*. These plants at the present day are not so completely limited to cultivated fields as is *Lychnis Githago*, and some of them are probably indigenous. It is interesting to note that Mr. Reid, in his recent paper before the Linnean Society of London on the Pre-glacial Flora of Britain, figures and describes seeds of *Stellaria media* and *Arenaria serpyllifolia* from the pre-glacial deposits on the Norfolk and Suffolk coasts.¹

From the material containing wheat grains, fruits of three species of *Compositae* were also found. Two of these I have identified as *Cnicus arvensis* and *Picris hieracioides*. Both are species common at the present day, and the latter is recorded as pre-glacial.² *Ranunculus repens* and *Ranunculus bulbosus* are likewise common wayside and meadow plants occurring at the present day in cultivated areas, and both the species were represented by fruits in the samples containing grain. Fruits of a third species of *Ranunculus* were found, but I have not so far been able to identify it. Among the same grain-yielding samples were found fruits of *Polygonum aviculare*, seeds of *Geranium* sp., *Medicago lupulina*, *Chenopodium album*, and fruits of a species of *Rumex*, probably *R. Acetosella*. The absence of seeds and fruits of common trees, with the exception of those of hazel, finds its explanation probably in the character of the deposits examined. These were, I feel sure, in most cases the debris collected in refuse pits, and although small

1 Reid, in *Jour. Linn. Soc.* vol. xxxviii. (1908), p. 206.

2 Reid, *l.c.*

twigs and wood-chips are present, such are but a small proportion of the total débris, and represent, doubtless, scraps from clearings.

The plants represented by seeds and fruits in certain of the deposits are essentially those weeds which would quickly cover embankments and ditches of fortifications. Thus in some of the deposits we have fruits and seeds of many grasses and sedges, and of common weeds of waste places, such as *Stellaria media*, *Arenaria serpyllifolia*, *Polygonum* sp., *Chenopodium* sp., *Potentilla Tormentilla*, and the two species of *Ranunculus* already referred to. Other weeds of this nature are *Sinapis arvensis*, *Geranium* sp., *Mysotis* sp., *Urtica dioica*, and various species of *Rumex*.

The seeds and fruits of other samples are of plants characteristic of thickets, and the presence of many twigs confirms the view that the deposits containing these are largely the scraps from forest clearings. Among such deposits I have recognised seeds of *Solanum Dulcamara*, *Pedicularis palustris*, fruits of *Galeopsis Tetrahit*, *Urtica dioica*, *Rumex* sp., and the fruits of many sedges. The fern remains also belong to these deposits.

Attention may be directed to the deposits containing brushwood in layers. In one instance a deposit of this character (Sample J, Table I) yielded seeds of characteristic moor-plants. Thus besides seeds of *Calluna vulgaris*, twigs of which formed the bulk of the brushwood in the deposit under review, I found the fruit parts of an *Erica*, berries and seeds of *Empetrum nigrum*, fruits of *Rumex Acetosa*, and those of several species of *Scirpus* and *Carex*. Besides the seeds mentioned, I found in this deposit leaves of a narrow-leaved grass, possibly *Festuca ovina*.

Where the brushwood laid on the clay was birch (Sample G, Table I) the seeds found were more varied in character, representing doubtless species that would form pioneers on freshly-made fortifications and embankments.

II. Woods of Implement Handles and other Articles

(For detailed identifications, see Table II)

Turning to the table giving the kinds of woods used for tool handles and other articles, one finds that those perhaps most commonly employed were ash and hazel. The latter wood figures as the shaft of a spear, as the shaft of an arrow, and as handles to tools. It doubtless recommended itself for these purposes on account of the clean and straight stems of moderate diameter and light weight obtainable. Hazel, though not durable, is fairly elastic. The value of ash for tool handles and the like is recognised at the present day.

Pyrus Aucuparia, used as a shaft for a hammer (No. 1, Table II), and also as a shaft for a gouge (No. 3, Table II), was probably procured locally, for twigs of this species were found, in some cases with bark attached, among the material from the refuse pits. It is probable also that the birch used as a pick handle (No. 2, Table II) was similarly derived. Both birch and rowan are hard and tough woods which do not readily split.

One of the most interesting specimens submitted was a piece of basket-work made of the cleaned cores of stems of the hair-moss *Polytrichum* (commune) ([Plate XV. supra](#)). The stems of this moss are commonly a foot to eighteen inches long, and often attain a length considerably greater. The central stele, when cleaned, forms, as I have proved for myself, a tough pliable strand easily plaited, and quite suitable for the formation of such articles as baskets. When freshly cleaned, the core has a reddish colour and glossy surface, and basket-work of the material would not only be quite strong, but would, at least at first, have an attractive appearance. I am indebted to Mr. J. Masters Hellier, the curator of the Kew Museums, for particulars of articles made of this moss in the Kew Collections, and I give his list, as it supplies one with an idea of the use made of the moss in recent times.

**LIST OF ARTICLES IN THE KEW MUSEUMS MADE OF HAIR MOSS,
POLYTRICHUM COMMUNE, L.**

1. Basket from near Wallington, Northumberland, 1851.
received at Kew
2. Broom and brush, from Munich, received at Kew, 1858.
3. Hassock, from Yorkshire, " " 1852.
4. Broom, from Sussex, " " 1852.
5. Broom used by people at Hawkhead, near 1855.
Windermere, received at Kew

'A four-plyed plaited object made of the long stems' of this hair-moss, and a 'fringe-like structure made by plaiting together at one end' the long strands of the same moss, were found at the Lochlee Crannog!¹

These records seem to indicate that a knowledge of the pliable and tough nature of the stems of this moss and of its usefulness as a strand in the manufacture of plaited articles—a craft which the basket work from the Newstead Roman Station would indicate to have been appreciated, if not practised, by the Romans—must have been of greater antiquity than the period of the Roman occupation.

**TABLE I
SAMPLES OF EARTH AND VEGETABLE REMAINS FROM PITS AND
OTHER SITUATIONS**

Sample A.—A dark vegetable earth containing a considerable number of pieces of chipped oak, evidently chippings of timber of some size. Mixed with other vegetable remains are twigs of hazel and birch in some quantity, the former being particularly numerous, while pieces of hazel bark are plentiful, some of the pieces being from trees of fair size. There is also a certain amount of charcoal and a piece of burnt bone. This sample yielded twigs of *Pyrus Aucuparia* with bark.

Sample B.—From this I obtained wood of *Pyrus Aria*, some of the branches being of fair size. The great bulk of the material consists of leaves of grasses matted and pressed together. The deposit is almost entirely of a vegetable nature, but the material is too much decomposed to determine its character. Many small wood chips, chiefly birch, are present, and pieces of birch bark.

1 Munro, in *Proceedings of the Society of Antiquaries of Scotland*, vol. xiii.

Sample C.—This is a closely-caked mass of vegetable remains composed almost entirely of wheat-chaff. It appears to be the discarded refuse after winnowing and cleaning the grain, and indicates that the cleaning of the grain was carried on at Newstead. Among the chaff occur numerous seeds of *Lychnis Githago*, a troublesome weed of corn fields in some parts of Britain at the present time. Other weed-seeds from this sample are *Stellaria media*, *Cerastium* sp., *Geranium* sp., *Medicago lupulina*, fruits of *Potentilla Tormentilla*, *Rumex Acetosella*, *Polygonum* sp., and the fruits of several grasses.

Sample D.—A black deposit with numerous twigs leaves. Leaves of hazel were identified, and several hazel nuts and pieces of hazel-nut shell were found, also catkins of hazel. The rhizome of a fern and the leaf rachis of a fern were identified. Grasses matted together form a large part of the deposit. The twigs and woods identified were hazel and birch.

Sample E.—This sample consists of a light-coloured clay with layers of a darker vegetable deposit running through it. Many grains of wheat a little wheat-chaff were found. The sample proved one of the best for weed-seeds. It was carefully washed the vegetable remains separated from the clay sand. The fruits and seeds identified were those of *Picris hieracioides*, *Cnicus arvensis*, *Ranunculus reperis*, *Ranunculus bulbosus*, *Polygonum* sp., *Polygonum aviculare*, *Rumex Acetosa*, *Urtica dioica*, *Chenopodium album*, *Potentilla Tormentilla*, *Lychnis Githago*, *Cerastium* sp., *Lychnis vespertina*, *Arenaria serpyllifolia*, *Stellaria media*, several grasses, and a *Carex*. In addition there were present a number of small pieces of charcoal, some small chips of oak, and a few twigs of birch and hazel. An interesting feature was the presence of the remains of a large number of beetles.

Sample F.—A compost of vegetable matter much decomposed. It is made up almost entirely of a moss, probably a species of *Hypnum*. Birch-bark and hazel-bark, a branch of hazel, and hazel-nuts were identified. The material gave fruits of a *Polygonum*, fruits of a *Carex*, and fruits of one or two grasses. Seeds of *Solanum Dulcamara*, fruits of *Urtica dioica*, and fruits of *Juncus effusus* (?) were also identified.

Sample G.—A light-coloured clay with a definite layer of twigs all running one way, and for the most part all about $\frac{1}{4}$ of an inch in diameter. The twigs prove to be hazel and birch one of the latter twigs with a catkin still attached. The clay on washing yielded the following Fruits of *Ranunculus bulbosus*, *Ranunculus repens*, *Potentilla Tormentilla*, seeds of *Lychnis vespertina* or allied species, *Pedicularis palustris*, fruits of *Rumex obtusifolius*, *Rumex sanguineus*, *Polygonum Convolvulus*, *Urtica dioica*, *Scirpus setaceus*, *Scirpus sylvaticus*, *Carex* sp., and several grasses, seeds of *Atriplex* sp., and *Chenopodium* sp.

Sample H.—A black earth with nothing sufficiently well preserved to permit of identification. (Pits in fore-ends.)

Sample I.—A black vegetable deposit. Chips of oak, twigs of birch, pieces of birch-bark, and a branch of rowan were identified. (Pits in fore-ends.)

Sample J.—This consists of masses of small twigs in a thick layer among light-coloured clay. The twigs are bundles of ling (heather) evidently brushwood cut laid on the clay. Among the twigs were found flower-heads, leaves, and fruits of the heather. Other fruits or flower parts identified were those of *Rumex Acetosa*, *Scirpus caespitosus*, *Scirpus sylvaticus*, *Carex* sp., and *Empetrum nigrum*. Leaves of a grass, possibly *Festuca ovina*, were found.

Sample K.—A black vegetable deposit consisting almost entirely of moss. A few small pieces of birch-bark were noticed. From this sample came fruits of *Urtica dioica*, *Rubus* sp. (?), *Galeopsis Tetrahit*, *Scirpus sylvaticus*, *Rumex* sp., leaves and fruits of several grasses. (Pits in fore-ends.)

Sample L.—A black deposit of vegetable origin. The remains were much decomposed, and nothing of interest sufficiently well preserved to be identified was discovered. (Pits in fore-ends.)

Sample M.—Clay soil, with a little dark earth, indicating vegetable remains. This was carefully washed and searched for seeds. Besides small bits of twigs and pieces of wood, fruits or seeds of the following were found *Ranunculus bulbosus*, *Ranunculus repens*, *Sinapis arvensis*, *Stellaria media*, *Stellaria Helostea*, *Potentilla Tormentilla*, *Polygonum sp.*, *Rumex Acetosa*, *Rumex sanguineus*, *Scirpus sylvaticus*, *Urtica dioica*, *Chenopodium album*, and another species of the last genus which was not identified. The sample yielded a few grains of wheat and one or two grains of what I believe to be barley.

Sample N.—A small cake of vegetable earth with a well-preserved frond of the common bracken. (Pit IX, beneath east wall of Block XIV.)

Sample O.—A clay soil with a dark-coloured earth mixed with it. No vegetable remains of any size. The sample, after careful washing, gave fruits or seeds of the following *Geranium sp.*, *Myosotis sp.*, *Polygonum Fagopyrum*, *Scirpus caespitosus*, *Scirpus setaceus*, *Rumex Acetosa*, *Rumex sp.*, *Carex* (several species), and fruits of several grasses.

Sample P.—A clay soil with a fair amount of vegetable earth. Seeds or fruits of the following were obtained after careful washing *Ranunculus sp.*, *Lychnis vespertina*, *Arenaria serpyllifolia*, *Pedicularis palustris*, *Potentilla Tormentilla*, *Rumex sanguineus*, *Rumex sp.*, *Atriplex sp.*, *Chenopodium sp.*, *Urtica dioica*, *Urtica urens*, *Scirpus sylvaticus*, and fruits of several species of *Carex*.

TABLE II DEFINITE OBJECTS RECEIVED FOR IDENTIFICATION

No. 1. Shaft of hammer from Pit XVI	Rowan (<i>Pyrus Aucuparia</i>).
2. Shaft of hoe from Pit XIV	Birch (<i>Betula alba</i>).
3. Shaft of gouge from Pit XVI	Rowan (<i>Pyrus Aucuparia</i>).
4. Fragment of a spear shaft from Pit XVI	Hazel (<i>Corylus Avellana</i>).
5. Shaft of an axe from Pit XVI	Hazel (<i>Corylus Avellana</i>).
6. Shaft of a large hammer from Pit XVI	Hazel (<i>Corylus Avellana</i>).
7. Handle of a chisel from Pit XVI	Hazel (<i>Corylus Avellana</i>).
8. Shaft of a dolabra from Pit XVI	Ash (<i>Fraxinus excelsior</i>).
9. Wood from Pit XVI	Ash (<i>Fraxinus excelsior</i>).
10. " "	Oak (<i>Quercus Robur</i>).
11. Lining of a helmet from Pit XXII	Wool mixed with fine clay.
12. End of a shaft taken from the socket of an arrowhead of iron, from ditch of the early fort	Hazel (<i>Corylus Avellana</i>).
13. Basket work made of the stems of	Hair moss (<i>Polytrichum commune</i>).
14. Bast twisted as rope from Pit XXIII	(Not identified).

TABLE III SUMMARY OF PLANT REMAINS IDENTIFIED IN THE SAMPLES OF DEPOSITS FROM THE NEWSTEAD ROMAN STATION

Ranunculaceae.	Resedaceae.
<i>Ranunculus repens</i> —fruits	<i>Reseda lutea</i> ?—seeds.
" <i>bulbosus</i> —fruits.	Caryophylleae.
" sp.—fruits.	<i>Lychnis Githago</i> —seeds.
Cruciferae.	" <i>Vespertina</i> —seeds.
<i>Sinapis arvensis</i> —seeds.	<i>Stellaria Holostea</i> —seeds.

- Stellaria media—seeds.
 Arenaria serpyllifolia—seeds.
 Geraniaceae.
 Geranium molle ?—seeds.
 " dissectum ?—seeds.
 Leguminosae.
 Medicago lupulina—seeds.
 Rosaceae.
 Alchemilla vulgaris—fruits.
 Potentilla Tormentilla—fruits.
 " argentea—fruits.
 Fragaria vesca ?—fruits.
 Rubus sp.—fruits.
 Pyrus Aria—wood.
 Aucuparia—wood.
 Umbelliferae.
 Heracleum Sphondylium ?—stem and leaf base.
 Compositae.
 Pieris hieracloides—fruits.
 Cnicus arvensis—fruits.
 Ericaceae.
 Calluna vulgaris—stems, leaves, flowers, fruits.
 Erica sp.—fruit parts.
 Oleaceae.
 Fraxinus excelsior—wood.
 Boragineae.
 Myostis sp. i—fruits.
 Litbospermum sp. ?—fruits.
 Solanaceae.
 Solanum Dulcamara—seeds.
 Scrophularineae.
 Pedicularis palustris—seeds.
 Labiatae.
 Galeopsis Tetrahit—fruits.
 Chenopodiaceae.
 Chenopodium album—seeds. sp.—seeds.

 Atriplex sp.—seeds.

 Polygonaceae.
 Rumex sanguineus—Perianth and fruit parts.
- Rumex obtusifolius—Perianth parts and fruits.
 " Acetosella—fruits.
 " Acetosa—fruits.
 Polygonum aviculare—fruits.
 " Convolvulus — Perianth parts and fruits.

 Polygonum Fagopyrum ?—fruits.
 " sp.—fruits.
 Empetraceae.
 Empetrum nigrum—seeds and fruit wall.
 Urticaceae.
 Urtica dioica—fruits.
 " urens—fruits.
 Salicineae.
 Willow or Poplar—wood.
 Cupuliferae.
 Betula alba—catkins, bark, wood.
 Corylus Avellana—nuts, catkin, bark, wood.
 Quercus Robur—wood.
 Alnus glutinosa—wood.
 Juncaceae.
 Juncus effusus ?—fruits.
 " squammosus ?—fruits.
 Cyperaceae.
 Scirpus sylvaticus—fruits.
 " caespitosus—fruits.
 " setaceus—fruits.
 Carex (3 species not identified)—fruits.
 Gramineae.
 Several grasses, species not identified—fruits.
 Festuca ovina ?—leaves.
 Filices.
 Pteris aquilina—portion of frond.
 Fern sp.—portion of rhizome.
 Musci and Hepaticae.
 Several kinds of Musci and Hepaticae were found, but the species were not identified.
 One moss was undoubtedly a Hypnum, and Polytrichum commune was used in the making of basket—work.

ANIMAL REMAINS

BY PROFESSOR J. C. EWART, F.R.S.

THE Roman military station at Newstead, Melrose, has yielded a very large number of bones of domestic animals and portions of the skeletons of a number of wild animals. The smaller bones found during the excavations were usually at once forwarded to the Natural History Department of the University of Edinburgh, but the remains of horses, oxen, and other large mammals were inspected from time to time at Newstead, only the bones that required special study being sent to Edinburgh.

The majority of the bones were found in pits, wells, or ditches. From the contents of these pits, wells, and ditches, and especially from the relation of the animal remains to coins, altars, pottery, and other objects, the age of which is approximately known, it may be safely assumed that the majority of the bones unearthed belonged to domestic animals in the possession of the auxiliaries who occupied the Roman fort in the vicinity of the Eildon Hills during the latter part of the first or the middle part of the second century of the present era.

It may be mentioned that nearly all the bones are extremely well preserved. Many of the skulls are so complete that exact measurements can be taken of the face and teeth as well as of the cranium. In Neolithic times the long bones were usually broken up for the sake of the marrow, and sometimes the skull cap was fractured that the brain might be removed, but there is little evidence that either marrow or brains formed part of the diet of the Newstead garrison. Whether horses as well as the domestic oxen, sheep, goats, and pigs were used as food it is impossible to say, but seeing that the majority of the horse skulls examined belong to aged animals, it may perhaps be inferred that the practice of eating horseflesh so common in Europe during the Early Stone age was not followed during the earlier centuries of the Christian era. That horses were used as food in the north of Europe at a later period is made sufficiently evident by the Icelandic sagas.

EQUIDAE

Recent enquiries indicate that in prehistoric times at least four species or races of wild horses inhabited Western Europe.



1. Head of a Prejvalsky stallion: steppe type
Note long narrow face



2. Iceland pony: forest type
Note elk-like nose



3. Celtic pony in winter coat: plateau type
Note 'beard' and taillock

PLATE XCIV. EQUIDAE.

Drawings and carvings by Palaeolithic man taken along with bones and teeth afford ample evidence of the existence in various parts of Europe of a horse with long-pillared molars and a coarse head (Fig. 51), but with fine limbs) *i.e.* a horse allied to if not identical with the wild 'Steppe' horse (*Equus przewalskii*) (Fig. 52 and Plate XCIV., Fig. 1), which still survives in Mongolia.

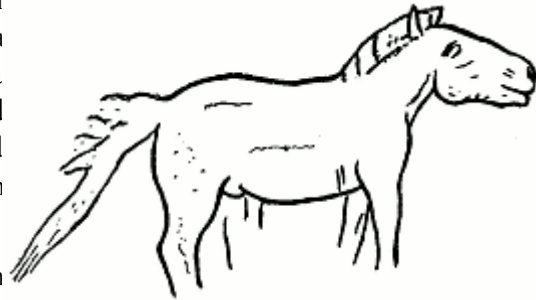


FIG. 51. STONE AGE HORSE: STEPPE TYPE

Teeth and limb bones from French and English Pleistocene deposits point to the existence of a fine-headed race from 12 to 13 hands high, with limbs slender as in the desert Arab and molars characterised by short internal pillars. Some of the drawings in the Combarelles cave (Fig. 53) apparently represent this slender-limbed 'plateau' race which I have named *Equus agilis*. [1]

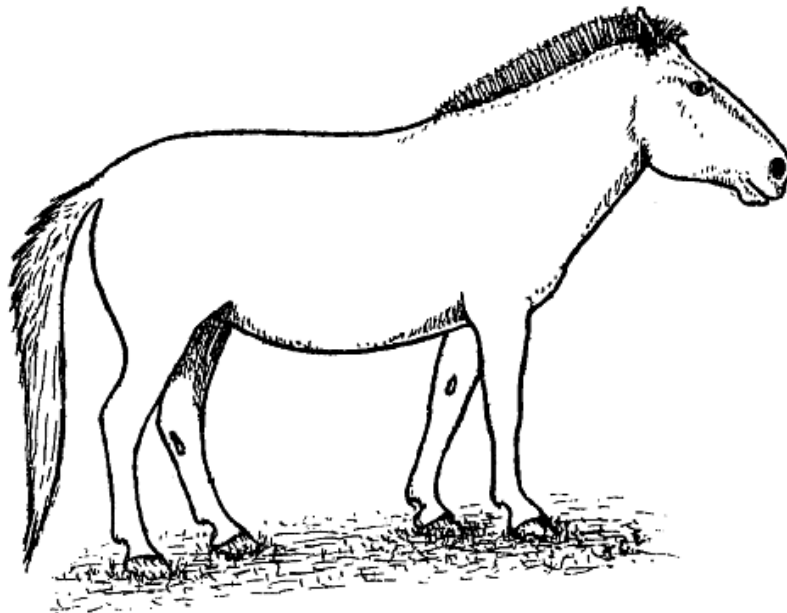


FIG. 52. OUTLINE OF THE STEPPE TYPE
A Prejvalsky Mare imported from Mongolia. From a photograph

In the 'Elephant Bed' at Brighton and in the vicinity of the large Palaeolithic settlement at Solutré to the north of Lyons, there is evidence of the existence of a long low 'forest' race, probably characterised by a short broad dished face, long-pillared molars, short broad cannon bones, and wide hoofs.

1 *E. agilis* includes a northern ('Celtic') and a southern ('Libyan') variety.

A drawing of a stout elk-nosed horse in the Combarelles cave (Fig. 54) probably represents the 'horse of Solutré,' which is best known as *Equus robustus* (Plate XCIV., Fig. 2).



FIG. 53. STONE AGE PONY
PLATEAU TYPE

The fourth race includes broad-browed horses, with the face long and tapering and bent downwards on the cranium, as in some of the modern thoroughbreds and in certain Kirghiz breeds. This race, characterised by fine limbs and short-pillared teeth, probably represents *Equus sivalensis*, the 15-hands horse, whose remains are found in the Siwalik Hills of India.

An engraving from the cave of La Mouthe (Fig. 55) probably gives us the Palaeolith's conception of the ancient 'Siwalik' race.

Newstead has afforded no evidence of the existence in Scotland in olden times of a horse of the 'Steppe' or Przewalsky type, but it has yielded skulls which might very well have belonged to almost pure members of the 'plateau,' 'forest,' and 'Siwalik' types.

Two of the skulls from Newstead probably belonged to unimproved British native breeds, one of which certainly did not exceed 44 inches in height, while the other

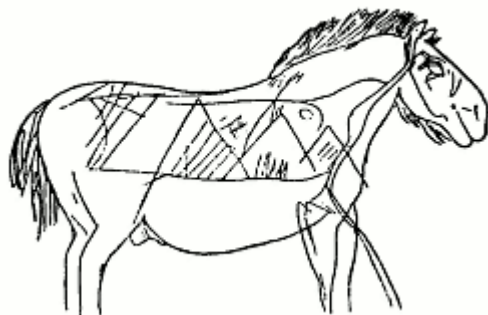


FIG. 54 STONE AGE HORSE FOREST
TYPE



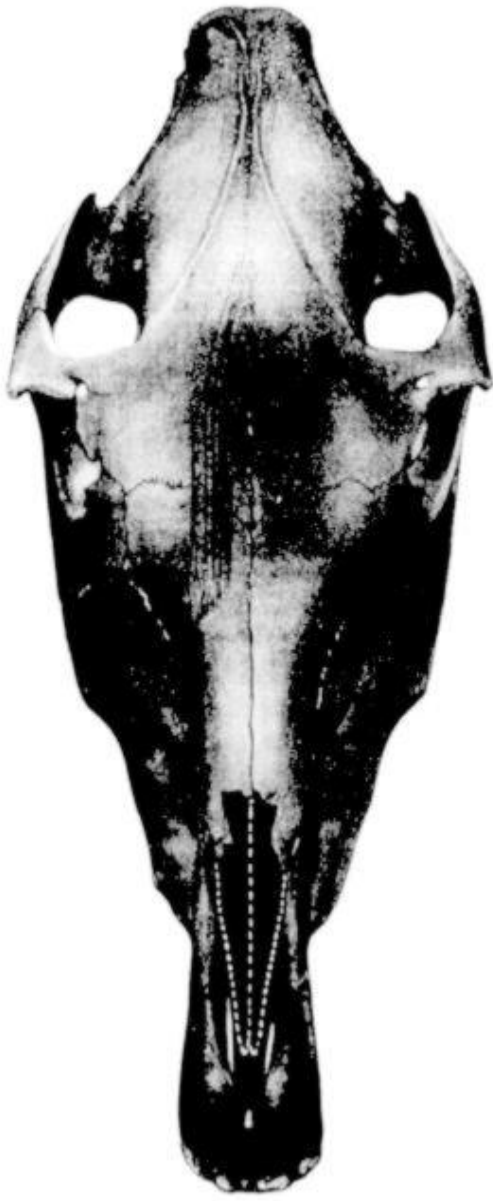
FIG. 55. STONE AGE
HORSE SIWALIK TYPE (?)

measured between 11 and 12 hands at the withers. The smaller one (Plate XCV., Fig. 1) evidently belonged to a broad-browed 'forest' pony, built on the lines of the strong thick-set modern Shetland ponies; the other is best represented to-day by small slender-limbed Exmoor ponies, and by ponies of the 'Celtic' type (Plate XCIV., Fig. 3) occasionally met with in the North of Iceland.

From Caesar we learn that the small horses yoked to the British war-chariots were so active and well trained that they could be checked and turned in a narrow space or pulled up when at full speed on a steep declivity, or made to stand while the charioteers ran out on the pole and stood on the yoke. From what Caesar says of the horses of South Britain and from the statements of Dio Cassius as to the horses of the Caledonians,

PLATE XCV. SKULLS OF EQUIDAE.

1. Upper view of skull of coarse-limbed pony of the 'forest' (Solutré) type, from Newstead. Owing to the great width of the face the frontal index is 61; in a broad-browed Shetland pony with a short-dished face the frontal index may be 63; but in the long-faced wild horse of Mongolia it may be only 50.
2. Upper view of a slender-limbed horse of the 'plateau' type, about 12.2 hands high, from the Roman fort at Newstead. Length from occipital crest to alveolar point (*i.e.* point between central incisors, 494 mm; length from line connecting supra-orbital foramina to alveolar point, 338 mm; frontal (greatest) width, 185 mm. Owing to the face being long and narrow, the frontal index ($185 \times 100 \div 338$) is 54, as in high-caste Arabs.



1. Skull Newstead horse: Forest Type



2. Skull Newstead horse: Plateau Type

it may be taken for granted that up to the end of the first century the horses harnessed to the British war-chariots, like the horses of the Sigynnae so graphically described by Herodotus, belonged to the fine-limbed Celtic race or to a blend of the 'Celtic' and 'forest' types.

In addition to 'Celtic' and 'forest' ponies under 12 hands at the withers, there were in Newstead slender-limbed and coarse-limbed ponies between 12 and 13 hands. The skull of a 12.2 hands slender-limbed Newstead pony is represented in Plate XCV., Fig. 2 and Plate XCVI., Fig. 1, and Fig. 56 represents one of the slender metacarpals. From the size of the cranium, the dimensions of the narrow, tapering and only slightly deflected face, and from the slenderness of the limbs, it is evident that this pony was built on the lines of the smaller kinds of modern Arabs. Further, the relatively large cranium indicates that it was probably as intelligent and docile as Arabs are.

It may be here mentioned that the members of the Equidae family differ mainly in the form and relations of the face, in the size of the metacarpals (cannon bones), and in the teeth. In the 'forest' type, e.g., the face is short and dished, and nearly in a line with the cranium (Plate XCVI., Fig. 2), the frontal index is over 60, the first premolar is absent, and the grinding surface of the internal pillar of the last premolar and of the first molar is at least half the length of the crown (Fig. 58), while the length of the metacarpal (Fig. 57) is about 5.5 times the width at the centre of the shaft. In the 'plateau' type, on the other hand, the face is narrow (Plate XCV., Fig. 2) and tapering, and deflected (Plate XCVI., Fig. 1) to form an angle of about 80 with the cranium, the frontal index is 54 to 56, the first premolar is present, and the internal

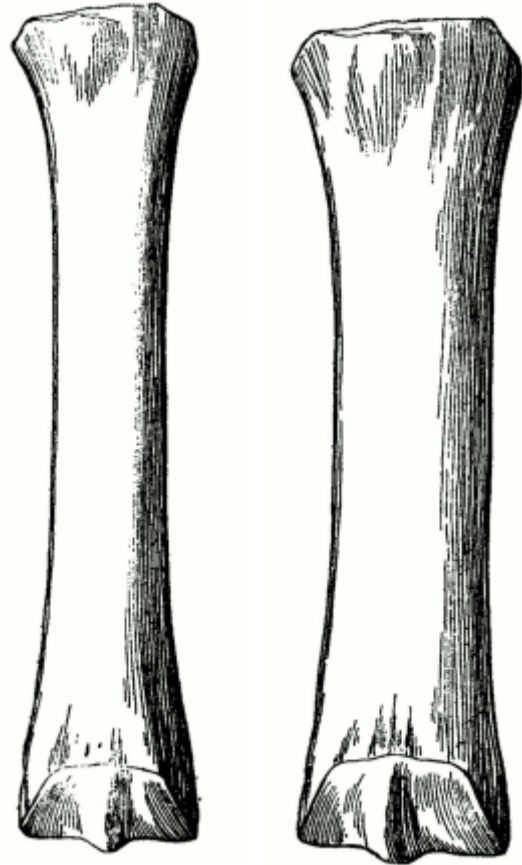


FIG. 56. CANNON BONE: PLATEAU TYPE Metacarpal ($\frac{1}{2}$ nat. size) of a 12.2 hands slender-limbed horse of the 'plateau' or F. agilis type. The total length is 7.5 times the width at middle of shaft.

FIG. 57. CANNON BONE FOREST TYPE Metacarpal ($\frac{1}{2}$ nat. size) of a 12.3 hands coarse-limbed horse of the 'forest' or E. robustus broad type. The length is 5.5 times the width of shaft.

pillar of the last premolar and first molar is only about one-third the length of the crown (Fig. 59), while the length of the metacarpal instead of being 5.5 is 7.5 times the width at the middle of the shaft (Fig. 56).

As it happens, the slender-limbed 12.2 hands Newstead pony, in its molars and metacarpals, agrees with a race which in Pleistocene times ranged from Algiers to the South of England. It is hence possible that the Arab-like 12.2 hands ponies were brought to Scotland by 'Gaulish' cavalry from a district where the native breeds had been improved by foreign horses originally brought from Spain or North Africa, i.e. by horses belonging to Prof. Ridgeway's variety, *Equus caballus libycus*. The chief differences in the skull, teeth, and metacarpals of the 12.2 hands Newstead pony of the 'forest' type and the 12.2 hands slender-limbed pony of the 'Celtic' or 'Libyan' type will be made evident by comparing Figs. 1 and 2 (Pl. XCV.) and Figs. 56 to 59.

Long, low, 12.2 hands ponies, with rounded hind quarters, a heavy mane, a low set-on tail, a short broad dished face, and short stout limbs are still often met with in Iceland. These modern representatives of the Elephant Bed and Solutré variety especially differ from the slender-limbed 'plateau' race in having four ergots and four chestnuts—in typical 'Celtic' and 'Libyan' ponies the hind chestnuts are absent as in asses and zebras, and there are no callosities at the fetlocks.

The slender-limbed 12–13 hands Newstead ponies are especially interesting, because they form a connecting link between modern ponies of the Celtic and Libyan types and the slender-limbed prehistoric races represented by teeth or limb-bones from the Pleistocene deposits of North Africa, Central France, and the South of England, and from Neolithic deposits. In the same way the 12–13 hands coarse-limbed Newstead ponies form a connecting link between the robust, long, low broad-

FIG. 58. Upper cheek teeth (nat. size) of an Iceland pony of the 'forest' type, with teeth practically identical with those of the Solutré horse (*Equus robustus*). The first premolar is absent; the internal pillar (p) of the third and fourth premolars and the first molar is long; the crown of p.m. 4 is twice the length of its pillar, and the crown of m. 1 less than twice the length of its pillar. Hence p.m. 3, p.m. 4, and m. 1 of the Iceland pony are more specialised than the corresponding teeth in a pony (Fig. 59) of the 'plateau' type.

FIG. 59. Upper cheek teeth (flat. size) of a Newstead pony ('plateau' type), about 12.2 hands high (for skull see Figs. 2, Pl. XCV., and 1, Pl. XCVI.). The two last molars (m. 2 and m. 3) closely resemble the two molars from Oreston, which formed the type of Owen's *Asinus fossilis*; the first molar (m. 1) is slightly more complex than m. 1 from Oreston, and still more complex than a molar from Lake Karar, Algiers; in the fourth premolar (p.m. 4), which resembles p.m. 4 of 'Eric,' a Shetland pony, and p.m. 4 of *Equus sivalensis*. (Fig. 60), the crown is nearly three times the length of its pillar instead of less than twice the length, as in *Equus fossilis* and modern cart-horses. The first premolar is about half the size of p.m. 1 in *Equus sivalensis*.

FIG. 60. Upper cheek teeth (nat. size) of *Equus sivalensis*. The first premolar (p.m. 1) is large and lying in front of pm. 2; the pillar of pm. 4 is shorter than the pillar of m. 2, but larger than the pillar of m. 1. Premolar 4, in having the pillar shorter than m. 2, agrees with the Newstead pony (Fig. 59) and horses of the 'plateau' type, but differs from the Iceland pony (Fig. 58) and horses of the 'forest' and 'steppe' types. Though *Equus sivalensis* is the oldest true horse known, it has more highly specialised teeth than the Oreston and Newstead ponies. After Lydekker. *Palaeontologia Indica*, Ser. x. vol. ii.

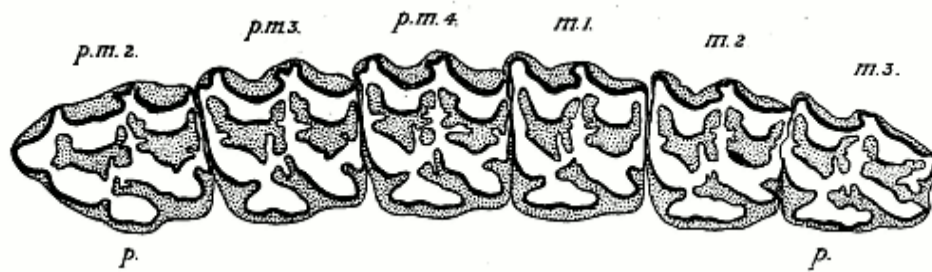


FIG. 58. MOLARS. ICELAND PONY: FOREST TYPE

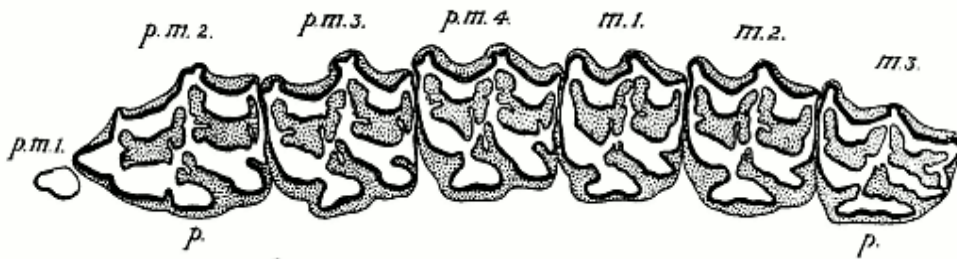


FIG. 59. MOLARS. NEWSTEAD HORSE: PLATEAU TYPE

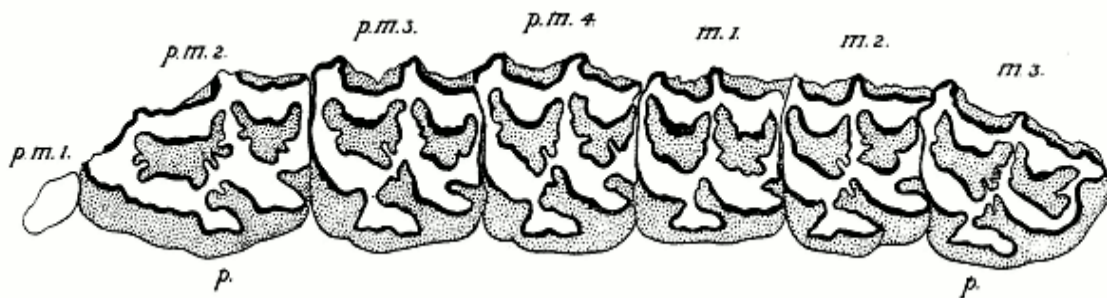


FIG. 60. MOLARS OF SWALIK HORSE.
(p. The first and last internal pillars)

browed modern ponies of the 'forest' type and the small horses represented in the 'Elephant Bed' at Brighton and in the Palaeolithic settlement at Solutré.

In addition to well-bred ponies under 13 hands at the withers, the auxiliaries who held the Border fort during the first century had 14 hands horses as fine in head and limbs as modern high-caste Arabs. The skull of one of these slender-limbed 14 hands horses is almost identical with the skull of an Arab mare (Jerboa, by Maidan out of Jerud) in the British Museum. That they closely agree is especially suggested by the frontal index.

In the 'steppe' or Prejvalsky type the face is so long and narrow that the frontal index¹ may be only 50, while in the 'forest' type (which, like the 'steppe' type, is characterised by long-pillared molars) the face is so short and broad that the frontal index may be over 60. But in a typical member of the 'plateau' type the frontal index is 54. In the Arab mare Jerboa the face has a length of 368 mm. and a width of 205 mm., hence the frontal index is 55.7; in the Newstead 'Arab,' the length of the face is 372 mm. and the width 201 mm., which gives an index of 54. This implies that in the first century, in a 14 hands horse of the 'Libyan' type, the head was as fine as in modern Arabs. It may be added that the fine-limbed 14 hands Newstead horse of the Libyan. type, though smaller, was built on the same lines as the thoroughbred 'Orlando,'² but decidedly differed in make from 'Stockwell,'² the grandson of the 'fiddle-headed' Echidna. The skulls and limb-bones already referred to show that the garrison of the Newstead Fort had in their possession (1) broad-browed big-boned ponies of the 'forest' or robustus type from 11 to 12.2 hands; (2) slender-limbed ponies of the 'Celtic' variety, of the 'plateau' type) from 11.2 to 12.2 hands, and 14 hands ponies of the 'Libyan' variety of the 'plateau' type built on the lines of the finer kinds of desert Arabs.

A second series of skulls point to the presence in Newstead of horses of the *Equus stenonis* or *Equus sivalensis* type, i.e. of horses with short-pillared molars, and the face forming an angle of from 150 to 180 with the cranium. In the account of the 'Siwalik and Narbudda Equidae,' Lydekker points out (1) that in *Equus sivalensis* 'the grinding surfaces of the anterior "pillars" of the premolars are not longer than those of the later true molars, and are frequently shorter than in the corresponding surface of the first true molar' (Fig. 60); (2) that in *Equus caballus* he had failed to 'discover any instances where the anterior "pillar" is as small as it frequently is in *Equus sivalensis*.'³ Elsewhere Lydekker states that *Equus stenonis* is also characterised by short-pillared molars. Writing of the Forest Bed and Crag periods, Lydekker says 'In addition to

- 1 The frontal index is obtained by dividing the width across the orbits by the distance from the centre of a line connecting the supra-orbital foramina and the alveolar point which lies between the bases of the central incisors.
- 2 The skeleton of 'Orlando' is preserved in the Royal College of Surgeons' Museum, London; that of Stockwell is in the British Museum.
- 3 *Indian Tertiary and Post-Tertiary Vertebrata*, vol. ii. p. 88. 22, 1882.



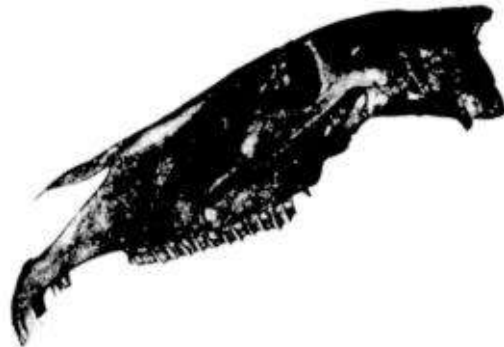
1. SIDE VIEW OF SKULL OF 12.2 NEWSTEAD PONY OF THE 'PLATEAU' TYPE

The face forms an angle of 8° with the cranium



2. SIDE VIEW OF NEWSTEAD HORSE SKULL: FOREST (STRAIGHT) TYPE

The face is in a line with the cranium



3. SIDE VIEW OF NEWSTEAD HORSE SKULL: SIWALIK (BENT) TYPE

The face forms an angle of 18° with the cranium

the Common Horse (*Equus caballus*), there was an extinct species known as Steno's Horse (*Equus stenonis*), and distinguished by the small size of the so-called front inner pillar of the upper molar teeth' (Fig. 61). 'In this respect the species in question was less specialised than the Modern Horse, and makes a step in the direction of the under-mentioned Hipparion.'¹ From these and other statements it is evident that Lydekker believed that the modern horse (*Equus caballus*) (Fig. 58) differed from *Equus sivalensis* of the Indian Pliocene, and from the extinct species *Equus stenonis* of the upper Pliocene and lower Pleistocene of Europe, in having long-pillared upper molars, more especially in having the 'pillar' of the last premolar longer than that of the second molar.



FIG. 61. MOLAR TOOTH (NAT. SIZE) OF STENO'S HORSE (*E. stenonis*), with a short pillar (p).

Hitherto molars with a short 'pillar' from Pliocene and Pleistocene deposits of Europe and North Africa have been regarded as belonging to the extinct species *Equus stenonis*. Further, it has been generally assumed that domestic horses are descended from a variety of *Equus stenonis*, which acquired long-pillared molars.

In 1907 I pointed out that one of the Newstead skulls differs from the skull of a horse of the 'forest' type (i.e. from a typical member of the species *caballus*) in having the face bent downwards on the cranium (Fig. 3) Pl. XCVI.), the premaxillae long and narrow, the first premolar (wolf tooth) large, and the three large premolars and the three molars smaller than in the common horse.²

Recently Mr. Lydekker has pointed out that some Arabs have the face bent downwards on the cranium, the premaxillae long, the first premolars large, and the anterior pillar of the upper molars unusually short.³

In other words, Lydekker now realises that all the modern breeds are not characterised by long-pillared molars, and says that there is a probability that Barbs, Arabs, and Thoroughbreds are descended from *Equus sivalensis*.

Hence, in considering the modern horses it need no longer be assumed that they are all descended from a variety of *Equus stenonis* characterised by long-pillared molars.

Of the skulls from Newstead with short-pillared molars and face bent downwards on the cranium, the one represented in Plate XCVI., Fig. 3, is the most characteristic. The total length of this skull is 560 mm., and the frontal index is 53.38. Though only 2 mm. shorter than the skulls of the thoroughbreds 'Orlando' and 'Bend Or,' the bent Newstead skull (if one may judge from the dimensions of the metacarpals) belonged to a horse which measured little more than 14 hands at the withers.

While the bent Newstead skull is of nearly the same length as the skull of Orlando,' it differs from 'Orlando's' skull and from the skull of the Arab

¹ Lydekker, *British Mammals*, p. 310, 1895.

² Ewart, *Trans. Royal Soc. Edin.* 1907, pp. 565-6.

³ Lydekker, *Guide to the Equidae in the British Museum*, pp. 19-21, 1907.

'Jerboa' in the relation of the face to the cranium. The palate in the bent Newstead skull (Plate XCVI., Fig. 3)—instead of being in a line with the base of the cranium as in a typical 'forest' horse, or forming with the cranial base an angle of about 80 as in certain Arab and Thoroughbred strains—forms an angle of 18.60 with the cranium. To what extent the face was bent downwards in *Equus sivalensis* it is difficult to say, but, judging by the imperfect skulls hitherto discovered, the deflection was probably between 180 and 200; while in the relation of the face to the cranium the Newstead skull probably closely agrees with *Equus sivalensis*, it very decidedly differs in the size of the cheek teeth. On the other hand, the Newstead horse very closely agrees in its teeth with *Equus stenomis*.

As it happens, the bent Newstead skull is almost identical in its dimensions and its teeth with a skull in the St. Petersburg Museum of a horse from the Kirghiz steppe, in which the face is strongly deflected. It may hence be assumed that the bent Newstead skull belonged to an ancient race allied to *Equus sivalensis* of the Indian Pliocene, and to one or more of the varieties of *Equus stefflonis* widely distributed over Europe at the beginning of the Pleistocene period.

The Newstead horse, with a decided fronto-nasal prominence, is especially interesting, because it forms a connecting link between *Equus sivalensis* and certain strains of the modern English racehorse. In all probability in Echidna, the 'fiddle-headed' grand-dam of 'Stockwell,' the face was strongly deflected on the cranium. In 'Stockwell' the face forms an angle of nearly 140 with the cranium; in his descendant, 'Persimmon, the angle is about 120. In some broad-browed Oriental horses with a long, tapering face the deflection is probably as pronounced as in 'Stockwell,' but in broad-browed Arabs with a short face the deflection may be only 40 or 50, and in narrow-browed Arabs with a nearly straight profile and a fine muzzle it probably rarely exceeds 100. As in 'Stockwell' the face was long and narrow as well as deflected, it may be assumed that this famous racehorse had in part sprung from Oriental ancestors of the 'Siwalik' type and in part from narrow-browed ancestors of the 'plateau' type evolved in North Africa, i.e. in part from Prof. Ridgeway's *Equus caballus libycus*.

In addition to almost perfect skulls belonging to horses which fairly accurately represented 'forest,' 'plateau,' and 'Siwalik' types, Newstead yielded a considerable number of skulls in a more or less perfect state of preservation, which evidently belonged to cross-bred animals. Two of these skulls belonged to broad-browed horses with a decidedly dished but somewhat long face, i.e. to horses which may have been a blend of the 'steppe' and 'forest' varieties. Similar skulls have been recorded from Swiss lake-dwellings, and there is still an ancient race of horses characterised by a broad forehead and a concave profile in the vicinity of Schlettstadt, in Upper Alsace. It is conceivable that members of the ancient race now represented by the Schlettstadt horses, recently described by Dr. Max Helzheimer, were brought to Newstead by German auxiliaries. The majority of the remaining skulls belonged to coarse-headed animals, which may very well have been a blend of the 'Siwalik' and 'steppe' types.

As a rule they were broad-browed like *Equus sivalensis*, but instead of having a marked prominence between the orbits, as in Thoroughbreds of the 'Persimmon' type, they were flat or slightly concave between the orbits, but prominent below the level of the orbits, i.e. they were like many modern Shires and Clydesdales, more or less 'Roman-nosed'; decidedly convex where Arabs and Thoroughbreds are usually concave.

In their molar teeth these coarse-headed, cross-bred animals very closely agree with the wild horse (*Equus przewalskii*) of Mongolia, but in two cases the wolf teeth (first premolars) are as well developed as in *Equus sivalensis*. Though in some cases the skulls of the cross-bred horses are as large as the skull of a well-bred 15 hands horse, they probably as a rule belonged to animals barely 14 hands at the withers.

The largest horse skull found during the excavations has a total length of 582 mm. When the skull of a Thoroughbred measures 582 mm. one may safely assume that it belonged to an animal measuring 16 hands at the withers, but as in a 16-hands horse of the Shire breed the skull may measure 680 mm. one may assume that a cross-bred animal with a skull 582 mm. in length measured under 15 hands at the withers.¹

It may hence be assumed that while some of the horses belonging to the auxiliaries who garrisoned the Newstead Fort measured nearly 15 hands, the majority were below rather than above 14 hands. In all probability the better bred horses, measuring about 14 hands, belonged to the cavalry and the mounted men (about one in four) attached to the infantry regiments, while the coarse-headed animals were as a rule used for transport. As the Gauls, from the second century onwards, had been improving their horses by means of well-bred stallions imported at great cost from the South of Europe, the majority of the horses belonging to the cavalry and mounted infantry probably came originally from Gaul. The more powerful large-headed animals) on the other hand, probably came from Germany—belonged, in fact, to the 'bad and ugly' native German breeds referred to by Caesar.

The last lot of horse bones received from Newstead included the skull of an ass, which measured about 13 hands at the withers. For some reason or other the ass has never been as popular in Britain as on the Continent. This is evidently not because it was late in reaching Britain, but probably because the inhabitants of these islands—for agricultural purposes as well as for sport and war—preferred from the first a tractable high-spirited courageous animal.

BOVIDAE

I. SHEEP AND GOATS

Very few sheep bones were found at Newstead. Whether this was due to sheep being seldom used as food, or to few bones being preserved, it is impossible to say. The

¹ Frequently in crosses between Arab and Highland ponies the head is decidedly longer than in either of the parents, probably owing to reversion to a large-headed ancestor,

remains received represent two types, one with nearly upright horns, the other with large curved horns. The first apparently represents the race found in the Swiss Lake-dwellings characterised by 'thin tall legs and horns like those of a goat,' *i.e.* the 'turbary' sheep (*Ovis aries palustris*) of Rutimeyer; the second apparently represents the large-horned sheep found in the pile-dwellings of Lake Biemme, *i.e.* Studer's sheep (*Ovis aries studeri*).

Up to about the end of the eighteenth century, the sheep all over the Highlands and Islands of Scotland were, according to Walker,¹ small, of a thin lank shape, with straight horns, an extremely short tail, and of a black, white, brown or deep russet colour, or 'blotched with two or three of these colours.' It is possible that the short-tailed sheep with straight horns common in the Western Islands and Highlands at the beginning of the nineteenth century belonged to the same race as the Newstead variety with goat-like horns.

In Neolithic times, there occurred in various parts of England the 'turbary' sheep (*O. aries palustris*), and Studer's sheep (*O. aries studeri*), and probably also a 'four-horned' sheep. When the 'turbary' race first found its way to Scotland it is impossible to say. Walker says the Caledonians probably acquired their straight-horned breed during the Roman invasion, or from Norway during the ninth century. These sheep may very well have found their way into the Highlands from England during the first or second century, and into the northern and western islands from Norway during later centuries.

The Newstead sheep with curved horns agree in their metacarpal (cannon) bones with *Ovis aries studeri* from the Swiss pile-dwellings and from deposits believed to be of Neolithic age in the Thames valley and other parts of England.

At the end of the eighteenth century a race of 'four-horned' sheep, with a short tail and slender limbs and coarse wool, occurred in the Hebrides (on certain 'mountainous islands'),² but there is no record of two-horned sheep of the *O. aries studeri* type for either the Hebrides or the mainland. But short-tailed sheep with large curved horns occurred in Orkney half a century ago, and some of the short-tailed, mooret-coloured sheep still found in Shedand, in their horns as well as their limbs, closely agree with Studer's race.

Of more interest still, the sheep on the small island of Soay, near St. Kilda, are identical in the skull and limb-bones with the large-horned race widely distributed over England and the South of Scotland in Roman times. Hence, we may assume that the Newstead sheep with curved horns occurred half a century ago, in a nearly pure form in Orkney, and are now faithfully represented by the Soay race, and, though in a less pure form, by some of the short-tailed mooret sheep of Shetland.

The chief points of the Soay sheep are brought out by Plate XCVII., Fig. 3. The uninhabited island on which these almost deer-like sheep have lived 'from time immemorial' is only about three miles in circumference, and owing to the difficulty of landing, this 'sheep' island is rarely visited. As alien blood has not reached Soay for over

1 *History of the Hebrides*, vol. ii. pp. 68 and 69.

2 Walker, *loc. cit.* vol. ii. p. 69.



1. FRAGMENT OF SKULL OF POLLED
OX: GALLOWAY TYPE



2. SKULL OF NEWSTEAD OX
WITH MESIAL HORN-LIKE
PROJECTION



3. SOAY SHEEP



4. HEAD OF RESTORED CELTIC
SHORTHORN

a century, and as the number of the three flocks which inhabit the island is mainly kept down by the white-tailed eagle) the raven, and the black-backed gull, the Soay sheep may be said to have long lived under nearly natural conditions.¹

Some years ago, General Pitt Rivers arrived at the conclusion that the slender-limbed race of sheep represented in Roman camps and Romano-British villages belonged to the same race as the Soay sheep.² Recently, Professor T. H. Bryce pointed out that some of the bones from the Roman forts on the Bar Hill exactly correspond with those of the Soay sheep,³ and Mr. J. G. Millais, in his work on *The Mammals of Great Britain*, states that the Soay sheep may be the direct descendants of *Ovis aries studeri* of the Swiss Lake-dwellings.

By a comparative study of fossil, subfossil, and recent bones I have arrived at the same conclusion—that the sheep now living on the Island of Soay represent the large-horned race of Roman camps and Romano-British villages and the Swiss Lake-dwellings.

At the present day there are three kinds of true wild sheep, viz.: (1) the Mouflons (Europe and Asia), characterised by curved horns, a small shallow pit below the orbit for a face gland such as occurs in deer, and by four interdigital glands; (2) the Urials (Asia), characterised by curved horns, four interdigital glands, and a large deep pit below the orbit; and (3) sheep of the Argali type (Asia) and of the Bighorn type (Asia and America), characterised by a face pit and interdigital glands, but especially by spiral horns.

Some naturalists seem to assume that all the domestic sheep are descended from the Mouflon, others derive them from the Urial (*Ovis vignei*) or the Argali (*Ovis ammon*), or from both of these species, but many writers on sheep assert that the domestic breeds are descended from a wild species not only extinct but totally unknown.⁴ In all true wild sheep the tail is very short, in the majority of the improved Occidental as well as in some of the ancient Oriental breeds the tail is long—sometimes long enough to reach the ground. Perhaps the long tail has induced some naturalists to assume that domestic breeds cannot have sprung from any of the modern short-tailed wild species.

In the skeleton, horns, and throat fringe the Soay sheep (Plate XCVII., Fig. 3) agrees with the Mouflon, but it differs from both the Asiatic and European varieties of the Mouflon in having during winter a short but thick coat of fine wool. But as there is an undercoat of wool in the Mouflon this difference is one of degree not of kind—it is a modification necessitated by the cold northern environment. The Soay sheep may hence be regarded as a variety of *Ovis orientalis* adapted originally for a moorland life. As it seems to have lived in Neolithic and later times with the Celtic ox and the Celtic pony, it may be familiarly known as the Celtic sheep. A more appropriate name than

1 To the late John T. Mackenzie, long factor to Macleod of Macleod, I was indebted for much information about the Soay sheep. Soay is a Norse word meaning Sheep Island.

2 *Excavations in Cranbourne Chase*, vol. ii., pp. 226 ff.

3 *The Roman Forts on the Bar Hill*, p. 127.

4 See Lydekker, *Wild Oxen, Sheep, and Goats*, 1898.

Ovis aries studeri for the large-horned Neolithic sheep would be *Ovis orientalis celticus*. Some of the mooret-coloured short-tailed Shetland sheep in their skull and limbs very closely agree with the Soay race, hence it may be assumed that the Mouflon has contributed to the making of the small semi-wild short-tailed Shetland breed.

Since Neolithic times 'four-horned' sheep (i.e. sheep with from three to eight horns) have existed in Europe. As the purer bred 'four-horned' sheep in their limbs and tail agree with Soay sheep they also may include the Mouflon amongst their ancestors.

That long-tailed breeds are descended from short-tailed ancestors allied to one or more of the living wild species is suggested by the fact that in black-faced herds short-tailed lambs occasionally make their appearance. If the short tail is due to reversion, it is conceivable that some of the breeds with spiral horns are in part descended from ancestors allied to the Argali (*Ovis ammon*). Further inquiries and experiments may even indicate that the long tail of the improved Occidental breeds is a useless inheritance from fat-tailed Oriental ancestors.

Goats were apparently even less common than sheep in the Newstead Fort. The remains found belonged to a race evidently allied to the Ibex (*Capra ibex*), once common on the Swiss Alps.

II. OXEN

A very large number of bones of oxen were found in the Newstead pits, wells, and ditches. The majority of the bones from the older deposits belong to the Celtic ox (the so-called *Bos taurus longifrons*), but many of the bones belong to cross-bred animals decidedly larger than the Celtic short-horn. The Urus (*Bos taurus primigenius*), once common in Britain, is not represented among the bones from Newstead.

If, as naturalists generally assume, the Urus (Auroch of the Germans) was never domesticated in Britain, and if, as Prof. Hughes believes, the only ox in Britain when the Romans came was the small Celtic short-horn (*Bos taurus longifrons*), it follows that all the modern British breeds of cattle (the Chillingham and other 'wild' cattle included) are descended from domesticated races or breeds brought from the Continent before, during, or after the Roman occupation.

It might be said that as the wild Urus and the Celtic short-horn were contemporaries in Scotland, they may have interbred. There is, however, no evidence of this from Newstead, or, as far as I can ascertain, from any other Roman or Romano-British settlement.

When and where *Bos taurus primigenius* was first tamed, and from which wild races the small Celtic short-horn is descended will probably never be known.

Many of the oxen bones belong to quite young animals which had doubtless served as food; others belonged to heavily built animals probably used for transport. Several of the small skulls have all the characteristics of the Celtic short-horn of Continental

Lake-dwellings, the horn cores curve forwards without either bending downwards or upwards, and the frontal region is long and relatively flat. As the cannon bones from Newstead are shorter and finer than those from Schlossberg and certain other Neolithic settlements on the Continent, the Scottish variety of the Celtic ox was probably unusually small.

At Newstead, as at Bar Hill, there were polled cattle. One of the Newstead skulls without horn cores might have belonged to a small race allied to the modern Galloway breed (Plate XCVII., Fig. 1); in another the 'intercornual' ridge projects upwards and forwards to form a mesial process (Plate XCVII., Fig. 2). As the intercornual ridge projects slightly upwards and forwards in certain Celtic short-horn skulls, 'Bos longifrons' may have in part descended from an Oriental race characterised by a long forward projecting intercornual process.

Now that much attention is being directed to the coat colour of cattle, it may not be out of place to ask, 'Of what colour was the Celtic short-horn—the native breed with which we must start in all our speculations as to the origin and development of British oxen?' The small ox of the Lake-dwellings has been described by some as of a grey or brown colour, by others as black, red, or brindled. In all probability the colour of the Celtic ox varied partly owing to artificial and partly to natural selection. In Scotland the coat was probably as a rule dark brown or black relieved by a broad reddish dorsal band.

Up to the end of the seventeenth century the cattle in the 'Celtic fringe' were usually black or dark brown, and they continued to be 'black' in the Western Islands and Highlands of Scotland up to the end of the eighteenth century. Prof. Walker, in his *History of the Hebrides*, frequently refers to the black cattle—he mentions, e.g., that in 1764 a farmer in Skye had 160 head of black cattle. During the seventeenth century very little provision was made for feeding cattle during winter, with the result that in severe winters many perished. It is stated that during the unusually hard winter of 1673 most of the cattle in England perished.

In Scotland during the eighteenth century the cattle in the Highlands were allowed to lie abroad all the year round, and had little or nothing to eat during winter and spring but what they could pick up in the fields. One result of this treatment was that half or even more sometimes perished; another was that many of the cows from poverty and weakness only bred once in two years; moreover, calves dropped before March apparently often succumbed for want of nourishment. It may be safely assumed that in the struggle for existence in the Highlands and Islands during the eighteenth century, the large breeds introduced from the Continent by the Romans, Saxons, Danes, and others would be first eliminated, and that as a rule only the small, hardy, native, indigenous Celtic short-horn would be left. Further support of the view that the Celtic short-horn was dark brown and black we have in the appearance now and again of a small brown or black calf; especially in Welsh and Highland herds—an obvious reversion to a once widely distributed native race.

By way of throwing light on the colour of the ancient British cattle, I have made

a number of crossing experiments with Shetland, Jersey, and other breeds, with a view to giving the ancient black race a chance of reappearing. I selected Shetland and Jersey cattle) because they appeared to differ but little from certain modern Swiss breeds believed to be descended from the small ox of the Lake-dwellers. By crossing a mouse-dun Shetland heifer having up-turned horns with a fawn-coloured Jersey bull, a red calf was obtained, which eventually grew into a dark-brown cow, decidedly larger than either of its parents. A second mouse-dun Shetland cow was put to a Jersey bull of a dark-fawn colour. The result was a red bull calf, which also eventually reached a good size, and assumed a dark-brown colour. In course of time the two crosses were interbred. I expected that the result of this union would be a calf that would eventually, in make and colour, agree with the small mouse-dun Shetland ancestors, or with the small fawn-coloured Jersey ancestors, or take after the large mulberry coloured cross-bred parents. As a matter of fact, the calf; red to start with, developed into a dark-brown cow, decidedly smaller than either of the parents or grand-parents.

This second cross has horns of the Celtic short-horn type (Plate XCVII., Fig. 4) and a broad, reddish dorsal band. In this small cow (she only measures 11.2 hands at the withers) we have probably a fairly accurate restoration of the Celtic ox of the first century. This 'restored' Celtic short-horn has produced two red calves to a red short-horn bull. One of the calves died when only a few days old; the other, now a yearling, is of a black brown colour like the dam.

The fact that all the cross-bred calves were red at birth suggests that our domestic cattle included amongst their ancestors a red variety, allied perhaps to one of the modern Oriental races.

Some of the skulls from Newstead belonged to animals very decidedly larger than the Celtic ox. Judging by the horn cores, some of the large skulls probably belonged to the Chillingham or Chartley type, while others probably belonged to crosses between native and imported cattle.

In addition to equine bones and bones of oxen, sheep, goats and dogs, the remains of the following animals were found during the excavations of the Roman Fort at Newstead, viz.

Pig¹ (*Sus scrofa*).

Elk² (*Alces machlis*).

Red Deer³ (*Cervus elaphus*).

Roe Deer (*Capreolus caprea*).

Fox (*Canis vulpes*).

Badger⁴ (*Meles taxus*).

- 1 Some of the pig bones belong to domestic, some to wild animals-three small pigs found together may have been captured during a hunting expedition.
- 2 As remains of elk have been found in four of the Border counties, and also at several Romano-British villages in England, it is not surprising that *Alces* is included in the Newstead list.
- 3 Some of the red deer antlers are decidedly larger than the antlers of the modern stags.
- 4 The remains of the badger consist of a nearly complete skull, the scapulae and innominate bones, ribs and limb-bones, of a nearly mature animal.

Hare¹ (*Lepus* sp. ?).

Water Vole (*Arvicola amphibius*).

Duck (*Anas boschas*).

Crane² (*Grus communis*).

Raven (*Corvus corax*).

Fowl.³

I am indebted to Mr. Pycraft, of the British Museum; Mr. Eagle Clarke, of the Royal Scottish Museum; and Dr. Ramsay H. Traquair, F.R.S., for assistance in identifying some of the bones. I am also indebted to the Council of the Royal Society of Edinburgh for permission to reproduce Figs. 58, 59 and 60; Plate XCV., Figs. 1 and 2; and Plate XCVI., Fig. 1.

- 1 The hare is represented by a shoulder blade-whether it belonged to the variable or the brown hare has not been determined.
- 2 The crane was still breeding in East Anglia at the end of the sixteenth century.
- 3 The domestic fowl is represented by a metatarsal armed with a large spur-perhaps the metatarsal belonged to a lighting cock.

THE SKULLS OF THE CANIDAE

BY R. G. LINTON, ANATOMY DEPARTMENT,

ROYAL VETERINARY COLLEGE, EDINBURGH

THE skulls of the Canidae from the Roman military camps at Melrose and Barhill are thirteen in number. One is of a fox; the rest are skulls of the dog. The latter may be said to represent five varieties or breeds of the domestic dog. No wolves' skulls were found. For purposes of description, the dogs' skulls have been arranged in the following groups:

Group A contains five skulls. They bear a considerable likeness to the skull of a cross between a bull-terrier and a greyhound; and with the skull of the average Airedale terrier they agree in many points, but differ from it in having the sagittal crest better developed. The crest though well formed is not high, so that the temporalis muscle could not have been excessive. The teeth are large and, as is the case in most of the skulls, are worn down to an extent such as is rarely, if ever) seen in the modern domestic dog. At the same time the cranial sutures are quite distinct, so that the skulls could not have belonged to dogs of any very great age. The same peculiarity is to be noticed in most of the skulls under consideration.

Two skulls have been isolated to form *Group B*, of which one only is fully developed. The other is that of a young dog, probably under twelve months old. That there is a marked distinction between these two skulls and those of the former group is quite evident. The total length of the skull is considerably less. The stephanic index in both young and old skulls is fairly great, indicating a deficiency in the growth of the temporalis muscle. In this respect the skulls are not unlike those of the spaniel, fox-terrier, Scotch and Irish terriers of to-day. The breadth of the cranium proportionate to its length is greater than in the skulls of group A.

Group C contains two skulls which are considerably larger than any of the others. Unfortunately, one of them is so broken as to be of little value, since it is impossible to obtain satisfactory or accurate measurements. The other, practically intact, is somewhat similar in form to the skulls of group A, but is built on a larger scale. The roof of the cranium, moreover, has a greater curvature. Contrasted with skulls of modern domestic dogs it differs probably least from the retriever 5; but the face is somewhat broader, actually and relatively to its length. It is also broader across the incisive or premaxillary bones.

In *Group D* are two skulls characterised by their breadth of face, a greater development of the sagittal crest and a more massive structure generally. It is a matter of no difficulty to distinguish these two skulls from the others. From the prominence of the sagittal crest the skulls must have belonged to animals which were possessed of considerable muscular power of the jaws. The skull of the modern bull-terrier is very similar in form and size.

Group E is represented by only a portion of one skull; the right zygoma and the anterior part of the face have unfortunately been broken away. This skull is placed by itself because, though it has reached its full state of development, it is peculiarly small when compared with the others of the collection. Compared with skulls of the present-day domestic dog, its place is found near the fox-terrier or the English black-and-tan terrier. The cranium is characterised by a high degree of antero-posterior curvature. The skull is evidently that of a member of a small breed of dog and one which was possessed of a short, sharp and narrow face, not unlike that of a 'badly-bred' fox-terrier.

HUMAN BONES

BY PROFESSOR T. H. BRYCE, M.D.

THE material for this short report on human remains found at Newstead Roman Camp consists of a few skulls and a nearly complete skeleton recovered during the recent excavations, and a skull preserved in the National Museum of Antiquities, Edinburgh, along with other relics discovered during the formation of the North British Railway by Dr. J. A. Smith in 1846.

The bones are not the product of a regular cemetery, but represent casual interments, which in some cases are not necessarily of an age coeval with the camp at any period of its occupation. Some were found in refuse pits, and certainly date from Roman times; others, however, were found in one or other of the ditches and may belong to a later period.

SKULL No. I., found by Dr. Smith, is a very well-preserved specimen. It is the skull of a male about middle life. The processes and muscular ridges are not strongly marked, and the dimensions are moderate. In its proportions, it approaches the brachycephalic type, the cephalic index being 80, and the length-height index falls below the length-breadth index) that is the breadth is relatively to the length greater than the height. In the norma verticalis the shape of the outline is a short oval, and the zygomatic arches are not seen; the occiput is rounded but not prominent. The glabella and supraorbital ridges are faintly marked; the vault arches gradually and regularly to the bregma; the vertex is flat; the posterior slope is steep but not vertical, and ends in a gently rounded occipital protuberance.

The face is low and relatively broad; there is no alveolar prognathism, and the jaws are vertical; the mental protuberance is well pronounced, and the angle of the mandible is not everted. The dentition is complete; the crowns of the upper molars are slightly worn, but the lower molars are markedly ground.

SKULL No. II. was found in Pit No. XXIII. It is complete save for the lower jaw, and has special interest in having an injury which was possibly inflicted during the life of the individual, and, if so, must have been his death blow. It is the skull of an adult male about middle life. It is rugged and angular, the glabella and supraorbital ridges are protuberant, the glabella being specially so and overhanging considerably the

TABLE OF MEASUREMENTS

	No. OF SPECIMEN AND SEX.			
	No. I. M.	No. II. M.	No. VI. F.	No. IX. F.
Circumference,	515	—	—	480
Glabello-occipital length,	182	196	181	169
Ophryo-occipital length,	181	190	—	167
Minimum frontal width,	102.5	99	—	90
Maximum	120	120	—	108
Bi-parietal width,	146	144	143	135
Asterionic width,	111	117.5	—	100
<i>Cephalic index,</i>	80	74.5	79	79.8
Basi-bregmatic height,	133	141	—	126
<i>Height index,</i>	73	71.9	—	74.6
Basi-nasal length,	100	105	—	93
Basi-alveolar length,	95	103	—	94
<i>Gnathic index,</i>	95	98	—	101
Alveolo-nasal height,	60	68	—	62
Bizygomatic width,	135	122	—	120
<i>Upper facial index,</i>	44.5	55	—	51.6
Naso-mental height,	114	—	—	105
Bizygomatic width,	135	—	—	120
<i>Complete facial index,</i>	83.6	—	—	87.5
Nasal height,	50	48	—	44
Nasal width,	26	22	—	23
<i>Nasal index,</i>	52	45.9	—	52.2
Orbital height,	30	30	—	35
Orbital width,	38	39.5	—	36
<i>Orbital index,</i>	92	78.5	—	83
Palatal length,	—	55	—	49
Palatal width,	—	62	—	55
<i>Palatal index,</i>	—	—	—	112.2

deeply sunk fronto-nasal suture. The outline in the norma verticalis is a long oval, or rather ovoid, the parietal width distinctly exceeding the frontal. The proportions are dolichocephalic, the cephalic index being 74.5. The height index is 71.9, distinctly less than the length-breadth index. The arch of the vault rises from a distinct hollow above the prominent ridge formed by the supraorbital ridges and glabella, in a flat curve to the vertex, which is flat with a slight sagittal crest; the posterior slope is steeper and fuller than the anterior, and runs down to a prominent rounded occiput. The sides of the skull slope inwards below the parietal eminences, so that it is a so-called ill-filled skull. The lambdoidal suture is very complex, showing several Wormian bones on each side

just in front of the lambda the sagittal suture ends in a 30 mm. broad suture, in the posterior part of which there is a Wormian bone.

The glabella as mentioned above is very prominent and overhangs a deeply depressed fronto-nasal suture. The face is high and narrow; the orbits are very square, and the nasal aperture is narrow. There is a certain amount of alveolar projection.

As has been said, the skull shows signs of an injury possibly inflicted during life. On the frontal bone are two cuts, one on each side over the orbits and nearly parallel with one another. The cut on the left is shallow, and measures 3.5 cm. long; its inner or mesial lip is straight and even, but the outer is irregular owing to the breaking away of the outer table of the bone. The right incision is 8 cm. long and deeper than the left, the bone being fissured right through along the line of the cut. It begins 4 cm. above the centre of the right orbit and runs backwards in a slightly oblique direction to end on the parietal bone 14 mm. from the middle line. The mesial lip of the fissure is quite straight and sharp, but the outer is uneven due to the chipping away of the outer table. The border produced by the breaking away of the outer table is broader at the middle of the cut and tapers to a point at each end. This large cut very possibly represents a wound inflicted before death by a sharp weapon such as a battle-axe, the outer uneven border of the incision having been produced by the edge of the weapon turning outwards as the blow was struck, and chipping off the outer table of the bone, along the outer, which is also the lower, border of the cut.

SKULL No. III., from the outer ditch at the south-west corner of the early fort, is represented by a fragment consisting of the frontal bone and upper part of the face of an adult male.

The glabella and supraorbital ridges are fairly prominent. The palate is short and wide. The teeth of the upper jaw have been specially large and strong, judging by the size of the alveoli and of the 1st and 2nd molars which are present.

SKULL No. IV., from the outlet of the drain at the south-west corner of the enlarged fort, is that of a child about 12 years of age. As the face and mandible are absent, the exact age is not determinable. The specimen does not possess any features of special interest.

SKULL No. V., from the Bath buildings, is represented only by the parietal bones and tabular part of the occipital bone, i.e. the back part of the vault. The fragment has belonged to a skull of dolichocephalic proportions, and is specially remarkable in having a very prominent and bulging occiput. The interparietal part of the occipital bone forms a bulbous projection between the two parietals, but the globular enlargement involves also the hinder parts of the parietals, as if a tight cord had been drawn round the skull in front of the lambdoidal sutures. The lambdoidal suture is very complex, including a number of Wormian bones. Internally the left occipital (cerebral) fossa is deeper than the right, and there are slight recesses corresponding to the upper ends of the lambdoidal sutures.

SKULL No. VI., which came from the drain at the south-west corner of the later fort, is represented by a broken calvaria, the face and base being absent. The shape and curve of the frontal bone, and the thinness of the orbital margin, which is preserved on one side, suggest that it is the skull of a woman of adult age.

The outline in the norma verticalis is broadly ovoid, the parietal exceeding the frontal width. The breadth of the skull and the steepness of the curve of the vault behind suggest that it had proportions approaching the brachycephalic type of skull.

VII. In Pit No. XVI of the South Annexe, two broken jaw bones were found. One of them is certainly male, the other female. The dentition is complete in both jaws, and the teeth are good, being little worn and showing no signs of caries.

VIII. In the ditch of the early fort a fragment of the skull of a very young infant was discovered; also a lower jaw in which the wisdom teeth have not erupted) and belonging to a child between 14 and 18 years of age.

IX. SKELETON OF DWARFISH FEMALE. In Pit XVII were recovered the bones of a female of diminutive stature. The skeleton was complete save for certain of the cervical vertebrae, the sternum, and the bones of the hands and feet. The long bones are very ill developed and slender, but otherwise normal; there is no sign of rickets or other deformity; all the epiphyses are united, showing that growth was complete, but the lines where the chief or main epiphyses had joined are still visible. The first and second pieces of the sacrum are not fully joined, and the crests of the ilia remain still partly separated. The age of the individual must therefore have been, when death occurred, from 22 to 23 years. The wisdom teeth had erupted in both jaws, and there is a distinct amount of wearing of the crowns of the molars.

The characters of the pelvis when articulated leave no doubt as to the sex of the individual.

The skeleton has now been articulated, and stands between 4 feet 6 and 4 feet 7 high, a figure closely approximating to the stature calculated from the length of the leg bones, viz. 4 feet 6 or 4 feet 7 inches according to the formula used.

The measurements of the different long bones are as follows:

Clavicle	125 mm.		
		Maximum.	Oblique.
Humerus	{ Right	277 mm.	271 mm.
	{ Left	271 mm.	262 mm.
Radius	{ Right	203 mm.	
	{ Left	200 mm.	
Ulna	{ Right	224 mm.	
	{ Left	223 mm.	
Femur	{ Right	382 mm.	376 mm.
	{ Left	379mm.	373mm.
Tibia	{ Right	305 mm.	
	{ Left	301 mm.	
Fibula	{ Right	301 mm.	
	{ Left	298 mm.	

The measurements of the pelvis are as follows:

Conjugate diameter	99 mm.
Transverse "	109 "
Intercristal breadth	222 "
Distance between anterior iliac spaces	185 "

The skull is quite entire; it is of small size and shows certain evidences of immaturity, though the occipital has completely fused with the sphenoid bone. In the *norma verticalis* the outline is ovoid, the parietal exceeding the frontal width, and the zygomatic arches are seen. The proportions of the length to the breadth approach to brachycephaly, the cephalic index being 79.8. The occiput does not project, but there is distinct asymmetry of the occipital bone, the left side being more prominent than the right. The skull is ill filled, the outline in the *norma occipitalis* being markedly pentagonal; it is flattened in a vertical direction; the height index is 74.6, markedly less than the cephalic index.

The glabella is flat, the supraorbital ridges are very slight; the frontal eminences are not prominent, nor is the lower part of the frontal vertical, the bone arching evenly and gradually to the bregma. The under part of the occipital is particularly flat; it rises obliquely from the foramen magnum to the occipital protuberance, giving a remarkably ill-developed appearance to the hinder part of the skull.

The face is somewhat square; there is a distinct amount of forward projection of the alveolar edge of the upper jaw, giving a certain degree of alveolar prognathism the basi-alveolar length is 94, while the basi-nasal length is 93, bringing the gnathic index above 100. The nasal aperture is relatively broad, and the orbits are rounded.

Beyond the technical description of the various skulls, there is little to be said regarding the human remains found in or round the fort.

There is great variety in the cranial characters of the several specimens, and no ethnological data emerge from an examination of the collection. It is not possible to say whether the individuals were strangers or natives, nor to identify the races to which they belonged. It is curious that such a large proportion of the persons buried in this casual way were still in early life.

The case of the dwarfish girl excites more interest. The circumstances in which the skeleton was found are remarkable. The body had been thrown into a refuse pit, and there lay under the carcasses of as many as nine horses. What part did this tiny person play in the fort, and why did her remains receive such scant respect?

Although the stature is very low, it is perhaps hardly below, for a female, the lowest possible limit in a race of average stature, and there is no reason to conclude that this individual represented the pigmy race described by Kollmann. It is more reasonable to conclude that the low stature is pathological, and due to a premature union of the epiphyses.

THE COINS

BY GEORGE MACDONALD, M.A., LL.D.

THE Coins recovered during the recent excavations at Newstead numbered 249 in all, 98 being of silver and 151 of brass or copper. While the few that came from the bottom of pits or of ditches were unusually well preserved, the great majority of the rest were in such poor condition that the task of identification was often difficult, albeit it was materially lightened by the never-failing help and patience of the Medal Room staff in the British Museum. Ultimately only 15 pieces—1 of silver and the others of brass or copper—had to be definitely set aside as hopeless. The remaining 234 constitute a series sufficiently extensive to deserve careful analysis. Besides these, the following lists include 27 specimens—5 of gold, 16 of silver, and 5 of brass or copper—authentically recorded as having been picked up or ploughed up upon the site, chiefly in the course of the nineteenth century; they are distinguished by an asterisk, and it must be understood that they are described at second-hand. Notices of other finds are too vague to be of value for statistical purposes.

Normally, the contents of a hoard are important mainly as indicating the character of the money current in a particular district at the time when they were withdrawn from circulation, and so as throwing light on the chronology of issues of doubtful date. The significance of a series like the present is entirely different. Properly interpreted, it may help in determining the limits of the period or periods during which the spot with which it is associated was in Roman occupation. As the canons to be applied to each of the various metals are not necessarily the same, it is desirable that gold, silver, and brass or copper should be catalogued separately. We shall begin with the gold.

AUREI

NO.	OBVERSE.	REVERSE.	REMARKS.
-----	----------	----------	----------

NERO

UNDATED

1*	NERO CAESAR AVGVSTVS Head l. laureate.	IVPPITER CVSTOS Jupiter seated l., holding thunderbolt and sceptre. Cohen ² i. p. 287, 118.	Found in 1862: <i>Proc. Soc. Ant. Scot.</i> V. p. 108.
----	--	---	--

NO.	OBVERSE.	REVERSE.	REMARKS.
2*	Undescribed.	Undescribed.	<i>Proc. Soc. Ant. Scot.</i> i. p. 34.
TITUS			
UNDATED			
3*	T CAESAR VESPASIANVS Head l. laureate.	ANNONA AVG Abundantia seated l., with r. hand raised. Cohen ² i. p. 430, 16.	Ploughed up in the Red- abbeystead (=O.S. No. 605) in 1792: <i>Proc. Soc. Ant. Scot.</i> i. p. 34. Head r. laureate.
TRAJAN			
UNDATED			
4*	Undescribed.	Undescribed.	<i>Proc. Soc. Ant. Scot.</i> i. p. 34.
ANTONINUS PIUS			
TRIB. POT. xv: 152 A.D.			
5*	ANTONINVS AVG PIVS PP TR P XV	COS IIII Emperor standing l., with globe Cohen ² ii. p. 300, 305.	'Very fine preservation': <i>Proc. Soc. Ant. Scot.</i> i. p. 35.

The whole number of these gold pieces is too small to provide a basis for conclusions of moment. The one inference that can be drawn is far from being new: they show that Newstead was held by the Romans down to at least A.D. 152. The evidence of the silver is more interesting. But, before it is examined in detail, there are certain preliminary points that ought to be made clear. The oldest denarii were minted in the second century B.C. Obviously such a date is quite unsuitable as a *terminus a quo*. The presence of these pieces is explained by the fact that, owing apparently to its superior quality, Republican silver continued to circulate in the frontier provinces for more than a century after the establishment of the empire. It seems to have been in every-day use at all events as late as the Flavian era, although there is reason to believe that it vanished soon afterwards. Its appearance at Newstead, therefore, does no more than strengthen the testimony in favour of an Agricolan occupation. This prolonged defiance of Gresham's Law is difficult to account for, unless the good money was habitually accepted at a slight premium. The case of the legionary denarii of Mark Antony is different. They were so heavily alloyed that the deterioration which set in under Nero had to run its course for well over a hundred years before the ordinary imperial pieces touched the same depth of degradation. Their occurrence in hoards shows that they were still current towards the end of the second century A.D.; in the interval it had not been worth the while of any government to call them in. The indications as to the *terminus ad quem* are entitled to a larger measure of confidence. Denarii, indeed, are specially valuable in this respect. While money of all kinds undoubtedly took a little time to make

its way to the outskirts of the empire, the finds at Haltern and at Hofheim prove that silver travelled quicker than brass or copper.

DENARII

NO.	OBVERSE.	REVERSE.	REMARKS.
REPUBLICAN PERIOD			
SECOND CENTURY B.C.			
6	Head of Roma r.	Victory in biga r.	Found in the Praetentura.
C. ABURIUS GEMINUS: 124-103 B.C.			
7	GEM Head of Roma r.	ROMA C ABVRI Mars standing in quadriga galloping r.	Found in the Baths, 5' below surface, in drain running N.W.
T. QUINCTIUS FLAMININUS: 124-103 B.C.			
8	Head of Roma r.; behind, a flamen's Cap.	ROMA Castor and Pollux, mounted, galloping r.; beneath, round shield between T and Q.	Found 4' below surface, in cutting trench across area of Barracks, E. side.
M. VOLTEIUS M.F.: 78 B.C.			
9	Head of Apollo r. laureate.	S·C D·T M·VOLTEI·M·F Tripod-lebes, with serpent.	Found in filling in ditch of early fort, E. side.
MANIUS CORDIUS RUFUS: 46 B.C.			
10	RVFVS IIIVIR Heads of Castor and Pollux r., with stars.	NV CORDIVS Venus Verticordia l., with scales and sceptre Cupid on shoulder.	Found in bottom of Pit LXV (River-bank Field O.S. No.610).
P. CLODIUS TURRINUS: 43 B.C.			
11	Head of Apollo r. laureate; behind, lyre.	P.CLODIVS M.F Diana Lucifera, standing to front, holding long torches.	Found in outer ditch of early fort, W. front, 8' down.
C. VIBIUS VARUS: 38 B.C.			
12	Head of Bacchus r., crowned with ivy and bunches of grapes.	C VIBIVS VARVS Panther l., with forefeet planted on Bacchic altar, on which rest a mask and a thyrsus.	Found in filling in the gateway in the reducing wall.
DOUBTFUL DATE.			
13*	Undescribed.	Undescribed.	<i>Proc. Soc. Ant. Scot.</i> i. p.34.
14*	"	"	" "

1 See Dragendorff in *Bonner Jahrbücher*, cxiii. p. 240.

NO.	OBVERSE.	REVERSE.	REMARKS.
M. ANTONIUS: 32–31 B.C.			
15	ANT·AVG III·VIR·R·P·C Galley r.	LEG V.. Military eagle, between signa.	Found beneath foundation of ambulatory of Principia, lowest level.
16	Similar.	Similar, with LEG VI...	Found in Barracks of Praetentura.
17	Similar.	Similar, with LEG XIII (?)	Found in the 'Exercir-Halle.'
18	Similar.	Similar, with LEG XX...	Found in the Praetentura, 2' or 3' below surface.
19	Similar.	Similar; only LEG visible.	Found in the Well Meadow (= O.S. No.608); Retentura.
20*	Similar.	Similar.	<i>Proc. Soc. Ant. Scot.</i> i. p.34
21	Similar.	Worn smooth.	Found in the Well Meadow (= O.S. No. 608), in trench cut to find N. end of Barracks, S. of road leading W.
22	Similar.	Similar.	Found in the Praetentura.
AUGUSTUS CIRCA 2 B.C.			
23	CAESAR AVGVSTVS DIVE F PATER PATRIAE Head r. laureate.	C L CAESARES AVGVSTI F COS DESIG PRINC IVVENT Gaius and Lucius, standing to front, each with spear and shield above, simpulum and augur's staff. Cohen ² i. p. 69, 42.	Found in clay of rampart, above ditch of early fort.
TIBERIUS CIRCA 15 A.D.			
24	TI CAESAR DIVI AVG F AVGVSTVS Head r. laureate.	PONTIF MAXIM Livia seated r., with sceptre and flower. Cohen ² i. p. 191, 16.	Found, adhering to 'first brass' of Titus, in N. half of Block XVIII.
NERO UNDATED			
25	IMP NERO CAESAR AVG P P Head r. laureate.	IVPPITER CVSTOS Jupiter seated l., with thunderbolt and sceptre. Cohen ² i. p.288, 123.	Found in ditch of early fort, S. side.

NO.	OBVERSE.	REVERSE.	REMARKS.
GALBA: 68-9			
26	IMP SER GALBA AVG Head r bare.	SPQR OB C S Wreath of oak. Cohen ¹ 1. p. 226, 81; not in Cohen ² .	Found in River-bank Field (= O.S. No. 610).
27	IMP SER GALBA Head r laureate.	VICTORIA Victory r., writing on shield. Cohen ² i. p. 339, 316.	Found in Pit LXV (Riverbank Field = O.S. No. 610), 8' 6" down.
OTHO: 69			
28	IMP M OTHO CAESAR AVG TR P Securitas standing l., with	SECVRITAS P R Head r. bare. wreath and sceptre. Cohen ² i. p. 353, 17.	Found in upcast from early building below Block XIV.
VITELLIUS: 69			
29	A VITELLIVS GERM IMP AVG TR P Head r. laureate.	PONT MAXIM Vesta seated r., with patera and sceptre. Cohen ² i. p. 361, 72.	Found in Block XIII.
VESPASIAN Cos. II. 70 A.D.			
30	IMP CAESAR VESPASIANVS AVG Head r. laureate.	COS ITER TR POT Pax standing l., with branch and caduceus. Cohen ¹ i. p. 274, 34; not in Cohen ² .	Found 2' or 3' below surface in tracing foundations of early Barrack block, S. E. corner of fort.
31	Similar.	Similar; but Pax seated 1. Cohen ¹ i. p. 275, 36; not in Cohen ² .	Surface-find from S. Annexe.
COS. III. OR IV.: 71-73 A.D.			
32	IMP CAES VESP AVG P M COS..II Head r. laureate.	VESTA Vesta standing l., with simpulum and sceptre. Cf. Cohen ² i. pp. 412 f., 573 f.	Found on line of inner ditch of early fort, 2' below surface.
COS. IV.: 72-73 A.D.			
33	IMP CAES VESP AVG P COS IIII Head r. laureate.	AVGVR TRI POT Simpulum, sprinkler, urceus, and augur's staff. Cohen ² i. p. 371, 45.	Found at top of black deposit, above inner ditch of E. Annexe.

NO.	OBVERSE.	REVERSE.	REMARKS.
34	Similar.	Similar.	Find-spot doubtful. In good condition, when lost.
35	Similar.	Similar.	Found in the Principia.
36	Similar.	Similar.	Found near top of Pit LXVI. In good condition, when lost.
37	Similar.	TRI POT Vesta seated l., with simpulum. Cohen ² i. p. 411, 563.	Found in the Principia. In good condition, when lost.
38*	Similar.	VICTORIA AVGVST Victory r. 'crowning trophy.' Cf. Cohen ² i. p. 416, 618.	<i>Proc. Soc. Ant. Scot.</i> i. p.34.
CENS. PONTIF. MAXIM.: 72-75 A.D.			
39	IMP CAES VESP AVG CENS Head r. laureate.	PONTIF MAXIM Vespasian enthroned r., with sceptre and branch. Cohen ² i. p. 397, 387.	Find-spot doubtful In good condition, when lost.
COS. VI.: 75 A.D.			
40	IMP CAESAR VESPASIANVS AVG Head r. laureate.	PON MAX TR P COS VI Female figure, naked to waist, seated l., with branch. Cohen ² i. p. 395, 366.	Found within gateway of reducing wall, on S. side of road, on level with cobble foundation of outer wall of guard-chamber.
41	Similar.	Similar.	Find-spot doubtful. In good condition, when lost.
COS. VI. OR VII.: 75 OR 76 A.D.			
42	Similar.	Similar; but only PON MAX visible. Cf. Cohen ² i. p. 396, 373.	Found in clay of W. rampart.
COS. VII.: 76 A.D.			
43	IMP CAESAR AVG Head r. laureate.	COS VII Eagle on cippus wings open. Cohen ² i. p.377, 122.	Find-spot doubtful.
UNDATED			
44	IMP CAESAR VESPASIANVS AVG Head r. laureate.	IVDAEA Judaea, captive, seated r. behind, trophy. Cohen ² i. p. 384, 226.	Found in the Retentura (Well Meadow = O.S. No. 608), in filling in large oven.
45	Similar.	Similar.	Found in the Baths.

NO.	OBVERSE.	REVERSE.	REMARKS.
46	Similar.	Similar.	Found in the Principia, lowest level. In good condition, when lost.
DATE UNCERTAIN			
47	...AVG... Head r. laureate.	AVGVR TRI POT Similar to Nos. 33 ff. Cf. Cohen ² i. p. 371, 43 ff.	Found in the Barracks of the Praetentura.
48	...VESP AVG... Head r. laureate.	No inscr. visible. Victory r., with wreath and palm. Cf. Cohen ² i. p. 413, 584 f.	Find-spot doubtful.
49*	Undescribed.	TRI POT 'Robed figure seated l.' Probably similar to No. 37.	Found in railway cutting in 1846. <i>Proc. Soc. Ant. Scot.</i> i. p. 34.
50	IMP CAES VESP...	Probably similar. Head r. laureate.	Found near the top of Pit LXVI. One half broken away.
STRUCK AFTER DEATH OF VESPASIAN IN 79 A.D.			
51	DIVVS AVGVSTVS VESPASIANVS Head r. laureate.	Two capricorns, back to back, supporting shield with SC; beneath, a globe. Cohen ² i. p. 406, 497.	Found in the Barracks of the Praetentura.
TITUS			
TRIB. POT. IX., Cos. VII.: 79 A.D.			
52	IMP TITVS CAES VESPASIAN AVG P M Head r. laureate.	TR P VIII IMP XIII COS VII PP Ceres enthroned l., with ears of corn and torch. Cohen ² i. p. 452, 270.	Found in S.E. corner of Principia, below level of last occupation. In very good condition, when lost.
UNDATED			
53	T CAES IMP VESP PON MAX TR POT Head r. laureate.	NEP RED Neptune standing l., with acrostolium and sceptre r. foot on globe. Cohen ² i. p. 440, 121.	Found in E. Annexe.
DOMITIAN			
COS. IV.: 76			
54	CAESAR AVG F DOMITIANVS Head r. laureate.	COS IIII Pegasus, walking r. Cohen ² i. p. 474, 47.	Found in the Baths.

NO.	OBVERSE.	REVERSE.	REMARKS.
COS. VI.: 79 A.D.			
55	CAESAR AVG F DOMITIANVS COS VI Head r. laureate.	PRINCEPS IVVENTVTIS Two clasped hands, holding military eagle. Cohen ² i. p. 504, 393.	Found in filling in ditch of early fort.
COS. VII.: 79 A.D.			
56*	CAESAR DIVI F DOMITIANVS COS VII Head r. laureate.	PRINCEPS IVVENTVTIS Lighted altar, garlanded. Cohen ² i. p. 504, 397.	<i>Proc. Soc. Ant. Scot.</i> i. p. 34.
57	CAESAR DIVI F DOMITIANVS COS VII Head r. laureate.	PRINCEPS IVVENTVTIS Plumed helmet, on throne. Cohen ² i. p. 504, 399.	Found in W. Annexe.
TRIB. POT. VII.: 88			
58	IMP CAES DOMIT AVG GERM PM TR P VII Head r. laureate.	IMP XII II COS XII II CENS P PP Athena r. on prow, brandishing spear; at her feet, owl Cohen ² i. p. 491, 236.	Find-spot doubtful. In very good condition, when lost.
TRIB. POT. IX., COS. XIV.: 89 A.D.			
59	IMP CAES DOMIT AVG GERM PM TR P VIII Head r. laureate.	IMP XXI COS XIII CENS P PP Athena, standing 1., leaning on spear. Cohen ² i. p. 493, 255.	Found in the Baths, above cobble foundation of rampart, W. side. In good condition, when lost
TRIB. POT. IX., COS. XV.: 90 A.D.			
60	Similar.	IMP XXI COS XV CENS P PP Athena, standing 1., with thunderbolt and spear. Cohen ² i. p.493, 259.	Found in the Baths, 4' 6" below surface.
TRIB. POT. XII.: 92 OR 93 A.D.			
61	IMP CAES DOMIT AVG GERM PM TR P XII Head r. laureate.	IMP XXII COS XVI CENS P PP Similar to No.58. Cohen ² i. p.495, 281.	Found outside earlier south gate (Well Meadow), 2' 6" below surface, under the bottoming of second occupation roadway. In very good condition, when lost.
TRIB. POT. XIII., COS. XVI.: 93 A.D.			

62*	IMP CAES DOM IT AVG GERM PM TR P XIII Head r. laureate.	IMP XXII COS XVI CENS P PP Athena, advancing r., with aegis and spear. Cohen ² i. p.495, 283.	Found in 1853. <i>Proc. Soc. Ant. Scot.</i> i. p. 230.
-----	--	--	--

NO.	OBVERSE.	REVERSE.	REMARKS.
TRIB. POT. XV.: 95 OR 96 A.D.			
63	IMP CAES DOM IT AVG GERM PM TR P XV Head r. laureate.	IMP XXII COS XVII CENS P PP Similar to No. 58. Cohen ² i. p.496, 293.	Found in the Barracks of the Praetentura. In good condition, when lost.
UNDATED			
64	DOMITIANVS CAESAR AVG F Head r. laureate.	No inscr. legible. Similar to No. 58.	Found in the River-bank Field (O.S. No. 610).
65	Head r. laureate.	Traces of inscr. Draped figure, seated l., holding small Victory (?). Similar to No. 58.	Find-spot doubtful.
NERVA COS. II.: 96 A.D.			
66	IMP NERVA CAES AVG PM TRP COS II PP Head r. laureate.	AEQVITAS AVGVST Aequitas standing l., with scales and cornucopiae. Cohen ² ii. p.2, 3.	Found in the Barracks of the Praetentura.
COS. III.: 97 A.D.			
67	IMP NERVA CAES AVG PM TR P COS III PP Head r. laureate.	FORTVNA AVGVST Fortuna standing l., with rudder and cornucopiae. Cohen ² ii. p. 7, 66.	Found on E. side of fort, 2' or 3' below surface. In good condition, when lost.
68	Similar.	FORTVNA P R Fortuna seated l., with ears of corn (?) and sceptre. Cohen ² ii. p. 8, 79.	Found in the Barracks, E. side of Praetentura. In good condition, when lost.
TRAJAN COS. II.: 98 A.D.			
69*	IMP CAES NERVA TRAIAN AVG GERM Head r. laureate.	PM TR P COS II PP 'Robed figure, seated to l.' Cf. Cohen ² ii. p.40, 203 ff.	<i>Proc. Soc. Ant. Scot.</i> i. p.34.
COS. IV.: 101-103 A.D.			
70	IMP CAES NERVA TRAIAN AVG GERM Head r. laureate.	PM TR P COS IIII PP Victory standing r. on prow, with wreath and palm; in front of prow, serpent. Cohen ² ii. p. 43, 241.	Found in E. Annexe.

71	Similar; but no inscr. visible.	PM TR P COS IIII PP (?) Victory marching r., with wreath and palm. Cf. Cohen ² ii. p. 43, 243.	Find-spot doubtful.
----	---------------------------------	--	---------------------

NO.	OBVERSE.	REVERSE.	REMARKS.
COS. V.: 104–115 AD.			
72	IMP TRAIANO AVG GER DAC PM TR P Bust r. laureate.	COS V PP SPQR OPTIMO PRINC Roma standing l., holding Victory and leaning on spear. Cohen ² ii. p. 25, 68.	Found in South Annexe (Field O.S. No.554).
73	Similar.	COS V PP SPQR OPTIMO PRINC Victory, marching l., with wreath and palm. Cohen ² ii. p. 26, 77.	Found in Block XIV, 3' down, about foundation level.
74	Similar.	COS V PP SPQR OPTIMO PRINC Pax standing l., holding olive-branch and leaning on column. Cohen ² ii. p.27, 83.	Found in tracing foundation of early Barrack block at S.F. corner of fort. In good condition, when lost.
75	Similar.	Similar.	Found in the South Annexe (Fore-ends = O.S. No.607).
76	Similar.	COS V PP SPQR OPTIMO PRINC Trophy. Cohen ² ii. p.28, 100.	Find-spot doubtful.
77	IMP TRAIANO AVG GER DAC PM TR P COS V PP Bust r. laureate.	SPQR OPTIMO PRINCIPI Aequitas l., with scales and cornucopiae. Cohen ² ii. p. 65, 462.	Found in the Baths. In very good condition, when lost.
COS. VI.: 111–116			
78	IMP TRAIANO OPTIMO AVG GER DAC PM TR P Bust r. laureate.	COS VI PP SPQR Pax (or Felicitas) standing l., with caduceus and cornucopiae. Cohen ² ii. p. 29, 106.	Found in the Barracks of the Praetentura, 2' below foundations of last occupation. In good condition, when lost.
79	IMP CAES NER TRAIANO OPTIMO AVG GER DAC Bust r. laureate.	PM TR P COS VI PP SPQR Similar. Cohen ² ii. p. 47, 278.	Found in the Barracks of Praetentura. In good condition, when lost.
80	Similar (?).	Similar (?).	Found in the Praetentura, 2' or 3' below surface.

81	Similar (?).	PM TR P COS VI PP SPQR Virtus standing r., with parazonium and spear; r. foot on helmet. Cf. Cohen ² ii. p. 46, 272 and 274.	Found, 1' below surface, in clay above ditch of early fort, S. side.
----	--------------	---	--

NO.	OBVERSE.	REVERSE.	REMARKS.
82	IMP CAES TRAIANO AVG GER PARTH ICO Bust r. laureate.	NER PM TR P COS VI PP SPQR OPTIM PROVID DAC Providentia standing l., bearing a sceptre and extending r. hand at her feet, globe. Cohen ² ii. p. 50, 315.	Found in the Retentura (Well Meadow = O.S. No. 608), 1' 6" down. In good condition, when lost.
DATE DOUBTFUL			
83	Inscr. illegible. Head r. laureate.	Inscr. illegible. Traces of figure standing l., holding cornucopiae.	Find-spot doubtful.
HADRIAN COS. II.: 119 A.D.			
84	IMP CAESAR TRAIAN HADRIANVS AVG Bust r. laureate.	PM TR P COS II FORT RED Fortuna seated l., with rudder and cornucopiae. Cf. Cohen ² ii. p. 169, 745.	Found in the Principia, 2' 6" below gutter of outer courtyard. In good condition, when lost.
COS. III.: 119-128 A.D.[1]			
85*	IMP CAESAR TRAIAN HADRIANVS AVG Bust r. laureate. [121 A.D.]	PM TR P COS III CLEM Clementia standing l., with patera and sceptre; in front, altar. Cohen ² ii. p. 122, 212.	Found in 1847. <i>Proc. Soc. Ant. Scot.</i> i. p. 35
86*	IMP CAESAR TRAIAN HADRIANVS AVG Head r. laureate. [119 AD.]	PM TR P COS III CONCORD Concordia seated l. Cohen ² ii. p. 125, 255.	Found in railway cutting in 1847. <i>Proc. Soc. Ant. Scot.</i> I. p. 35.
87	HADRIANVS AVGVSTVS Head r. laureate. [125 A.D.]	COS III Genius l., holding cornucopiae, and patera over altar. Cohen ² ii. p. 135, 335.	Found in E. Annexe. In good condition, when lost.
88*	Similar. [125 A.D.]	COS III Roma seated l., holding Victory and spear. Cohen ² ii. p. 135, 339.	<i>Proc. Soc. Ant. Scot.</i> i. p. 35.

89*	Similar. [127 A.D.]	COS III Virtus standing r., l. foot on helmet. Cohen ² ii. p. 136, 353.	<i>Proc. Soc. Ant. Scot.</i> i. p. 35.
-----	------------------------	--	--

- 1 Owing to the number of years over which Hadrian's third consulship extended, the precise date of many of his coins is more or less conjectural. The dates inserted in square brackets here, and in the case of the corresponding brass or copper pieces, are those given by Laiffranchi, 'Cronologia delle monete di Adriano' in *Rivista Italiana di Numismatica*, 1906, pp. 329–374.

395

NO.	OBVERSE.	REVERSE.	REMARKS.
90	Similar, with bust. [127 A.D.]	COS III Victory standing r., crowning herself. Cohen ² ii. p. 136 f., 358.	Found beneath cobbling of road leading from E. gate.
91	Similar, with head. [127 A.D.]	COS III Abundantia(?) seated l., r. foot on modius. Cf. Cohen ² ii. p. 138, 379.	Found in River-bank Field (O.S. No. 610).
92	Similar.	COS III Abundantia standing l., with acrostolium and cornucopiae; foot upon a modius. Cohen ² ii. p. 138, 381.	Found in the Principia.
93	HADRIANVS AVGVSTVS PP Head r. laureate.	COS III Female figure seated l., raising r. hand. Cf. Cohen ² ii. p. 139, 398.	Found in the Principia.
94	HADRIANVS AVG COS III PP Head r. bare. [134 A.D.?)	FELICITAS AVG Felicitas standing l., with caduceus and olive-branch. Cohen ² ii. p. 159, 614.	Find-spot doubtful.
95	Similar, but head laureate.	FORTVNA AVG Fortuna standing l., with rudder and cornucopiae. Cohen ² ii. p. 171, 762.	Found in the Baths.
96	Similar. [138 A.D.]	Similar; Fortuna holds patera and cornucopiae. Cohen ² ii. p. 171, 775.	Found in the Retentura (Well Meadow = O.S. No. 608), July, 1852. <i>Proc. Soc. Ant. Scot.</i> i. p. 35.
97*	IMP CAESAR TRAIAN HADRIANVS AVG Bust r. laureate. [123 A.D.]	PM TR P COS III Genius sacrificing at altar. Cohen ² ii. p. 197, 1091.	Found in the South Annexe (Fore-ends=O.S. No. 607).
98*	Similar. [122 A.D.]	PM TR P COS III Victory flying r., with trophy. Cohen ² ii. p. 200, 1131.	<i>Proc. Soc. Ant. Scot.</i> i. p. 35.

99	Similar. [122 A.D.]	P M TR P COS III Fortuna l., leaning on column, and holding rudder and cornucopiae. Cohen ² ii. p. 202, 1155.	Found 2' 6" below Via Principalis, opposite S.E. corner of Block XVI.
100	Similar. [121 A.D.]	Similar; no column visible. Cohen ² ii. p. 202, 1157.	Found in the Barracks of the Praetentura.

396

NO.	OBVERSE.	REVERSE.	REMARKS.
101	Similar. [120 A.D.]	P M TR P COS III SAL AVG Salus seated l., feeding serpent twined round altar. Cohen ² ii. p. 216, 1327.	Find-spot doubtful.
102*	HADRIANVS AVG COS III PP Head r. laureate. [133 A.D.]	TELLVS STAB Tellus l., with plough-tail and rake; behind, two stalks of corn. Cohen ² ii. p. 225, 1427.	<i>Proc. Soc. Ant. Scot.</i> i. p. 34.
103	... RAIAN... ANVS AVG Bust r. laureate.	CONCORDIA P R Concordia seated l., with patera and cornucopiae. Not in Cohen.	Found in filling in gateway in the reducing wall.
104	No inscription visible. Head r. laureate.	No inscription visible. Libertas standing l., holding sceptre and cap. Cf. Cohen ² ii. p. 202, 1159.	Found in the Baths.
105	Inscription illegible. Head r. laureate. ¹	Traces of inscription. Victory marching r., with trophy.	Find-spot doubtful.
ANTONINUS PIUS COS III.: 140-143			
106	ANTONINVS AVG PIVS PP TR P COS III Head r. laureate.	GENIO SENATVS Genius of the Senate standing l., with branch and sceptre. Cohen ² ii. p. 309, 399.	Found in the Principia. In very good condition, when lost.
TRIB. POT. XII.: 149 A.D.			
107	ANTONINVS AVG PIVS PP TR P XII Similar.	COS IIII Abundantia standing l., with ears of corn and anchor; in front, modius. Cohen ² ii. p. 299, 284.	Find-spot doubtful.

TRIB. POT. XV.: 152 A.D.			
108	IMP CAES T AEL HADR ANTONINVS AVG PIVS PP Similar.	TR POT XV COS IIII TRANQ Tranquillitas standing r., with rudder and ears of corn. Cohen ² ii. p. 351, 826.	Find-spot doubtful.
1 This identification is not quite certain. The coin is much damaged, and the head may possibly be that of Pius.			

NO.	OBVERSE.	REVERSE.	REMARKS.
TRIB. POT. XVII.: 154 A.D.			
109	ANTONINVS AVG PIVS PP TR P XVII Similar.	LIBERALITAS VII COS IIII Liberalitas standing l., shaking fruit from a cornucopiae. Cf. Cohen ² ii. p. 321, 519.	Found 2' below surface, on N.W. side of fort.
TRIB. POT. XXI.: 158 A.D.			
110	ANTONINVS AVG PIVS PP IMP II Similar.	TR POT XXI COS IIII Roma seated l., holding small Victory in r. Cohen ² ii. p. 369, 1028.	Found 2' or 3' below surface, on E. side of fort.
VOTA DEC. III.: 159-160 A.D.			
111	ANTONINVS AVG PIVS PP Similar.	COS III VOTA SVSCEP DEC III Emperor in sacrificial garb, standing l., holding patera over tripod. Cohen ² ii. p. 378, 1115.	Found 2' or 3' below surface, in tracing foundation of early building beneath Blocks II and III.
FAUSTINA SENIOR STRUCK AFTER THE DEATH OF FAUSTINA IN 141 A.D.			
112	DIVA FAVSTINA Bust r. draped.	AETERNITAS Aeternitas standing l., raising r. hand and holding sceptre. Cohen ² ii. p. 415, 26.	Found 1' 6" below surface, on line of inner ditch of early fort, N.W. side.
113	Similar.	AVGVSTA Ceres standing l., with torch and sceptre. Cohen ² ii. p.421, 96.	Find-spot doubtful.
114	Similar.	Similar, but Ceres raises drapery with l. Cohen ² ii. p. 421, 104.	Found in the South Annexe (Fore-ends O.S. No.607).
115*	Similar.	CONSECRATIO Peacock, walking r. Cohen ² ii. p. 426, 175.	<i>Proc. Soc. Ant. Scot.</i> i. p. 36.

MARCUS AURELIUS**Cos II.: 145–146 A.D.**

116	AVRELIVS CAESAR AVG PII F Head r. bare.	COS II Marcus, wearing toga, standing l., with olive-branch and cornucopiae. Cohen ² iii. p. 13, 110.	Found on N. side of Bath Building, above rampart foundation. In good condition, when lost.
-----	---	--	---

398

NO.	OBVERSE.	REVERSE.	REMARKS.
FAUSTINA JUNIOR			
117	FAVSTINA AVGVSTA Bust r. draped.	CERES Ceres seated l., with ears of corn and torch. Cohen ² iii. p. 139, 35.	Find-spot doubtful. In good condition, when lost.
CRISPINA			
118	CRISPINA AVG Bust r. draped.	DIS GENITALIBVS Lighted altar. Cohen ² iii. p. 383, 15.	Found in the Retentura (Well Meadow O.S. No. 608).

The following summary shows in convenient form how these 113 denarii are distributed:

Republican Period	9
Mark Antony	8
Augustus	1
Tiberius	1
Nero	1
Galba	2
Otho	1
Vitellius	1
Vespasian	22
Titus	2
Domitian	12
Nerva	3
Trajan	15
Hadrian	22
Antoninus Pius	6
Faustina Senior	4
Marcus Aurelius	1
Faustina Junior	1
Crispina	1
	<u>113</u>

It is instructive to compare this list of coins, casually dropped at intervals during the Newstead occupation, with the contents of a hoard discovered in 1909 at Castle Bromwich, near Birmingham.¹ The latest of the Newstead pieces points plainly to the early part of the reign of Commodus as the time when the Roman garrison was finally withdrawn. The denarii of Pius and his consort had evidently been in circulation on the spot for some considerable period. Those of Marcus and his wife had not yet reached Caledonia in any quantity. Commodus himself is represented

1 Fully described by Mr. G. C. Brooke in *Num. Chron.* 1910, pp. 13 ff.

only by Crispina, whom he married in 178 A.D., two years before his accession, and discarded soon after he became emperor. The interest of the comparison with the Castle Bromwich hoard lies in the fact that the latter must have been hidden away almost simultaneously with the close of the Newstead series. Whether its concealment was connected with the disturbances that culminated in the abandonment of Southern Scotland, it is impossible to say.¹ Including, however, 18 pieces struck in copper and washed in silver, it consisted of 194 denarii, the latest being one of Commodus, dated 177 A.D. Its composition was as follows:

Mark Antony	1
Vespasian	23
Titus	3
Domitian	7
Nerva	3
Trajan	34
Hadrian	48
Sabina	2
Antoninus Pius	30
Faustina Senior	10
Marcus Aurelius	21
Faustina Junior	10
Lucius Verus	1
Commodus	1
Total,	194

This may fairly be taken as typical of the normal silver currency of the province of Britain about 150 A.D. The contrast with the Newstead list is striking. Vespasian is the first emperor who appears, while the percentage of pre-Trajanic to later issues is just over 19 as compared with almost 56. Again, the Castle Bromwich pieces were) for the most part, in poor condition; the earlier ones) in particular, were worn through usage. At Newstead, on the other hand, some of the denarii of the Flavian Emperors had seen but little service; quite a large proportion are noted as having been in 'very good' or in 'good' condition, when lost—descriptions which may be roughly regarded as indicating that the Coins to which they are applied had not been in active circulation for more than, say, ten and twenty-five years respectively. The numismatic evidence would thus seem to be convincing as to a first-century occupation of the site. It may even throw some light on the question of how long this occupation lasted. That it did not end with the recall of Agricola in 86 A.D. is tolerably plain. The whole of the 'good' or 'very good' coins of Domitian are subsequent to that year. Furthermore, one of the 3 coins of Nerva ranks as 'good,' while of the 15 struck by Trajan there are as many as three which

¹ A much smaller hoard, which must have been buried about the same time, or possibly a few years earlier, was recently discovered at Nottingham (*Num. Chron.* 1910, pp. 205 f.).

are 'good' and one which is 'very good.' The last one, at least, must have been dropped before the Antonine period. This particular piece (No. 78) was minted in Trajan's fifth consulship—that is, between 104 and 111 A. D.—and was therefore probably lost towards the end of his reign or about the beginning of the reign of his successor. It looks as if the abandonment of Newstead might have coincided with the building of Hadrian's Wall. The thread of argument is, of course, a slender one. But it is certainly not weakened by the circumstance that of the 15 denarii of Hadrian which it was possible to examine personally, there were only two which called for remark as having been obviously in 'good' condition when lost. [1] This rather suggests that the Hadrian coins were dropped during the reign of Pius, and that during Hadrian's own reign the fort had been deserted.

Such are the conclusions to which a scrutiny of the denarii seems to point. It remains to see how far they are confirmed or contradicted by the testimony of the brass or copper. The condition of the latter is often so poor that it is not possible either to date them or to express any opinion as to the amount of usage to which they had been subjected before they were dropped. It is therefore hardly worth while attempting a detailed chronological arrangement; it will be sufficient to note such dates as are definitely ascertainable. As far as may be, the following list reproduces Cohen's order

BRASS OR COPPER

NO.	OBVERSE.	REVERSE.	REMARKS.
AUGUSTUS			
119*	Undescribed.	Undescribed.	'Second brass.' <i>Proc. Soc. Ant. Scot.</i> i. p. 34. This is perhaps a doubtful entry. ²
NERO			
120	Bust l. laureate.	SC Victory flying l., holding shield inscribed S P Q R. Cf. Cohen ² i. p. 298 f., 288ff	'Second brass.' Find-spot doubtful.
121	Similar.	SC Triumphal arch. Cohen ² i. p. 299, 306.	'First brass.' Found in the Baths.

1 Others, of course, may have been so, although the evidence of it was not apparent.

2 No detailed description is given. It may have been a coin of Hadrian, on which only AVGVSTVS was legible.

NO.	OBVERSE.	REVERSE.	REMARKS.
VESPASIAN			
122	IMP CAESAR VESPASIAN AVG Head r. laureate.	AEQVITAS AVGVSTI SC Aequitas standing l., with scales and spear. Cf. Cohen ² i. p. 369, 12ff	'Second brass.' Find-spot doubtful.
123	Similar; beneath head, globe.	FIDES PVBLICA SC Fides standing l., with patera and cornucopiae. Cf. Cohen ² i. p. 380, 165ff	'Second brass.' Found in the River-bank Field (O.S. No. 610).
124	Similar.	Similar.	'Second brass.' Find-spot doubtful.
125	IMP CAESAR VESPASIAN AVG COS IIII Head r. radiate.	FORTVNAE REDVCI SO Fortuna standing l., with olive branch, rudder, and cornucopiae. Cohen ² i. p. 382, 195.	'Second brass,' 72 or 73 A.D. Found in black deposit of ditch of early fort.
126	IMP CAESAR VESPASIAN AVG COS VIII PP Head r. radiate. ¹	FORTVNAE REDVCI SC Fortuna standing l., with rudder and corilucopiae. Cohen ² i. p. 382, 198.	'Second brass,' 77 or 78 A.D. Found in the Retentura (Well Meadow=O.S. No.608).
127	Similar; but head laureate.	Similar. Cohen ² i. p. 382, 199.	'Second brass,' 77 or 78 A.D. Find-spot doubtful.
128	Similar; but nothing after COS legible.	Similar.	'Second brass.' Find-spot doubtful.
129	Similar; but even fewer letters visible.	Similar.	'Second brass.' Found in the River-bank Field (=O.S. No. 610).
130	IMP CAESAR VESPASIAN AVG COS IIII Bust r. radiate.	PAX AVG SC Pax standing l., holding caduceus and extending patera over altar. Cohen ² i. p. 390, 301.	'Second brass,' 72 or 73 A.D. Find-spot doubtful.
131	Similar; number of consulship uncertain.	Similar.	'Second brass.' Find-spot doubtful.
132	IMP CAESAR VESPASIAN AVG CO.... Head r. laureate.	PROVIDENT SC Altar. Cf. Cohen ² i. p. 397, 396.	'Second brass.' Found in black deposit of ditch of early fort, S. side.
133	IMP CAESAR VESPASIAN AVG COS VIII PP Similar.	Similar. Cohen ² i. p. 398, 400.	'Second brass,' 77 or 78 A.D. Find-spot doubtful.

1 The condition of the coin renders it impossible to say whether there has been a globe beneath. The same is true of others.

NO.	OBVERSE.	REVERSE.	REMARKS.
134	IMP CAES VESPASIAN AVG PM TR P PP COS III Head r. laureate.	ROMA SC Roma standing l., holding Victory on globe and leaning on spear. Cohen ² i. p. 399, 419.	'First brass,' 71 A.D. Find-spot doubtful.
135	IMP CAES VESPASIAN AVG COS VIII PP Bust r. radiate; beneath, globe.	SC Victory advancing l., holding shield inscribed S P Q R Cohen ² i. p. 403, 466.	'Second brass,' 77 or 78 A.D. Find-spot doubtful.
136	IMP CAESAR VESPASIAN AVG COS III Head r. laureate.	SC Eagle standing to front on globe; wings open; bead r. Cohen ² i. p. 404, 480.	'Second brass,' 71 A.D. Find- spot doubtful.
137	Similar, with COS IIII.	Similar. Cohen ² i. p. 405, 481.	'Second brass,' 72 or 73 A.D. Find-spot doubtful.
138	Similar; inscription less certain.	Similar.	'Second brass.' Found in bottom of ditch of early fort, S. side.
139	Similar.	Similar.	'Second brass.' Found in the Principia.
140	Similar.	Similar.	'Second brass.' Found in tracing foundation of early building beneath Blocks II and III in the Praetentura, S.E. corner, near surface.
141	IMP CAES VESPASIAN AVG COS VIII PP Head r. laureate; beneath, globe.	Similar; but head l. Cohen ² i. p. 405, 483.	'Second brass,' 72 or 73 A.D. Find-spot doubtful.
142	Traces of inscription. Head r. laureate.	VICTORIA AVGVSTI SC Victory marching l., with wreath and palm. Cf. Cohen ² i. p. 415, 607 ff	'Second brass.' Find-spot doubtful.
143	Similar.	Similar.	'Second brass.' Found in the Well Meadow (O.S. No. 608).
144	Similar.	Similar.	'Second brass.' Found in the River-bank Field (O.S. No. 610).
145	Inscription only partly visible. Head r. laureate.	Indecipherable.	'Second brass.' Find-spot doubtful.
146	Similar.	Indecipherable.	'Second brass.' Found in the Baths.

NO.	OBVERSE.	REVERSE.	REMARKS.
147	Similar.	Indecipherable.	'Second brass.' Found in the Baths.
148	No letters legible. Similar.	Indecipherable.	'Second brass.' Found in E. end of Principia, on level of old walls, 4' down.
149	Similar.	Indecipherable.	'Second brass.' Found in the Pit in the Principia (No.1).
TITUS			
150	IMP T CAES VESP AVG PM TR P PP COS VIII Head r. laureate.	ANNONA AVG SC Abundantia standing l., with statuette of Aequitas and cornucopiae; in front, basket with ears of corn; behind, forepart of vessel, decked with wreaths. Cohen ² i. p. 430, 14.	'First brass,' 80 A.D. Find-spot doubtful.
151	T CAES IMP AVG F TR P COS VI CENSOR Head r. laureate.	FIDES PVBLICA SC Fides standing l., with patera and cornucopiae. Cohen ² i. p. 436, 88.	'Second brass,' 77 or 78 A.D. Find-spot doubtful.
152	Similar to No.150; but number of consulship doubtful.	PAX AVGVST SC Pax standing l., with olive-branch and cornucopiae. Cf. Cohen ² i. p. 441, 139f.	'First brass.' Found in the Riverbank Field (O.S. No. 610).
153	T CAES IMP AVG F PON TR P COS VI CENSOR Head r. laureate.	ROMA SC Roma standing l., holding small Victory. Cohen ² i. p. 445, 184.	'First brass,' 77 or 78 AD. Find-spot doubtful.
154	Similar.	Similar.	'First brass,' 77 or 78 A.1). Found in clay of rampart, above ditch of early fort.
155	Similar to No. 151; but beneath, globe.	SECVRITAS AVGVSTI SC Securitas, seated r., supporting head on r. hand, and holding sceptre in l.; in front, altar. Cohen ² i. p. 451, 260.	'Second brass,' 77 or 78 A.D. Find-spot doubtful.
156	Similar.	Similar; almost obliterated.	'Second brass,' 77 or 78 A.D. Found in the Principia.
157	Inscription illegible. Head r. laureate.	Similar; but somewhat better preserved.	'Second brass.' Find-spot doubtful.

NO.	OBVERSE.	REVERSE.	REMARKS.
158	Similar.	Indecipherable.	'First brass.' Found, adhering to denarius of Tiberius, in N. half of building on W. side of Via Quintana.
159	Similar.	Indecipherable.	'Second brass.' Find-spot doubtful.
DOMITIAN			
160	IMP CAES DOMIT AVG GERM COS XIII CENS PER PP Head r. laureate.	FIDEI PVBLICAE SC Fides standing r., with poppy-head, ears of corn, and basket of fruit. Cohen ² i. p. 481, 113.	'Second brass,' 87 A.D. Found in inner ditch, E. side of S. Annexe, covered with yellow clay from ditch bottom.
161	Similar; but only . . . RM COS . . . visible.	Similar. Cf. Cohen ² i. p. 481, 106ff.	'Second brass.' Found in the Retentura (Well Meadow = O.S. No. 608).
162	IMP CAES DOMITAVG GERM COS XI CENS POT PP Bust r. radiate.	FORTVNAE AVGVSTI SC Fortuna standing l., with rudder and cornucopiae. Cohen ² i. p. 481, 121.	'Second brass,' 85 A.D. Found in Pit LXXIX.
163	IMP CAES DOMIT AVG GERM COS XII CENS PER PP Head r. laureate.	Similar. Cohen ² i. p. 481, 122.	'Second brass,' 86 A.D. Found in black deposit of ditch of early fort. Almost in mint condition, when lost.
164	IMP CAES DOMIT AVG GERM COS XIII CENS PER PP Bust r. radiate, with aegis.	Similar. Cohen ² i. p. 481, 127.	'Second brass,' 87 A.D. Find-spot doubtful.
165	IMP CAES DOMIT AVG.... Head r. laureate.	Similar. Cf. Cohen ² i. p. 481, 118ff.	'Second brass.' Found in the Retentura (Well Meadow = O.S. No. 608).
166	IMP CAES DOMIT AVG GERM COS. . CENS. PP Head r. laureate.	IOVI VICTORI SC Jupiter enthroned l., holding small Victory in r. Cf. Cohen ² i. p. 497, 307 ff.	First brass,' 85–95 A.D. Found in the Baths, E. end.
167	Similar; no letters visible.	Similar.	First brass,' 85–95 A.D. Find-spot doubtful.
168	Similar.	Similar.	'First brass, 85–95 A.D. Found in the South Annexe (Fore-ends = O.S. No. 607).
169	IMP CAES DOMIT AVG GERM COS XI CENS POT PP Bust r. laureate, with aegis.	MONETA AVGVSTI SC Moneta standing l., with scales and cornucopiae. Cohen ² i. p. 499, 326.	'Second brass,' 85 A.D. Find-spot doubtful.

NO.	OBVERSE.	REVERSE.	REMARKS.
170	IMP CAES DOMIT AVG GERM COS XII CENS PER PP Similar.	Similar. Cohen ² i. p. 499, 327.	'Second brass,' 86 A.D. Found in inner ditch of early fort, W. side. Almost in mint condition, when lost.
171	Similar.	Similar.	'Second brass,' 86 A.D. Found in the River-bank Field (O.S. No. 610).
172	Similar; but only . . . CENS PER . . . legible.	Similar. Cf. Cohen ² i. p. 499, 327 ff.	'Second brass,' 86–95 A.D. Find-spot doubtful.
173	IMP CAES DOMITAVG GERM COS XI... Similar.	Similar. Cf. Cohen ² i. p. 499, 325 ff	'Second brass,' 85–89 A.D. Found in the River-bank Field (O.S. No. 610).
174	No inscription visible. Similar.	Similar.	'Second brass.' Find-spot doubtful.
175	Inscription illegible. Head r. laureate.	SC Mars running r., holding small Victory, parazonium and trophy. Cf. Cohen ² i. 507, 430ff.	'Second brass,' 84–87 A.D. Find-spot doubtful.
176	CAES DIVI AVG VESP F DOMITIANVS COS VII Head r. laureate.	SC Athena armed r. Cohen ² i. p. 507, 439.	'First brass,' 79 A.D. Find-spot doubtful.
177	Inscription illegible. Head r. laureate.	SC Hope standing l., holding flower and raising skirt. Cf. Cohen ² i. p. 508, 448 ff.	'Second brass,' 74–81 A.D. Find-spot doubtful.
178	Similar.	Similar.	'Second brass,' 74–81 A.D. Found in the Retentura (Well Meadow=O.S. No. 608).
179	Similar.	Similar.	'Second brass,' 74–81 A.D. Found in the River-bank Field (O.S. No 610).
180	IMP CAES DOMITIAN AVG GERM COS X Head r. radiate.	VIRTVTI AVGVSTI SC Virtus standing l., with spear and parazonium. Cohen ² i. p. 523, 646.	'Second brass,' 84 A.D. Found in the River-bank Field (O.S. No. 610).
181	Similar; only . . . MITA legible.	Similar.	'Second brass,' 84 A.D. Find-spot doubtful.
182	Head r. laureate.	Indecipherable.	'Second brass.' Find-spot doubtful.
183	Similar.	Indecipherable.	'Second brass.' Find-spot doubtful.
184	Similar.	Indecipherable.	'Second brass.' Found in block of buildings to W. of the Baths.

NO.	OBVERSE.	REVERSE.	REMARKS.
UNCERTAIN FLAVIAN EMPERORS			
185	Head of Vespasian or Titus radiate.	Indecipherable.	'Second brass.' Found in Pit LVIII (River-bank Field=0.S. No. 610).
186	Head of Titus or Domitian r. laureate.	Indecipherable.	'Second brass.' Found in black deposit of ditch of early fort.
NERVA			
187	Head r. laureate.	Indecipherable.	'First brass.' Found in the River-bank Field (0.S. No. 610).
TRAJAN			
188	IMP CAES NER TRAIANO OPTIMO AVG GER DAC PARTHICO PM TR P COS VI PP Bust r. laureate.	ARMENIA ET MESOPOTAMIA IN POTESTATEM P R RIEDACTAE SC Trajan, armed, standing r. between river-gods Tigris and Euphrates, planting his foot on neck of captive Armenia. Cohen ² ii. p. 27, 39.	'First brass,' 116 AD. Find-spot doubtful.
189	IMP CAES NERVAE TRAIANO AVG GER DAC PM TR P COS VI PP Bust r. laureate.	FELICITAS AVGVST SC Female figure standing l., details indecipherable. Cohen ² ii. P. 33, 143.	'First brass,' 112–117 A.D. Found in the Baths.
190	IMP CAES NER TRAIANO OPTIMO AVG GER DAC PARTHICO PM TR P COS VI PP Bust r. radiate.	SENATVS POPVLVSQVE ROMANVS SC Trajan, in military dress, advancing r. between two trophies. Cohen ² ii. p. 55, 356.	'Second brass,' 116 A.D. Find-spot doubtful.
191	Similar to No. 188, but with COS V	SPQR OPTIMO PRINCIPI SC Roma standing l., holding small figure of Victory. Cohen ² ii. p. 58, 383.	'First brass,' 104–110 A.D. Found in the Baths, adhering to another 'first brass' of Trajan, one of Hadrian, and an uncertain 'second brass.'
192	Similar.	Similar. Cohen ² ii. p. 58, 383.	'First brass,' 104–110 A.D. Find-spot doubtful.
193	Similar.	SPQR OPTIMO PRINCIPI SC Similar, but Roma seated on pile of arms. Cohen ² ii. p. 59, 391.	'First brass,' 104–110 A.D. Found in the Baths, on floor of Frigidarium.

NO.	OBVERSE.	REVERSE.	REMARKS.
194	Similar.	SPQR OPTIMO PRINCIPI SC Pax standing l., with olive-branch and cornucopiae; r. foot on neck of captive. Cohen ² ii. p. 60, 406.	'First brass,' 104–110 A.D. Find-spot doubtful.
195	Similar.	SPQR OPTIMO PRINCIPI SC Victory l., crowning trophy. Cohen ² ii. p. 64, 446.	'Second brass,' 104–110 A.D. Found in the South Annexe (Fore-ends = O.S. No. 607).
196	Similar.	SPQR OPTIMO PRINCIPI SC Victory r., fastening shield to tree. Cohen ² ii. p. 64, 452.	'First brass,' 104–110 A.D. Find-spot doubtful.
197	Similar.	SPQR OPTIMO PRINCIPI SC Hope standing l., holding flower and raising skirt. Cohen ² ii. p. 64, 459.	'First brass,' 104–110 A.D. Find-spot doubtful.
198	Similar.	SPQR OPTIMO PRINCIPI SC Female figure standing l., holding scales (?) and cornucopiae. Cf. Cohen ² ii. p. 65, 463.	'First brass,' 104–110 A.D. Found in the Retentura (Well Meadow = O.S. No. 608).
199	Similar.	SPQR OPTIMO PRINCIPI SC Trajan on horseback r., spearing prostrate foe. Cohen ² ii. p. 69, 503.	'First brass,' 104–110 A.D. Find-spot doubtful.
200	Similar.	SPQR OPTIMO PRINCIPI SC Octastyle temple, with statue of divinity. Cohen ² ii. p. 75, 553.	'Second brass,' 104–110 A.D. Find-spot doubtful.
201	.... TRAIANO AVG GER DA... Similar type.	Inscription illegible. Female figure seated l., r. arm outstretched.	'First brass.' Found in tracing older building, S. of Principia.
202	.... AIANO AVG GIER DAC PM TR P C.... Similar type.	Inscription illegible. Female figure seated l., with patera (?) and cornucopiae; no back to seat.	'First brass.' Found in the Baths.
203	....NO AVG GER DAC... Similar type.	Worn smooth.	'First brass.' Found in Pit XCV.

NO.	OBVERSE.	REVERSE.	REMARKS.
204	IM... ES TRAIAN AVG... Head r. laureate.	Indecipherable.	'First brass.' Find-spot doubtful.
205	.....IAN..... Bust r. laureate.	Indecipherable.	'First brass.' Find-spot doubtful.
206	.....ANO AVG GER DAC.... Similar.	Not visible.	'First brass.' Found in the Baths. One of a group of four, adhering; see No. 191.
207	IMP CAES NERVAE TR Similar.	Indecipherable.	'Second brass.' Found in filling of inner ditch, W. Annexe.
208	Inscription illegible. Similar type.	Indecipherable.	'First brass.' Found in the Baths.
209	Similar.	Indecipherable.	'First brass.' Found in the Baths.
210	Similar.	Indecipherable.	'First brass.' Find-spot doubtful.
211	Similar.	Indecipherable.	'First brass.' Find-spot doubtful.
212	Similar.	Indecipherable.	'Second brass.' Find-spot doubtful.
213*	Undescribed.	Undescribed.	'Second brass.' <i>Proc. Soc. Ant. Scot.</i> i. p. 34.
HADRIAN			
214	IMP CAESAR TRAIANVS HADRIANVS AVG Bust r. laureate.	PONT MAX TR POT COS III BRITANNIA SC Britannia seated facing, head r. Cohen ² ii. p. 121, 197.	'Second brass' [119 A.D.]. [1] Found in inner court of Principia, 2' down.
215	Similar.	Similar. Cohen ² ii. p. 121, 197.	'Second brass' [119 A.D.]. Find-spot doubtful.
216	HADRIANVS AVGVSTVS Bust r. laureate.	COS III SC Diana standing to front, with arrow and bow. Cohen ² ii. p.133, 316.	'First brass' [126 A.D.]. Found in the 'Exercier-Halle.'
217*	HADRIANVS AVGVSTVS Head r. laureate.	COS III SC Galley. Cohen ² ii. p. 144, 446 or 449.	'Second brass' [125 A.D.]. <i>Proc. Soc. Ant. Scot.</i> i. p. 35.

1 On these dates see *supra*, p. 395, footnote.

NO.	OBVERSE.	REVERSE.	REMARKS.
218	HADRIANVS AVGVSTVS Bust r. laureate.	COS III PP SC Roma standing r., with spear and cornucopiae. Cf. Cohen ² ii. p. 147, 485.	'Second brass.' Find-spot doubtful.
219	IMP CAESAR TRAIAN HADRIANVS AVG PM TR P COS III Bust r. radiate.	FELICITAS AVGVSTI SC Felicitas standing l., with caduceus and cornucopiae. Cohen ² ii. p. 161, 642.	'Second brass' [122 A.D.]. Find-spot doubtful.
220	IMP CAESAR TRAIANVS HADRIANVS AVG Bust r. laureate.	PONT MAX TR POT COS... FORT RED SC Fortuna seated l., with rudder and cornucopiae. Cf. Cohen ² ii. p. 170, 756 ff	'First brass' [117–119 A.D.]. Find-spot doubtful.
221	Similar. Head r. radiate.	Similar. Cf. Cohen ² ii. p. 570, 757 ff	'Second brass' [117–119 A.D.]. Find-spot doubtful.
222	HADRIANVS AVGVSTVS Head r. bare.	COS III PP IVSTITIA AVG SC Justitia enthroned l., with patera and sceptre. Cohen ² ii. p. 180, 886.	'Second brass' [128 A.D.]. Find-spot doubtful.
223	Similar; but bust r. laureate.	Similar. Cohen ² ii. p. 180, 889.	'First brass' [128 or 129 A.D.]. Found on floor of Block XIV.
224	IMP CAESAR TRAIANVS HADRIANVS AVG PM TR P COS III Bust r. laureate.	LIBERTAS PVBLICA SC Libertas seated l., with laurel- branch and sceptre. Cohen ² ii. p. 584, 948.	'First brass' [121 A.D.]. Find- spot doubtful.
225	IMP CAESAR TRAIANVS HADRIANVS AVG PM TR P COS III Head r. laureate.	LOCVPLETATORI ORBIS TERRARVM SC Hadrian seated l. on raised platform; in front of him, Liberalitas pouring wealth out of cornucopiae; in front of platform, two men standing r., the foremost holding up robe to receive benefits. Cohen ² ii. p. 185, 950.	'First brass' [121 A.D.]. Found 2' below surface in trenching area of Praetentura, E. side of fort.
226	Similar; but bust.	MONETA AVGVSTI SC Moneta standing l., with scales and cornucopiae. Cohen ² ii. p. 186, 97	'First brass' [121 A.D.]. Find- spot doubtful.
227	Similar.	RESTITVTORI ORBIS TERRARVM SC Hadrian standing l., raising with r. hand kneeling female figure, who grasps globe; roll in his l. hand. Cohen ² ii. p. 213f, 1285.	'First brass' [121 A.D.] Found in the South Annexe (Fore- ends=O.S. No.607).

NO.	OBVERSE.	REVERSE.	REMARKS.
228	HADRIANVS AVG COS III PP Bust r. laureate.	RESTITVTORI PHRYGIAE SC Hadrian standing l., raising with r. hand kneeling figure of Phrygia. Cohen ² ii. p. 214, 1286.	'First brass' [136 A.D.]. Find- spot doubtful.
229	Inscription illegible. Head r. laureate.	SALVS AVG SC Salus standing l.; in front, altar. Cf. Cohen ² ii. p. 217, 1338.	'Second brass.' Find-spot doubtful.
230	Similar.	..... SC Virtus (?) standing r. Cf. Cohen ² ii. p. 228.	'Second brass.' Found in the Retentura (Well Meadow=O.S. No. 608).
231	Similar, but bust.	Inscription illegible. Roma (?) standing l.	'Second brass.' Find-spot doubtful.
232	.... TRAIANVS HADRIAN... Bust r. laureate.	Female figure (Concordia?), enthroned, holding patera.	'First brass.' Found, near surface, in tracing foundation of early building beneath Blocks II and III.
233	RIANVS A.... Head r. laureate.	Indecipherable.	'First brass.' Found in Pit I (Principia) 12' down.
234	.... VS Bust r. laureate.	Indecipherable.	'First brass.' Found in the Baths, one of group adhering; see No. 191.
235*	Similar.	Female figure standing l. SC	'First brass.' Found about 1862. <i>Proc. Soc. Ant. Scot.</i> v. p. 341 and p. 362.
236*	Undescribed.	Undescribed.	'Second brass.' Found about 1862. <i>Proc. Soc. Ant. Scot.</i> V. p. 342 and p. 362.
237	Inscription illegible. Head r. laureate.	Indecipherable.	'Second brass.' Find-spot doubtful.
238	Similar.	Indecipherable.	Second brass.' Find-spot doubtful.
239	Similar.	Indecipherable.	'Second brass.' A fragment. Find-spot doubtful.
240	Similar.	Indecipherable.	'Second brass.' Edges gone. Find-spot doubtful.
SABINA			
241	SABINA AVGVSTA HADRIANI AVG PP Bust r., with stephane.	VESTA SC Vesta, enthroned l., with sceptre and palladium. Cohen ² ii. p. 254, 82.	'First brass' [132 A.D.]. Found in the Baths, in the Tepidarium.

NO.	OBVERSE.	REVERSE.	REMARKS.
242	Similar.	Indecipherable.	'Second brass.' Found in the River-bank Field (O.S. No.610).
ANTONINUS PIUS			
243	ANTONINVS AVG PIVS PP TR P X... Bust r. laureate.	COS IIII FIDES EXERC SC Fides standing l., with vexillum in either hand. Cf. Cohen ² ii. p. 307, 376 f.	'First brass,' 155 or 156 A.D. Find-spot doubtful.
244	ANTONINVS AVG PIVS PP TR P XVII Head r. radiate.	COS IIII LIBERTAS SC Libertas standing l., with cap of Liberty and sceptre. Cohen ² ii. p. 323, 539.	'Second brass,' 154 A.D. Found in E. Annexe.
245	Similar, with XVIII	Similar. Cohen ² ii. p. 323, 541.	'Second brass,' 155 A.D. Found, 4' down, on top of early foundation, in tracing line of early building beneath Blocks II and III, near S.E. corner of fort.
246	ANTONINVS AVG PIVS TR P COS III Head r. laureate.	PP SALVS PVBLICA SC Salus, seated l., feeding serpent twined round altar. Cohen ² ii. p. 343, 739.	'First brass,' 140–143 A.D. Found, 2' or 3' down, on E. side of fort.
247	ANTONINVS AVG PIVS IMP II Similar type.	PP TR POT XXI COS IIII SC Fortuna standing l., with patera, cornucopiae, and rudder. Cohen ² ii. p. 369 f., 1033.	'First brass,' 158 A.D. Find-spot doubtful.
248	Inscription illegible. Head r. radiate..... SC	Female figure standing l., attributes doubtful.	'Second brass.' Find-spot doubtful.
249	Inscription illegible. Head r. laureate.	Indecipherable.	'Second brass.' Found in the River-bank Field (O.S. No. 610).
FAUSTINA SENIOR			
250	DIVA FAVSTINA Bust r. draped.	AETERNITAS SC Aeternitas veiled, standing l., raising r. hand. Cohen ² ii. p. 415, 29.	'Second brass.' Find-spot doubtful.

NO.	OBVERSE.	REVERSE.	REMARKS.
251	Similar.	Similar. Cohen ² ii. p. 415, 29.	'Second brass.' Found in Block XIII.
252	Similar.	CONSECRATIO SC Vesta standing l., with torch, holding patera over altar. Cohen ² ii. p. 425, 162.	'First brass.' Found in S. Annexe, in field to S. of Railway (O.S. No. 554), near the surface.
253	Similar.	PIETAS AVG SC Pietas standing l. at altar. Cohen ² ii. p. 432, 250.	'Second brass.' Find-spot doubtful.
254	Similar.	Inscription illegible. Female figure standing l., attributes doubtful.	'Second brass.' Find-spot doubtful.
255	Similar.	Indecipherable.	'Second brass.' Found in filling of inner ditch of W. Annexe, where it cuts across the Baths. The depth suggested that it had been dropped in the filling.
MARCUS AURELIUS			
256	AVRELIVS CAESAR AVG PII FIL Youthful bust r., bare-headed.	TR POT VIII COS II SC Athena, armed, standing l., holding owl in r. hand. Cohen ² iii. p. 66, 667.	'Second brass,' 154 A.D. Find-spot doubtful.
257	Similar.	TR POT VIII COS II SC Similar type, but Athena holds small Victory. Cohen ² iii. p. 67, 678.	'First brass,' 155 A.D. Found in inner court of Principia, on level of gutter of last occupation.
FAUSTINA JUNIOR			
258	FAVSTINA AVG PII AVG FIL Bust r. draped.	FELICITAS SC Felicitas standing l., with caduceus. Cohen ² iii. p. 145, 108.	'Second brass.' Find-spot doubtful.
259	DIVA FAVSTINA PIA Bust r. draped; hair waved.	SC Crescent, with horns upwards, surrounded by seven stars. Cohen ² iii. p. 153, 213.	'Second brass.' Found in the Retentura (Well Meadow = O.S. No. 608), in trench cut to find N. end of Barracks.
260	Inscription illegible. Bust r. draped.	Indecipherable.	'Second brass.' Edges gone. Find-spot doubtful.

The distribution of the brass or copper pieces among the various emperors and empresses is as follows:

		'First Brass.'		'Second Brass.'	
Augustus (?)	–		+ 1	=	1
Nero	1		+ 1	=	2
Vespasian	1		+ 27	=	28
Titus	5		+ 5	=	10
Domitian	4		+ 21	=	25
Uncertain Flavian	–		+ 2	=	2
Nerva	1		+ –	=	1
Trajan	20		+ 6	=	26
Hadrian	12		+ 15	=	27
Sabina	1		+ 1	=	2
Antoninus Pius	3		+ 4	=	7
Faustina Senior	1		+ 5	=	6
Marcus Aurelius	1		+ 1	=	2
Faustina Junior	–		+ 3	=	3
Totals,	50		+ 92	=	142

Hoards of early Imperial brass or copper are rare, but there is fortunately one available which was discovered at Croydon in 1905, and which must have been buried about 180 A.D.¹ Here is a summary of its contents so far as they could be identified:²

Claudius	1
Nero	1
Vespasian	14
Titus	1
Domitian	17
Nerva	10
Trajan	83
Hadrian	46
Antoninus Pius	47
Faustina Senior	12
Marcus Aurelius	13
Faustina Junior	20
Total,	267

It will be seen at a glance that the comparison fully bears out the evidence of the silver; The percentage of pre-Trajanic to later issues is about 49 at Newstead and only 16.5 at Croydon. It will be remembered that, in the case of the silver, the corresponding figures were 56 and 19. The difference between 49 and 56 is due to

1 Described by Mr. F. A. Walters in *Num. Chron.* 1907, pp. 353 ff.

2 Thirteen specimens were too corroded to be recognisable.

the prolonged period during which denari remained in circulation—a phenomenon which has no analogy in the inferior metals. When allowance is made for this, the closeness with which the two sets of percentages approximate is remarkable. There can be no doubt as to many of the Newstead brass or copper pieces having been lost during the occupation that began in the Flavian period. Those struck under Domitian call for more particular notice. They number 25 in all, and as many as 19 of the 25 can be approximately dated. If we keep the lesson of Haltern and Hofheim in mind,¹ it will appear extremely significant that 15 out of the 19 were minted in 84 A.D. or subsequent years. Either Newstead continued to be held after Agricola was recalled in 86, or the great majority of the 'first' and 'second brass' coins of Domitian were not dropped until the Antonine period. The proportion which the Domitians bear to the whole—17 per cent., as against only 6 at Croydon—makes the latter explanation extremely improbable. And the improbability will seem greater, if it be noted that two 'second brass' pieces issued in 86 A.D. (Nos. 163 and 170) were 'almost in mint condition,' when lost. The testimony of the brass or copper is therefore all in favour of the first-century occupation having been prolonged into the reign of Trajan.

1 See above, p. 387.

INDEX

- Actarius*, 56.
 Adamklissi, *caligae* on the monument of 150.
Aerarium. *See* Treasure Vault.
 Aesica, fort of granary at, 60; commandant's quarters at, 63; altar found at, 72; baths at, 88; armour scales found at, 160.
 Agricola, Newstead occupied during the campaign of 7; the line of advance of, 8; his skill in fortification, 25; the composition of his force, 73; invasion of 343; no permanent conquest by, 344.
 Aisne, Caesar's camp on the, use of the clavícula at, 26.
Ala Augusta Vocontiorum, 75, 141.
Ala quingenaria, strength of an, 75.
 Albanus of the Asturian *Ala*, phalerae on the harness on the gravestone of 299.
ALBUCIANUS, pottery of at Birrens, 270.
 Alesia, ditches at, 23; stirrup found at, 280; bridlebit found at, 296.
 Alexander II., charter by King, 14.
 Algeria, penannular brooches worn in, 327.
 Aljustrel, Spain, prices for admission to a bath from a tablet at, 102 (1).
 Allen, Mr. Romilly, on the penannular type of brooch, 327.
 Allius, C., phalerae on the tombstone of 176.
 Almond, River, pits in its bank, 105.
 Altars from Newstead, 140.
 Amber bead, 337.
 Amboglanna, fort of Dacian swords on tablet from, 184. *See also* Birdoswald.
 Amphorae, contents of 268; stamps on, 269.
 Andernach, Cemetery of; pottery of La Graufesenque at, 193; type of fibula occurring in the, 325.
 Anderson, Dr. Joseph, on weaving in the brochs, 290.
 Animals, 110.
 Animal remains, Appendix II., Equidae, 362; Bovidae: Sheep and goats, 371; oxen, 374; other animals and birds, 376. Appendix III., Canidae, 378.
 Annexes, 86.
 Anthée, Villa of ornament on fibula from, 336.
 Antlers of red deer employed for shafts and picks, 314; carved discs made from, 314.
 Antoninus Pius, coins of found, 341; Appendix V., gold, 386; silver, 397; brass, 412.
 Antony, Mark, legionary denarii of 341; Appendix V., 388.
 Anvil, the mowers', 284; small, 186.
 Apollo, altar to, 143.
 Aquincum, inscription at, 55.
 Archers on Trajan column, 160.
 Arch stones, 145.
 Ardoch, fort of complicated entrance at, 20; more than one occupation of 78; pits at, 105; pottery of two periods at, 271.
 Arezzo, pottery of 191; the Krater form at, 201.
 Arles, wall of 36.
 Arlon, tombstone at, 88; wheeled vehicles on monuments at, 294; harness, 295.
Armamentaria, 56.
 Armlets of glass, fragments of, 337.
 Armour, 155. *See* Lorica.
 Arras, Yorkshire, Late Celtic linch pins from grave at, 315.
 Arrian, ΤΕΧΝΗ ΤΑΚΤΙΚΗ of, cited, 172.
 Arrow-points, 189.
 Ass, remains of the, 374.
 Ateius, pottery of 192.
 Atticus Dometius, name of on phalerae, 174.
 Auchendavy, fort of altars dedicated by a centurion at, 74 (1).
 Augsburg, helmet from, 166.
 Augustus, coins of found, 341; Appendix V., silver, 388; brass, 401.
 Aurelius, Marcus, coins of found, 341; Appendix V., silver, 398; brass, 413.
 Auvergne, potteries of the Arverni in, 193.
 Auxiliary, arms of the, 184.
AVENTINUS, fragment of bowl of terra sigillata by, 226. *See also* Potters, list of marks

- Avignon, Gaulish shield on relief found at, 183; bronze vessels from Apt at, 273.
- Awl, 281.
- Axes, pioneers', 278, 283.
- Aylesford, fibula from, 321.
- Backworth, Northumberland, fibulae from, 322; gold chain from, 334.
- Badger, remains of the, 110, 376.
- Balfour, Mr. Henry, note on steering oar, 313.
- Ballista balls, 146; bolts, 189.
- Ballistarium*, inscription at Bremenium referring to a, 77.
- Balmaclellan, design on mirror from, 303.
- Balneum*, 89.
- Balteus*, 162.
- Banassac, pottery of; 193; two-handled cup from, 199.
- Barbotine decoration, cups of terra sigillata with, 198; beakers of unglazed ware with, 255.
- Bar Hill, fort of, titulus at, 20; extent of, 29; Agricolan fort, 78; Hamii at, 189; wheel from, 293, 294; wooden box from, 311; coins found at, 341.
- Barnwell, near Cambridge, Cemetery of, faceted glass found in the, 272.
- Barrack huts, 66, 70.
- Barrack yard, 71.
- Bands found in wells, 105, 312.
- Basket-work, 108.
- Bassus, T. Flavius, monument of, helmet on the, 167; decoration of harness on the, 295; floating streamers on harness on the, 301.
- Baths, 88; chambers usually found in, 89; bath in the Lipari, 90; at Inchtuthil, 91; the buildings at Newstead, 94; alterations on the, 97; the latrine at the, 99; relics found in the, 101; water pipes from the, 102; finial from the, 144.
- Battlements on the walls of forts, 37.
- Baudry, Abbé Ferdinand, his discoveries in pits in La Vendée, 106.
- Beads, 336.
- Beakers. *See* Unglazed ware.
- Belgic ware, pottery resembling, 260.
- BELINICI·M**, stamp on a cup, 252, 256. *See also* Potters, list of marks on terra sigillata.
- Bell of bronze in form of an acorn, 309.
- Belt mountings, 162; enamelled, 329.
- Beneficarii*, 56.
- Benndorf, Herr O., his study of visor-helmets, 172.
- Berkeley, Robert de, charter by, 11.
- Berm, 32.
- Berru, Gaulish helmet from, 335.
- Bettenberge, Württemberg, helmet from, 166.
- Birdlip, Gloucestershire, brooch from, 322.
- Birdoswald (Amboglanna), fort of, vaulting at, 38.
- Birrens, fort of, extent of, 29; Principia at, 43; traces of older buildings at, 77; altar at, 155; faceted glass at, 272; Julius Verus mentioned in inscription from, 348.
- Birrenswark, 21; bridle-bit from, 328.
- Blackgate Museum, Newcastle, button in the, 150.
- Blattius, L., tombstone of, phalerae on the, 176.
- Boar, the remains of the wild, 110; sculptured figures of the, 144; tusk of the, as an ornament, 337.
- 'Board' for a game on stone slab, 339.
- Boathook, object resembling a, 288.
- Bobbins, wooden, 311.
- Bockingen, fort of, battlements at, 37.
- Bonn, decorated axe sheaths at, 279. *See also* Castra Bonnensia.
- Boppard, tombstone at, phalerae on a, 176.
- Boscovale, reliefs on silver cups from, 287.
- Bos Longifrons, remains of, 49, 374.
- Bossières, St. Gerard, small beakers found in the cemetery of, 256.
- Bowls. *See* Terra sigillata, *also* Unglazed ware.
- Bowmen, 288.
- Bows, 189.
- Box, wooden, 311.
- Boyd Dawkins, Professor, on querns found at Melandra Castle, 146.
- Brass helmet, design on, 166; inscription on, 267.
- Braybrooke, Lord, find of iron at Great Chesterford made by, 278.
- Bremenium, fort of, treasure vault at, 54; restoration of a *ballistarium* at, 77.
- Bridle-bits, 296.
- Brigantes, 349.
- British Museum, helmets in the, 164; fibulae in the, 324.
- Brohlthal, inscriptions in the, 145.
- Broughter, Limavady catch on torc from, 163.
- Bronze, oenochœ 65; vessels, 273; examples of jugs of, from Pompeii, 276.
- Brooch. *See* Fibulae, Penannular brooches.
- Brough, fort of, Sacellum vault at, 55; Julius Verus mentioned in inscription from, 349.
- Bryce, Professor T. H., 109; on human bones, 111; and Appendix IV, 380.
- Bucculae*, 164.
- Buchanan, Sir Alexander Leith, Bt., altar in the possession of, 141.
- Buckets, 108, 310.

- Buckles with scroll decoration, 304.
 Building stones, 48.
 Bumbesti, Roumania, inscription from, 28.
 Bungs of casks or amphorae, 312.
 Burials in ditch of the great camp, 19.
 Burnet, Mr. George, diary of, 141.
 Buttons, 150.
 Butzbach, fort of, Sacellum vault at, 55.
- Caelius, Marcus, military decorations represented on the monument of, 175.
 Caerleon on Usk, fortress of, wall at, 37.
 Caersws, fort of, 190.
 Caerwent, house at, 63.
Calceus, 151.
Calchou, Liber de, charter from the, 14.
Caldarium, 89.
 Calidus, monument of, scaled tunic of a centurion on the, 161.
Caliga, 150.
 Camelon, fort of, its extent, 29; more than one occupation of the, 78; baths at, 88; pits at, 105; pottery of **CINNAMUS** and **DIVIXTUS** at, 229; early pottery at, 271; fibula from, 324; penannular brooch from, 327; coins found at, 341.
 Camp, the great, 15.
 Campbell, Mr. Robert, his examination of silt from the ditch of the early fort, 27.
 Campestres, altar to the, 140.
Canabae, 87.
 Cannstatt, urn with spouts at, 245.
 Cappuck, fort of, a Roman site, 8; pottery from, 270.
Carbatina, 152.
 Carlisle, 'rustic ware' at, 247; stamp on an amphora at, 270.
 Carlruhe, enamelled bronze plate in the museum of, 155.
 Carnuntum, fortress of, its extent, 18; armour at, 148, 158; monument of Calidus at, 161; enamelled belt mounting from, 330.
 Caskets, mountings of, 309.
 Castlecary, fort of, its extent, 29; gate at, 34; towers at, 37; granary at, 59; baths at, 88; pottery at, 271; coins found at, 341.
 Castor ware, 255.
 Castra Bonnensia, its extent and period, 18.
 Castra Vetera, its position compared, 17.
 Catterdale, Wensleydale, sword from, 186.
 Celestine III., confirmation by Pope, 13.
 Celt of stone, 146.
 Celtic sword, the, 185.
 Centuries, soldiers quartered according to, 66.
Cervoli, 24.
 Chain mail, 161.
 Chain, of iron, 287; of silver wire finely plaited, 327; silver with pendants, 333.
 Chamber in outer courtyard, Principia, 47.
 Channelkirk, camp believed to be Roman, identified by Roy, at, 9; Dere Street, passing through the parish of, 13.
 Chassenard, visor-mask found at, 272.
 Chattou, Alexander de, charter by, 10.
 Chesterholm (Vindolana), fort of, altars discovered at, 62.
 Chesters, fort of, Principia at, 43; commandant's quarters at, 63; baths at, 88.
 Chiragan, portrait busts at, 161. Chisels, 280.
 Chorley, Lancashire, fibulae from, 323; chain connecting fibulae from, 327.
Cingulum, 162.
CINNAMUS pottery of, examples of his ware, 222, 224; his period, 228; bowls in his style common both on the Vallum and at Newstead, 347
CINT·VGENI, stamp on black glazed ware, 230.
 Circular brooches, or disc fibulae, 330.
 Clermont-Ferrand, site of ancient potteries near, 193.
 Cloth, 289.
 Cocidius, dedication by soldiers of the Twentieth Legion to, 73.
 Cockburnspath, Berwickshire, hollow brass mountings from, 316.
 Coelbren, fort of, Wales, its rampart, 24; tent pegs at, 310.
Cohors, miliaria equitata, composition of a, 75; *quingenaria equitata*, Gellygaer possibly occupied by a, 70; composition of a, 75.
 Coins, found in pits, 111; total number found, 341; Dr. J. A. Smith's list, 342; found in ditch of early fort, 344; complete detailed list of, by Mr. George Macdonald, Appendix V, 385.
 Colchester, monument of Favonius at, 163; helmet at, 164; fibula at, 319.
 Collar of iron, 289.
 Cologne, wall of, 36; unglazed ware with barbotine decoration manufactured at, 255; gravestones of Marcus Sacrilus and T. Flavius Bassus at, 295; terra cottas manufactured at, 305.
 Column at corner of granary, Block XIV., 58, 244.
 Column of Trajan, shields on the, 181; bowmen on the, 188; cooking-pots carried by legionaries on the, 274; pioneers at work on the, 278; sickle employed on the, 284; seat used by the Emperor on the, 287; carts on the, 294.

- Combs, weaving, 289; toilet, 311.
- Commandant's quarters, 60.
- Commodus, final abandonment of Newstead in the reign of, 349.
- Compasses, 309.
- Conclusions, 340.
- Contubernium*, 67.
- Cooking-pots. *See* Unglazed ware.
- Corbridge, granaries at, 58–60; arrows at, 189 (2); 'rustic ware' at, 247; jugs at, 263; early pottery at, 270; clay mould of figure of Jupiter at, 334; pin from, 337; spoonlike bone objects at, 338; 'board' of stone for a game at, 339.
- Cornicularius*, 56.
- Corona muralis*, 175.
- Courtyard, outer, 45; inner, 49; wall dividing courtyards, 51.
- CRACVNA·F**, 257. *See* Potters, list of marks on terra sigillata.
- Cramond, burial at, 19.
- Crane, remains of the, 110, 377.
- Crescent as an amulet, 334.
- Cresces, name of; scratched on bronze object, 177.
- Crichton Mains, Midlothian, earth-house at, 342.
- CRISPI·M**, 199. *See* Potters, list of marks on terra sigillata.
- Crispina, coin of, 341; Appendix V, silver, 399.
- Crispus, C. Valerius, plume shown on monument of, 170.
- Culbin Sands, Morayshire, penannular brooch from, 327.
- Cupid personifying the Indian Bacchus, 167.
- Dacia, inscription commemorating the enlargement of a fort from, 77.
- Dacians, sword of the, 184.
- Dâ Gâniya, Arabia, fort of, wall at, 37.
- Dagger, 188.
- Danebury, querns at, 146.
- Déchelette, M. Joseph, 191 (2); periods of activity assigned to Gaulish potteries by, 193; classification of decorated ware by, 196.
- Decorated terra sigillata, detailed examples of, from Newstead, 203.
- Decurio*, 75, 141.
- Deposit in pits, 108.
- Dere Street, identified with Roman road, 9.
- Diana, altar to, 142.
- Dice, 339.
- Dirleton, button from a cave at, 150.
- Disaster, indications of, 113.
- Disc, leaf-shaped, 298; circular embossed, 299; fibulae, 330.
- Discs, of bronze, inscribed, 174; from Novaesium, 176; with loops for attachment, 178, 181.
- Dishes of wood, 310.
- Ditches, branches fixed as an obstacle in, 30; overlapping, 31.
- Ditch of the early fort, 24; objects found in the: tent pegs, 66, 310; unfinished basket, 108; flint scraper, 146; spear-like objects, 189; arrow-points, 189; terra sigillata, 196, 197, 198, 199, 200, 202, 203; potters' marks on terra sigillata, 236, 239, 240, 241, 242; unglazed ware, urns, etc., 244, 245, 246, 247, 248, 249, 251; jugs, 261; mortaria, 263; amphorae, 268; stamp on amphora, 270; glass, 271, 272, 273; bronze vessels, cooking-pot and patella, 274; leaden vessels, 274; tools, 278, 281; knives, 281; turf cutter, 284; socketed hook, 288; iron collar, 289; weaving comb, 290; shears, 291; hub rims and hub linings, 292, 293; lock shield, 306; rod of iron, 307; bronze stylus, 307; writing tablet, 308; pair of compasses, 309; bobbin, 311; fibula, 321; penannular brooch, 326; brass torc, 335; beads, 336; spoon-like object of bone, 338.
- Ditch overlapping west gate, 31; pottery from, 195; particulars of fragments of pottery from, 345.
- DIVIXTUS**, his period in Scotland, 194, 229; examples of his ware, 219, 226; his products at Birrens, 270; decorated bowls in his style common on the Valium and at Newstead, 347.
- Dodona, bronze cheek piece of a helmet from, 169.
- Dog, remains of the, 110; Appendix III., 378.
- Dolabrae*, 278; sheaths for, 279.
- Domestic fowl, 110, 377.
- Domitian, coins of, 111, 341; pieces struck during his twelfth consulate, 344; Appendix V, silver, 391; brass, 405.
- Domitianus, G. Arrius, altars dedicated by, 72, 141.
- Dona militaria*, 175.
- Donativum*, 55.
- Dorchester, sword hilt from, 184.
- Dowkerbottom Cave, knife from the, 282; spoon-like objects from the, 338.
- Dragendorff, Professor, his study of terra sigillata, 196.
- Drains of the fort, 41.
- 'Drift,' a smith's tool, 285.
- Dryburgh, Liber de*, charters from the, 12, 13.
- Drygrange, stones removed to, 48 (1), 58 (1); altar at, 142.
- Duck, remains of the, 110, 377.
- Duntocher, fibula found near, 321.

- Duplicarius*, 75.
Durobrivae, otherwise Castor, site of ancient potteries, 255.
- Early buildings, under Principia, 52; in Praetentura, in Retentura, 69.
Early fort, its defences and plan, 23; rampart of, 24; occupied up to A.D. 86, 345.
Earth-houses as evidence of post-Roman occupation, 342.
East Annexe, extent of, 87.
El Kastal, Arabia, fort of, gate at, 38.
Elk, remains of the, 110, 376.
Elton, Derbyshire, penannular brooch from, 326.
Enamelling, enamels, 328; circular brooches showing, 330; studs, 331.
Equus agilis, *Equus sivalensis*, 110.
Evans, Mr. Arthur, 163; studies of fibulae by, 321, 327.
Ewart, Professor J. C., 109; Appendix II., Animal remains by, 362.
Ewell, Surrey, pits at, 105.
Exercier-Hall, 44.
- Fabricius, Professor E., on a building at Gellygaer, 70 (2).
Faimingen, urn at, 245.
Falx arboraria, 284.
Faustina, Elder and Younger, coins of, 341; Appendix V., silver, 398, 399; brass, 412, 413.
Favonius, monument of, at Colchester; girdle worn on the, 163.
Festi, G. Flavi, name on phalerae from Lauersfort, 176.
Festus, Q Sertorius, phalerae on the monument of, 175.
Fibulae, 317; the poor man's fibula, 318; dragonesque, 319; knee fibula, 326. *See* Aesica, Andernach, Aylesford, Backworth, Birdlip, Camelon, Chorley, Colchester, Duntocher, Flossheim, Gilsland, Heddernheim, Hod Hill, Hofheim, Ilchester, Kingsholm, Lakenheath, Lambertton Moor, Lochlee Crannog, London, Polden Hill, Procolitia, Saalburg, Stockstadt, Trier, Victoria Cave, Vindonissa, Xanten, File, 281.
Flasby, Yorkshire, sword found at, 186.
Flavinus, monument of, at Hexham, 148; plume on helmet on the, 170; harness on the, 295.
Flossheim, fibula from, 325.
F·LVGV DV, stamp on mortaria, 265.
Fort, small, on north side of the Tweed, 17. *See also* Ardoch, Bar Hill, Birdoswald, Birrens, Birrenswark, Bockingen, Bremenium, Brough, Bumbesti, Butzbach, Caerleon on Usk, Caersws, Camelon, Castlecary, Chesterholm, Coelbren, Dâ Gâniya, Early fort, El Kastal, Habitancium, Hofheim, Holzhausen, Housesteads, Inchtuthil, Kapersburg, Kneblinghausen, Lambaesis, Lanchester, Later fort, Lauriacum, Lyne, Niederberg, Niederbiber, Novaesium, Pfünz, Phasis, Rough Castle, Saalburg, South Shields, Waldmössingen, Weissenburg, Wiesbaden, Zugmantel.
Fox, remains of the, 110, 378.
Friedberg, Hesse, helmet from, 165.
Frigidarium, 89.
Frölich, Dr. L., Königsfelden, photographs supplied by, 279, 282.
Frontier system, the Roman, 73.
FRONTINVS, fragments of a bowl of terra sigillata by, 208.
- Gaetulicus, L. Maximius, altar dedicated by, 72, 143.
Galba, coins of, 111, 341; Appendix V., silver, 389.
Galloway, Alan, son of Roland of, charter by, 14.
Games, 338.
Ganymede, figure of, engraved on a seal, 333.
Garrison, the, at Newstead, 72.
Gates, 34; in the Hyginian camp, 40.
Gellygaer, fort of, rampart at, 29; towers at, 37; Principia at, 43; pillars separating courtyards at, 52; granaries at, 58; verandah at, 65; stable at, 70; type of bowl at, 258; faceted glass at, 272.
GEMINI·M, occurrence of the stamp on pottery of the later period, 199.
Genius, Tabularii dedication to the, 56; *Horrei*, 60; *Praetorii*, 62; *Centuriae*, 67; *Coloniae*, 273.
Gens Cordia, coin of the, 111, 387.
GERMANUS, terra sigillata in the style of, 212, 214, 216.
Gilsland, Mile Castle at, fibula from the, 319.
Girdle, the military, 162.
Gladius, 283.
Glass, 272.
Glastonbury, Lake Village of; querns found at, 146; weaving combs found at, 290; wheel from, 293; pattern on wooden bowl from, 327; the penannular brooch at, 328.
Gnotzheim, fort of; early pottery found at the, 192.
Goat, remains of the, 110, 374.
Gokstadt, steering gear of boat from, 313.
Gorge-Meillet, tombeau de la, helmet from the, 335.
Gouge, 280.
Gräfenhausen, Württemberg, helmet from, 169.

- Graffiti, on phalerae, 174; on bronze objects, 177; on pottery, 230; on bronze cooking-pots, 274.
- Grahamston (Camelon), pits discovered near, 105
- Grain, 51, 109, 360.
- Grave in ditch of the great camp, 19.
- Grave stones of legionaries, 147.
- Great Chesterford, pits at, 105; hoard of iron objects found at, 278.
- Green glaze on pottery, 230.
- Gridiron, 274.
- Grimthorpe Wood, Pocklington, sword found at, 186.
- Guard for the protection of the sacred emblems and treasure of the Sacellum, 55.
- Guard-houses at the gateways of the fort, 35.
- Guildhall Museum, knives in the, 281.
- Gutterflat, field known as the, drainage operations begun on the, 6.
- Habitancium, fort of, rebuilding at the, 77.
- Hadrian, coins of, 111, 341; establishes his frontier line, 344; Appendix V, Coins, silver, 395; brass, 409.
- Hair moss, basket of, 108; articles made from, in the museum at Kew and elsewhere, 358.
- Haltern, fort of, bronze object from the, 178; period of, 190; Arretine pottery at, 192; products of La Graufesenque awaiting at, 193; type of jar at, 267; headstall from, 297; metal terminals from, 301.
- Hames, object resembling, 297.
- Ham Hill, armour scales at, 160.
- Hamii, Oriental auxiliaries, 188.
- Hammers, 285, 286.
- Harborough Cave, near Brassington, knives from the, 282.
- Hare, remains of the, 110, 377.
- Harness, 295; Late Celtic, 302.
- Hasta*, a weapon of the auxiliary, 184.
- Haverfield, Professor, on an altar found at Aesica, 143; on the monument of Flavinus at Hexham, 170; his reading of a graffito, 177; of a punctured inscription, 188; of letters on a leaden seal, 309; list of dragonesque fibulae by, 320 (1); his studies of Roman coins found in Scotland, 340.
- Hazel wood employed for spear shafts, 188; tool handles, 360.
- Headstall, enamelled, 297.
- Hearths on site of the great camp, 18.
- Heddernheim, civil settlement at, 87; pits at, 106; helmet from, 169; dish of type Dragendorff 22 found at, 198; fibulae from, 321, 324, 326; enamelled seal box from, 333.
- Heftrich, fort of, lamp from, 307.
- Heiligenberg, near Strassburg, pottery of, 194.
- Heldenbergen, jugs at, 262.
- Helios, figure of, engraved on a seal, 333.
- Helmet mountings, 164.
- Helmets, 164; list of Roman visor, with masks, 179.
- Hemistrigium*, 66.
- Hemmen, inscription mentioning an *ala Vocontiorum* at, 75.
- Hercules Saxanus, inscriptions to, 145.
- High Torrs, Late Celtic mask from, 307, 320.
- Hilts of swords, 187.
- Hinge of brass, 309.
- Hod Hill, armour scales at, 160; sword guards at, 186; knives at, 282; fibulae at, 325.
- Hoe, 283.
- Hofheim, fort of, irregular shape of, 23; studs from, 163; period of, 190; platter of terra sigillata with interior moulding found at, 197; type Dragendorff 22 found at, 198; vessels with barbotine decoration beginning to appear at, 198; decorated bowls at, 201; urns at, 245; type of jugs at, 261; jar at, 267; millefiori glass at, 272; headstall from, 297; leaden weight from, 310; early fibulae at, 318; absence of enamel at, 330.
- Holzhausen, fort of, wall at, 37; urns at, 245.
- Hook, small socketed, 288.
- Hoop, iron for well barrel, 288.
- Horrea*, 58, 60.
- Horses, remains of, 110, 362.
- Housesteads (Borcovicus), fort of, towers at, 37; traces of vaulting, 38; subdivisions in barrack blocks at, 66; arrow-heads at, 189; pottery at, 200.
- Hub rims and linings, 292.
- Human remains, 110; Appendix IV., Human bones, 380.
- Hunsbury, near Northampton, weaving combs from, 290.
- Hunterston brooch, the, 328.
- Hunum, William of, charter by, 10.
- Hyginus, the *titulus* described by, 31; the camp of, 40.
- Hypocaust, remains of, in the Baths, 94.
- Igel, on the Moselle, reliefs from, 293.
- Ilchester, Somersetshire, fibula from, 324.
- Imago clypeata*, 178.
- Inchtuthil, fort of, baths at, 88; plan of the baths at, 91; early form of platter at, 197; pottery at, 272; coin found at, 341.
- Incrementum tensurae*, 66.
- Ingots of iron, 288.

- Inscriptions, on altars, 141; fragments of, on stone, 144; on a brass helmet, 167; on phalerae, 174 on objects of unknown use, 177; on a spear, 188; on dishes, 230; on jars and amphorae, 267; on bronze vessels, 274; on an axe, 283; on a leaden seal, 309; on a weight, 310. See also Aljustrel, Bremenium, Bumbesti, Dacia, Lanchester, Pecuarii, Prata legionis, T. abbreviation for Turma, Venatores, York.
- Intaglios, 333.
- Intervallum*, 40.
- Introbobbio, Como, sword from, 187.
- Inveresk, position of, 2; a Roman site, 15; mortaria stamp found at, 265.
- Iron object of uncertain use, 287. Iron visor-helmet, 168.
- Jacobi, Herr Heinrich, on built wells at the Saalburg, 113, 145.
- Jugs, 261.
- Jupiter, altar to, 141; statuettes of, with wheel, 334; figure of, from clay mould, 334; altars to, with representations of a wheel, 335.
- Jupiter Dolichenus, temple of; at the Saalburg, 88.
- Kam Collection at Nymwegen, red colouring on plates in the, 251; cups with barbotine decoration in the, 255; dragonesque fibula in the, 320 (1).
- Kapersburg, successive forts at, 28.
- Keys, 306.
- Kingsholm, Gloucestershire, fibula from, 321.
- Kneblinghausen, Westphalia, fort of, clavicula at, 25.
- Knives, 281.
- Königsfelden, near Brugg, collection from Vindonissa at, 198.
- Laconicum*, 89.
- La Graufesenque, period of production of pottery at, 193.
- Lagunum*, mentioned in inscription, 267.
- Lakenheath, Suffolk, fibula from, 320.
- Lambaesis, fortress of, its extent, 18; 'Praetorium' at, 44; Principia at, 53; *tabularium* at, 56; sling bolts at, 56; barracks at, 67, 74; subdivision of huts at, 68.
- Lamberton Moor, Berwickshire, fibulae from, 320.
- Lamps, 306.
- Lanchester, inscription commemorating restoration of buildings at, 56.
- Late Celtic harness mountings, 302; brass plate with embossed ornament, 303.
- La Tène, swords from, 184; iron collar from, 289; wheel from, 293.
- Latera praetorii*, 40.
- Later fort, its extent and defences, 29; its appearance, 36; buildings, 39, 58; garrison, 72; alterations, 77; plan of its first period, 80; plan of reduced area, 82; annexes, 86; baths, 88; the periods of its occupation, 340.
- Latrine, troughs from the, 145.
- Lauriacum, fortress of, barracks at, 67; subdivision of huts at, 68.
- La Vendée, pits discovered in, 106.
- Leather, as clothing, 149; shoes, 150; decorated, 153.
- Legion. See Ninth Legion, Second Legion (Augusta), Sixth Legion, Twentieth Legion.
- Legionary, arms of the, 184.
- Lewis, Mr. Francis J., his examination of silt from the ditch of the early fort, 27.
- Lezoux, period of its production of pottery, 193; presence of its pottery in ditch of early fort, 195.
- LIBERTUS**, pottery by, 194.
- Librarii*, 56.
- Limavady, Ireland, gold chains from, 327.
- Limes*, the German, 27.
- Linch-pins, 294; Late Celtic, 315.
- Lincoln, 'rustic ware' from, 247.
- Linton, Mr. R. G., 109; Appendix III., The skulls of canidae by, 378.
- Lipari, baths at, 90.
- Lochlee, crannog of, fibula from, 324; spoon-like object from, 338.
- Locks, 306.
- London, wall of, 36; fibulae found in, 324; pins found in, 337.
- Londonus, Robert de, charter by, 12.
- Loops, metal, for attachment to straps, 302.
- Lorica, segmentata*, 155; *squamata*, 158; *hamata*, 161.
- Louette St. Pierre, Belgium, early iron sword found at, 185.
- Luccius, Quintus, helmet on the tombstone of, 171.
- LUCIUS**, a maker of terra cottas at Cologne, 305.
- Lunulae*, 334.
- Lyne, fort of, complicated entrance at, 20; extent of, 29.
- Macdonald, Mr. George, LL.D., coins identified by, 341; his researches on the forts of the Antonine Vallum, 348; Appendix V., Coins by, 385.
- Magna, fort of, traces of the Hamii at, 188.

Mainz, situation compared, 17; *caligae* at, 150; figures of legionaries from, 165; phalerae on tombstone at, 176; form of shield on sculptures at, 181; sword hilt at, 184; Silius, gravestone of, found at, 295; carved discs of horn at, 315.

Malcolm, charter by King, 14.

Mallet, wooden, 280.

Mandreles, staple, 286.

Maniple, space occupied by a, 66.

Mantineia, Greece, its gates, 25.

Marble, bead of, 337.

Marcellinus, Ammianus, on the armour of the Parthians, 160.

Marcus, Adios, altar dedicated by, 72, 141. Marcus Aurelius, coins of, 341; Appendix V, silver, 398; brass, 413.

Marienfels, baths at, 91.

MARINUS, stamp on early mortarium, 265.

Marius, Caius, phalerae on the monument of, 175.

Marne, cemeteries of the, shields from the, 182.

Mars and Victory, dedication to, at Birrens, 155.

Masks, visor, iron from Pt XXII., 168; brass from Pt LVII., 170; helmet, list of, 179.

Mayen in the Eifel, stone for querns from, 145.

Medami, name on phalerae from Lauersfort, 176.

Melandra Castle, querns at, 146.

Melrose, history of the parish of, 2.

Melros, Liber de, Charters from the, 10, 11, 12.

Metae, in design on brass helmet, 167.

Michels, Herr, on the source from which the volcanic stone used for querns was obtained, 145.

Middlebie, Annandale, sword guard from, 186; Late Celtic harness-mountings from, 303.

Millefiori glass, 272; enamel, 329.

Milne, Rev. Adam, his history of Melrose, 2.

Mithras, temple of, at the Saalburg, 88; at Housesteads, 88.

Montans, early potteries at, 193.

Mont Beuvray, house at, 63; Arretine pottery at, 191.

Monteviot, Roman road traversing the grounds of, 8; pottery from Cappuck at, 9, 270.

Monuments. *See* Adamklissi, Albanus, Allius, Arlon, Avignon, Bassus, Blattius, Boppard, Caelius, Chiragan, Crispus, Favonius, Festus, Flavinus, Igel, Luccius, Marius, Musius, Neumagen, Pintaius, Pompeius, Regina, Sacrilus, Sertorii, Silius, Valerius, Vettius.

Mortaria, 263; sections of, 264; stamps on, 266.

Mortar of stone, 146.

Mortonhall, Pentland Hills, sword sheath found at, 186.

Morville, Hugo de, charter by, 12.

Mounting, brass, of unknown use, 316.

Muses Threnodie, The, notice of the discovery of pits in, 105.

Musius, Gnaeus, phalerae on the monument of, 175.

Nails, 289.

Namur, type of small beaker at, 256.

Narbonne, Arretine pottery at, 192.

Needle, packing, of horn, 314.

Needles, 337.

Nero, coins of, 341; paucity of bronze coins of, 346; Appendix V, gold, 385; silver, 388; brass, 401.

Nerva, coins of, 341; Appendix V, silver, 393; brass, 407.

Netherby, Julius Verus mentioned in inscription at, 349.

Neubotle, Registrum de, Charter from the, 15.

Neumagen, reliefs from, shoes on the, 151; packing amphorae on, 269; wheeled vehicles on, 293; harness on, 295.

Neville. *See* Great Chesterford.

Newcastle, spoon-like bone objects at, 338; Julius Verus mentioned in inscription at, 349.

Newtun, Newtown, 12.

Nida (Heddernheim), silver crescent (*lunula*) from a grave at, 334.

Niederberg, fort of, *armamentarium* at, 57.

Niederbiber, fort of, inscription at, 54; dedication to the *genio horrei* at, 60.

Niedermendig, basalt lava from, 145.

Niello, employed on the decoration of phalerae, 300; on metal terminal mountings, 301.

Nikopolis, Bulgaria, helmet from, 169; date of, 172.

Nîmes, wall of, 36; Arretine pottery at, 192; miniature amphorae in the Maison Carrée at, 252.

Ninth Legion, took part in the expedition of Agricola, 73; probably overwhelmed in the reign of Hadrian, 344.

Normanville, John de, charter by, 11.

Novaesium (Neuss), fortress of, extent of, 18; barrack lines at, 67; loops of sword sheaths at, 187; pottery from, 191; pottery of La Graufesenque at, 193; knife handles at, 282; pendants from phalerae at, 300; wooden box at, 311; carved disc of horn at, 315; enamelled seal box at, 333; probes at, 338. Nydam, steering gear of boat from, 313.

Nymwegen, jugs at, 263; seat preserved in the Canisius College at, 287. *See also* Kam Collection.

Oak beams, 313.

Oak branches in rampart, 24.

Oar, steering, 313.

- Ober Florstadt, enamelled seal box from, 333.
- Oenochoë bronze, from the Praetentura, 65; from the Baths, 103; description of, 275.
- Officers' quarters, 64.
- Okarben, fort of, Rutenian pottery at, 193; type of jug at, 261; pin from, 337.
- Olt, River, Roumania, inscription on visor-mask found in the, 168.
- Optio*, 67.
- Opus signinum*, 61.
- Orange, Arch of, Gaulish shields on the, 181.
- Osterburken, fort of, fibula from the, 326.
- Ostia, inscription by a trumpeter at, 55.
- Otho, coin of, 341; Appendix V, silver, 389.
- Ovens, 71.
- Padding of iron helmet, 170.
- Palisade, trace of, 24; in front of the east gate, 35.
- Palmyrenes, employed as bowmen, 188.
- Patellae*, makers' names on, 274.
- Pecuarii*, mentioned in inscriptions, 104.
- Penannular brooches, 326.
- Pendants attached to phalerae, 300.
- Pergamum, helmet in relief from the balustrade at, 175.
- Periplus of Arrian, description of the fort on the Phasis in the, 28, 87
- Pfünz, fort of, civil settlement at, 87; helmet mountings at, 165; cup Dragendorff 27 at, 197; iron collar from, 289; bronze chain with lunula from, 334.
- Phalerae, 174; from Lauersfort, 176; on harness, 298.
- Phases of occupation of Newstead summarised, 85.
- Phasis, fort on the, 28; civil settlement at the, 87.
- Picks, 279; deer-horn, 314.
- Pillars of courtyard, in Principia, 45.
- Pilum, 184, 189; object resembling socket of a, 288.
- Pins, 337.
- Pintaius, monument of, hood worn on the, 171.
- Pioneers' tools, 278.
- Pit in Principia, 47; in baths, 103.
- Pits and wells, numbers of, 107; periods of, 111; contents of, 116; two distinct groups of, 343; samples of earth and vegetable remains from, 358.
- Pius, Antoninus, Emperor, scale armour on the bust of, 165; coins of, 341; Appendix V, gold, 386; silver, 397; brass, 412.
- Pivot-stones, 35.
- Planes, blades of, 281.
- Plants, identified, 360.
- 'Playing men' for games, 338.
- Plique collection, St. Germain-en-Laye, 195; platter with rosette stamp in the, 200.
- Polden Hill, Late Celtic terret rings from, 302; fibula from, 359; Celtic art displayed in horse trappings from, 328.
- Pompeii, wall of, 36; towers at, 37; destruction of, 195; Rutenian pottery at, 193; occurrence of glass cups resembling Dragendorff's type 27 at, 197; bowls of terra sigillata at, 205.
- Pompeius, M., tombstone of, phalerae on the, 176.
- Pont y Saison, near Chepstow, enamelled brooch from, 330.
- POR = PORTVS**, on handles of amphorae, 270.
- Portae, 40.
- Posticum, 53.
- Potters, chronological periods of the, 228; list of marks on terra sigillata, 235; on mortaria, 266; on amphorae, 269.
- Pottery, chronological evidence as to, derived from pits and ditches, 195; *see* Terra sigillata, also Unglazed ware; indications derived from classification of, 270; evidence as to periods of enlarged fort derived from, 345.
- Praetentura*, 40; barrack huts in, 64.
- Praetorium, in the Hyginian camp, 40; Dedication to the Gods of the General's, 62 (2).
- Prata legionis* mentioned in an inscription, 104.
- Principia, the name, 40 (1); plan of the, 42; early walls below, 52.
- Probe of bronze, 338.
- Procolitia, fort of, fibula from, 319; beads from, 336.
- Punch, of iron, 288.
- Punctured inscription, on brass helmet, 167; on a spear, 188; on an axe, 283.
- Quaestorium*, position of, views of Professor von Domaszewski as to, 69.
- Querns, found in pits, 113; imported from the Rhine, 145; beehive, 146; spindles of, 288.
- Quilling, Dr., pits at Heddernheim described by, 106.
- Rake, 283.
- Rampart, of the early fort, 23; oak branches beneath the, 24; of the later fort, dimensions of, 33.
- Red Abbeystead, field known as the, early mention of, 2; earlier discoveries in the, 5.
- Red deer, remains of the, 110, 376.
- Reducing wall, the, its construction, 33; its purpose, 82.
- Reeth, Yorkshire, harness mountings with pendants from, 300.

Regensburg, fibula found at, 326.
 Regina, wife of Barates, monument of, casket on the, 306.
 Reinach, M. Salomon, on helmet sculptured on the balustrade at Pergamum, 171.
 Republican denarii, 341; Appendix V, 387.
Retentura, 40; buildings in, 68.
 Rheinzaubern, pottery made at, 194; its presence at Newstead, 195; urn at, 245; disc-fibula of bronze from, 331.
 Ribchester, helmet found at, 168; date of, 172.
 Ribs of shields, 182.
 Rings, finger, 333.
 Rise, near Hull, Late Celtic bridle-bit from, 302, 304, 328.
 Ritterling, Professor, his views on the occupation of the chambers adjoining the Sacellum at Wiesbaden, 56; on the plan of Gellygaer, 70 (2).
 Road, the "Roman," 7. *See also* Dere Street.
 Roberts, T. J. S., owner of the site of the fort, 6; altar in the possession of, 142.
 Rods of iron, finely forged, 286.
 Roman cavalry, exercises of, described by Arrian, 173.
 Rome, headstall in bronze found in, 297.
 Rosette, stamp on terra sigillata, 200.
 Ross Priory, Dumbartonshire, altar at, 141.
 Rottweil, bowl with flat overhanging rim from, 198.
 Rough Castle, fort of, extent of, 29; granary at, 59; pottery at, 271.
 Roy, General, his search for the Trimontium of Ptolemy, 3.
 Royal Road, 11, 14.
 Rubbish pits. *See* Pits and wells.
 Rückingen, *laconicum*, in baths at, 95.
RVFFI-MA, 257. *See also* Potters, list of marks on terra sigillata.
RUFINUS, fragment of bowl of terra sigillata by, 214.
 Rushmore, Romano-British village at, ornament on fibula from, 336.
 'Rustic ware,' 247.
 Ruteni, early potteries at La Graufesenque in the country of the, 193.

 St. Albans, helmet at, 165.
 St. Germain-en-Laye, museum of, cheek piece of a helmet in the, 169; Plique collection of pottery in the, 200; bronze headstall in the, 297; statuettes of Jupiter in the, 334.
 St. Paul Trois Chateaux, headstall from, 297.
 Saalburg, fort of the, shows several occupations, 28; battlements at, 37; images at, 54; civil settlement at, 87; *laconicum* at, 95; pits at, 106; shoes at, 151; helmet mountings at, 165; shield bosses, 182; pottery from, 191; absence of platter of sigillata with inner moulding, 197; object resembling a boathook at, 288; circular embossed disc from, 299; tent pegs at, 310; packing needle of horn, 314; fibulae from, 319, 326; enamelled belt mounting from, 330; enamelled brooches from, 330; enamelled seal box from, 333; probes from, 338.
 Sabina, coins of; 341; Appendix V, brass, 411.
SABINUS, 197. *See also* Potters, list of marks on terra sigillata.
Sacellum. *See* Shrine.
 Sacrilus, Marcus, of the Norician Ala, gravestone of, helmet on the, 167; horse-trappings on the, 295.
 Saddle, framework of a, 288.
 Sadlerhead, in the parish of Lesmahagow, bronze jug found at, 276.
Sagum, the military cloak, 149.
 Saintes, museum of, inscribed jar in the, 267.
 'Samian ware,' 191. *See also* Terra sigillata.
SAMILLI-M, 199. *See also* Potters, list of marks on terra sigillata.
 Saw, 290.
 Scale armour, 158.
 Schierenhof, fort of, packing-needle of horn at, 314.
 Schlossau, baths at, 91.
 Schumacher, Professor, his dating of brooch from Heddernheim, 324; from Osterburken, 326.
 Scythes, 284.
 Scythian pennons borne by Roman Cavalry, 173.
 Seal, leaden, inscribed, 309.
 Seal-boxes, 308, 333.
 Seat, portions of framework of a, 287.
 Seckmauern, baths at, 91.
 Second Legion (Augusta) employed in building Antonine Vallum, 73.
 Sections through defences, 30.
 Seleucus I., panther's skin worn over the helmet on the coins of, 171.
 Selgovae, mentioned by Ptolemy, 21.
 Senecio, name of, scratched on bronze objects, 177.
 Serries en Val, catch on torc from, 163.
 Sertorii, monuments of the, scale armour on the, 161.
SERVANDUS, a maker of terra cottas, 305.
Sesquiplecarius, 75.
 Severus, Emperor, bust of, 161; campaign of, 342.
 Shears, 291.
 Sheaths, 187.
 Sheep, remains of the, 110, 368.
 Shields, names on, 174; remains of, 181.

- Shoes, 150.
- Shrine, of the Standards, 50, 53, 54; of the Genius Praetorii, 62.
- Sickles, 283.
- Silchester, plan of house at, 63; hoards of iron objects found at, 278; mowers' anvils at, 285; enamelled brooch from, 330.
- Silius of the Picentian Ala, remains of colour on the gravestone of, 295.
- Silt in ditch of the early fort, 26.
- Silvanus, altar to, 141.
- Sixth Legion, took part in building Antonine Vallum, inscriptions commemorating the, 73.
- Skin hoods, examples of, being worn over helmets, 171.
- Sling bolts, found at Lambaesis, 56.
- Smith, Dr. J. A., discoveries at Newstead noted by, 5; his opinion as to the pits discovered in 1846, 106; altar identified by, 141; coin finds noted by, 342.
- Smith, Mr. Reginald, on dating of fibula from Birdlip, 322.
- Smith's tools, 285.
- Sockets of iron, 189.
- Soltre, Domus de*, Charter of the, 14.
- South Annexe, extent of, 87.
- South Shields, fort of, alteration of gates, 81 (1); enamelled belt-mounting from, 329.
- Spatha as a weapon of the auxiliary, 184.
- Spears, 188.
- Spindles, wooden, 290.
- Spoon-like object of bone, 338; spoon of bronze, 338.
- Stables, position of the, 70.
- Staff officers, 56.
- Standard bearers, as custodians of regimental funds, 55.
- Stanwick, Yorkshire, Late Celtic terret rings from, 302; harness mounting from, 304; lynch pin from, 315.
- Steelyard, 309.
- Stirrup, object resembling a, 280.
- Stockstadt, fort of, fibula from, 325.
- Stone, objects of, 140.
- Storehouses, 58.
- Streets, 41.
- Striga, 66.
- Strigil, 289.
- Studs, brass, employed in leather work, 154, 163.
- Styli, 307.
- Sulz, a Limes fort dating from the first century, 291.
- SVOBNI·M**, 257. *See also* Potters, marks on terra sigillata.
- Sword hilts, 184.
- Swords, 183.
- T., abbreviation for *Turma*, 167.
- Tablets, wooden, 308.
- Tacitus, the weapons of the legionary and the auxiliary as distinguished by, 184.
- Tagg, Mr. H. F., 109; Appendix on vegetable remains by, 353.
- Tankard, object resembling handle of a, 275.
- Tara, the, brooch, 328.
- Tent pegs, 66, 310.
- Tents, 66.
- Tepidarium*, 89.
- Terminals of metal for straps, 301.
- Terra cotta, group of two horses in, 305.
- Terra sigillata, 191; earliest systematic study of, 196; undecorated ware of the early period, 196; platters, 196; cups, 197; undecorated ware of the later period, 198; globular pots, 200; decorated bowls, the carinated form, 201; the cylindrical bowl, the hemispherical bowl, 202; decoration of early and late styles, 202; method adopted in treating collection, 203; decorated, belonging to the Flavian period, 203–217; to the Antonine period, 217–228; potters' marks on, 231; imitations of, in unglazed ware, 257.
- Terrets for harness, 298.
- Territorium legionis*, 104.
- Tesserarias*, 67.
- Testaccio, Monte, amphora stamps found at, 267, 268.
- Thames, River, sword found near Putney, 183.
- Thermae*, 89.
- Thorsbjerg, chain mail at, 161, 163; helmet at, 172; loops on sword sheaths at, 187; metal terminals of straps from, 302.
- Tiberius, denarius of, found, 341; Appendix V., silver, 388.
- Timgad, house at, 63.
- Titulus*, ditch covering gates known as a, 16.
- Titus, coins of, III, 342; Appendix V., gold, 386; silver, 392; brass, 404.
- Tongs, smith's, 286.
- Tools and implements, 277.
- Torc of brass, 335.
- Torques*, a military decoration, 175.
- Towers on the walls of forts, 37.
- Traces of successive occupations, 77.
- Trajan, coins of, III, 342; possible prolongation of early occupation into the reign of, 346; Appendix V., coins, gold, 386; silver, 393; brass, 407.
- Treasure vault, 50, 54.

- Trees, varieties of, in the Roman period, 109, 354.
- Tribunal, in the Hyginian Praetorium, 53.
- Trier, battlements at, 37; dagger on relief at, 188; pottery at, 194; urn from, 245; beakers from, 256; fibulae found in the Maximinstrasse at, 323; chain of bronze wire connecting fibulae at, 327; silver crescents from a grave at, 334.
- Trimontium mentioned by Ptolemy, the site of, 21.
- Trompetenmuster*, 304.
- T-shaped fastenings for tiles, 289.
- Tune, steering gear of boat from, 313.
- Turf cutter, 284.
- Turma, composition of a, 75; in inscriptions, 167, 274.
- Tusk of a boar as a pendant, 337.
- Tweezers of bronze, 307.
- Twentieth Legion, evidences of its presence at Newstead, 72; its service in Caledonia, 73; dedications by centurions of the, 141, 142, 143; stones bear its cognisance, 144.
- Tyres for wheels, 288, 292.
- Unglazed ware*: British groups of, 243; Flavian pottery of, urns, 244; cooking-pots, 246; 'rustic ware,' 247; beakers, 248; bowls, 249; plates, 251; miscellaneous vessels, 252; Antonine pottery of, urns, 252; cooking-pots, 253; beakers, 254; Castor ware, 254; bowls, 257; plates, 259; miscellaneous vessels and decorated fragments of, 260; larger vessels of both periods, jugs, 261; mortaria or pelves, 263; stamps on mortaria, 265; jars and amphorae, 267; painted inscription on, 267; contents of amphorae, 268; different types of amphorae, makers' stamps, 269.
- Unknown use, inscribed bronze objects of, 177.
- Upchurch potteries, a probable source of supply, 257.
- Urbicus, Lollius, invasion of, 343, 344.
- Urns, burials in, 19. *See* Unglazed ware, 244, 252; with spouts, 245.
- Valerius, Caius, helmet on the monument of, 171.
- Vechten, pottery of La Graufesenque at, 193.
- Vegetable remains, 109; Appendix by Mr. H. F. Tagg on, 353.
- Vegetius, on the custom of inscribing the soldier's name on his shield, 174.
- Vehicles, Roman names for, 293.
- Venatores mentioned in inscription at Lanercost, 104.
- Verandah in front of barrack-huts, 65.
- Verus, Julius, Governor of Britain, evidences of re-building forts under, 349.
- Vespasian, coins of, 341; Appendix, silver, 389; brass, 402.
- Vettii, frescoes from the house of the, 167.
- Vettius, C. and Q., phalerae on the tombstone of, 176.
- Via Principalis, Via Quintana in the Hyginian camp, 40.
- Vichy, terra cottas manufactured in the neighbourhood of, 305.
- Victoria Cave, Derbyshire, fibula from, 319; enamelled brooch from, 330.
- Vigne Ammendola, sarcophagus of the, shield on the, 183.
- Vindonissa, 191; flat-rimmed bowls at, 198; faceted glass at, 273; sheaths for dolabrae from, 279; knives at, 282; fibula from, 318, 321; absence of enamel at, 330.
- Visor-masks, 166, 168; list of, 179.
- VITALIS, a Rutenian potter, 197. *See also* Potters, list of marks on terra sigillata.
- Vitellius, coin of, 341; Appendix V, silver, 389.
- Vitruvius, specification for *laconicum*, 96.
- Von Domaszewski, Professor, on the provision of a Quaestorium, 69; on the composition of the garrison, 76.
- Von Groller, Colonel, discoveries of armour at Carnuntum by, 156.
- Von Richter, Dr. Donner, his dating of the Ribchester and Nikopolis helmets, 172.
- Waggons, in use among the Celtic people, 293.
- Waldmössingen, fort of, irregular form of, 23; Rutenian pottery at, 193.
- Walheim, fort of, urns at, 245.
- Wall of the fort, 32; reducing, 33, 82.
- Walltown Crag turret, armour scales at, 160.
- Walton house, altars to Jupiter found at, 335.
- Watch, 56.
- Water pipes, 102.
- Waucennes, near Beauraing, small beakers from the cemetery of, 256.
- Weapons, 181.
- Weaving combs, 289.
- Wedge of iron, 281.
- Weights, 309.
- Weissenburg, fort of, granary at, 59; commandant's quarters at, 63.
- Well-meadow, excavations begun in the field known as the, 6.
- Wells, their usual position in Principia, 48; methods of lining, 107.
- Welzheim, east fort of, baths at, 92.

West Annexe, its extent, 86.
 Westerdorf, Bavaria, pottery of, 194.
 Wheel Causeway, 7.
 Wheels, of vehicles, 292; miniature in silver, 333; as amulets, 334.
 Whetstones, 146; of unusual size, 285.
 Whorls for spinning, 290.
 Wiesbaden, fort of, titulus at, 20; towers at, 37; single courtyard at, 51; Retentura at, 83; platter of terra sigillata from, 197; type of bowl of un-glazed ware at, 249; knife at, 282; pendants for phalerae at, 300.
 Witcham Gravel, Cambs., helmet from, 165, 166.
 Wood, objects of, 310; woods of implement handles, 357.
 Workshop, 69.
 Wrench, 281.
 Würzburg, baths at, 91.
 Xanten, pottery of La Graufesenque at, 193; set of phalerae from, 299; fibulae from, 321, 325.
 Yoke, wooden, 312.
 York, inscriptions on two votive plates of bronze at, 62 (2); sword hilt at, 187; 'rustic ware' at, 247; spoon-like bone objects at, 338.
 Zugmantel, successive forts at, 28, stamp on amphora from, 265; turfcutter from, 284; iron shovel from, 288; iron collar from, 289; headstall from, 297; decorated buckles from, 304.

**FELLOWS OF THE SOCIETY OF ANTIQUARIES OF
SCOTLAND WHO HAVE SUBSCRIBED FOR THIS VOLUME.**

The Hon. John Abercromby.
The Marquis of Ailsa.
W. Lindsay Alexander.
James P. Alison.
Archibald Anderson.
James Lawson Anderson.
William Anstruther-Gray.
Lord Ardwall.
The Duke of Argyle.
Sir Matthew Arthur, Bart.
John G. Alexander Baird.
Charles Barrington Balfour.
John Alexander Balfour.
James Barbour.
James A. S. Barrett.
James Barron.
Erskine Beveridge.
Andrew Henderson Bishop.
Walter Biggar Blaikie.
Robert P. Lee Booker.
Adam Brown.
G. Baldwin Brown.
P. Hume Brown.
Thomas H. Bryce.
William Moir Bryce.
Robert Burnard.
John James Burnet.
W. G. Burn-Murdoch.
The Marquess of Bute.
John Graham Callander.
James A. Cameron.
Lord Archibald Campbell.
George Carfrae.
Sir Thomas D. Gibson Carmichael, Bart.
Thomas Leslie Melville Cartwright.
P. Macgregor Chalmers.
Alexander Thomson Clay.
George Clinch.
Kenneth Cochrane.
Hugh Brown Collins.
Rev. Charles J. Cowan.
Benjamin C. Cox.
T. Craig-Brown.
Donald Crawford.
Rev. Thomas Crawford.
James Edward Cree.
Douglas Crichton.
Robert Cross.
James Henry Cunningham.
B. Howard Cunnington.
Alexander O. Curle.
James Curle.
The Earl of Dalkeith.
The Hon. Hew Hamilton Dalrymple.
Joseph Dechelette.
Leonard Walter Dickson.
William K. Dickson.
John Henry Dixon.
Sir James Donaldson.
Sir George Douglas, Bart.
H. Dragendorff.
Mrs. Duff-Dunbar.
James A. Duncan.
Charles W. Dymond.
John Edwards.
David C. E. Erskine.
George J. Ewen-Watson.
James Farquharson.
Professor John Ferguson.
Rev. John Ferguson.

John Ferguson, Duns.
John R. Findlay.
R. de C. Findlay.
D. Hay Fleming.
William Garson.
William Gemmell.
John S. Gibb.
Sir John R. Gladstone, Bart.
James Tennant Gordon.
Gilbert Goudie.
Sir John Macpherson Grant, Bart.
Rev. John Gray.
Charles F. Green.
Rev. Canon William Greenwell.
Lord Guthrie.
Sir James Guthrie.
The Earl of Haddington.
John Harrison.
F. J. Haverfield.
Archibald Hewat.
J. Walter Higgin.
John M. Howden.
Alexander Hutcheson.
Francis Caird Inglis.
John A Inglis.
Peter Jeffrey.
David Johnston.
George Harvey Johnston.
Arthur Kay.
Andrew William Kerr.
William Henry Knowles.
Walter Laidlaw.
Andrew Lang.
Thomas Greenshields Leadbetter.
James Hamilton Leigh.
Rev. Thomas M. Lindsay.
George M. Low.
Andrew W. Lyons.
Rev. William M'Conachie.
George Macdonald.
James Macdonald.
John MacDonald.
John Matheson Macdonald.
William Rae Macdonald.
The Hon. Sir Schomberg McDonnell
James Patten Macdougall.

Thomas W. M'Dowall.
Rev. Robert M'Elney.
W. C. M'Ewen.
W. A. Macfarlane-Grieve.
Charles R. B. M'Gilchrist.
Angus M'Gillivray.
Lt.-Col. A. B. M'Hardy.
George G. Mackay.
James Mackay.
William Mackay.
Norman M. Mackean.
Thomas Mackenzie.
J. M. Mackinlay.
Robert Craig Maclagan.
James MacLehose.
Rev. William H. Macleod.
Capt. Cohn MacRae.
David MacRitchie.
F. J. Martin.
Rev. John Martin.
John Mastin.
Sir Herbert Eustace Maxwell, Bart.
Sir John Stirling Maxwell, Bart.
Thomas May.
W. D. Graham Menzies.
William Lindsay Mercer.
A. H. Millar.
Robert Schaw Miller.
Hugh Mitchell.
Richard Blunt Mitchell.
The Earl of Moray.
Joseph Morris.
Hew Morrison.
John J. Moubray.
Robert Munro.
Andrew Ernest Murray.
David Murray.
Patrick Murray.
Theodore Napier.
George Neilson.
John Notman.
W. T. Oldrieve.
Alexander Orrock.
Charles Ower.
Alexander Park.
Charles C. S. Parsons.

Victor Albert Noël Paton.
George M. Paul.
Sir J. Balfour Paul.
Alexander L. Dick Peddie.
J. M. Dick Peddie.
W. M. Flinders Petrie.
The Duke of Portland.
C. Rees Price.
William Ramsay.
John Rankine.
Alexander James Raven.
Alan Reid.
Salomon Reinach.
Sir John Rhys.
Ralph Richardson.
E. Ritterling.
Alexander F. Roberts.
Thomas J. S. Roberts.
Rev. John M. Robertson.
Charles S. Romanes.
The Earl of Rosebery.
Thomas Ross.
Rev. James C. Russell.
Rev. A. H. Sayce.
Lieut. Ian H. Mackay Scobie.
John Scott.
Rev. James Hay Scott.
Sir John Scott-Moncrieff.
David Scott-Moncrieff.
Robert Scott-Moncrieff.
The Countess of Selkirk.
Thomas Sheppard.
Lord Skerrington.
David Crawford Smith.
Robert Smith.

Rev. J. E. Somerville.
John James Spencer.
William Strang Steel.
William Steele.
John Home Stevenson.
Lord Strathcona and Mount Royal.
Robert Strathern.
Rev. John Stuart.
Robert M. Sutherland.
J. B. Sutherland.
Robert A. C. Thirkell.
H. D. Thomas.
Andrew Thomson.
J. Maitland Thomson.
Michael Grieve Thorburn.
Henry Guicharde Todd.
W. S. Turnbull.
Sir William Turner.
Sir Robert Usher, Bart.
Rev. W. Neville Usher.
D. J. Vallance.
George Waterston.
Charles B. Boog Watson
Walter Crum Watson.
James Watt.
Rev. Lauchlan MacLean Watt.
J. R. M. Wedderburn.
William Weir.
Cecil White.
Alexander Whitelaw.
Andrew Robertson Wilson.
John Wordie.
Rev. Frederick G. Wright.
William Laurence Young.
Miss A. F. Yule.

All the photogravures in this volume have been engraved by Messrs. T. & R. Annan & Sons, Glasgow, and almost all the process blocks by Messrs. Hislop & Day, Edinburgh, from photographs prepared under the superintendence of the author. Nearly all the drawings are the work of Messrs. D. & J. Frater, Edinburgh.