## CONTENTS

<table>
<thead>
<tr>
<th>Acknowledgements</th>
<th>vi</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preface</td>
<td>vii</td>
</tr>
<tr>
<td>The Structure and Presentation of the Report</td>
<td>viii</td>
</tr>
<tr>
<td><strong>1</strong> Introduction  A. G. Poulter</td>
<td>1</td>
</tr>
<tr>
<td><strong>2</strong> The Metalwork  A. G. Poulter</td>
<td>15</td>
</tr>
<tr>
<td><strong>3</strong> Worked Bone  A. Roberts</td>
<td>65</td>
</tr>
<tr>
<td><strong>4</strong> Beads and Glass, Jet and Shale Jewelry  A. Roberts</td>
<td>80</td>
</tr>
<tr>
<td><strong>5</strong> Intaglios  M. Henig</td>
<td>86</td>
</tr>
<tr>
<td><strong>6</strong> Ceramic Objects  R. K. Falkner</td>
<td>88</td>
</tr>
<tr>
<td><strong>7</strong> The Lamps  R. K. Falkner</td>
<td>104</td>
</tr>
<tr>
<td><strong>8</strong> Sculpture and Architectural Decoration  T. F. C. Blagg</td>
<td>117</td>
</tr>
<tr>
<td><strong>9</strong> The Worked Prehistoric Lithic Material and its Possible Re-use  J. Chapman and J. Kenworthy</td>
<td>148</td>
</tr>
<tr>
<td><strong>10</strong> The Large Mammal and Reptile Bones  M. J. Beech</td>
<td>154</td>
</tr>
<tr>
<td><strong>11</strong> The Small Mammals  S. A. Parfitt</td>
<td>198</td>
</tr>
<tr>
<td><strong>12</strong> The Fish Remains  M. J. Beech and B. Irving</td>
<td>224</td>
</tr>
<tr>
<td><strong>13</strong> The Bird Bones  Z. Boev and M. J. Beech</td>
<td>242</td>
</tr>
<tr>
<td><strong>14</strong> The Human Skeletal Remains  H. Bush</td>
<td>254</td>
</tr>
<tr>
<td><strong>15</strong> The Botanical Remains  J. L. Buysse</td>
<td>260</td>
</tr>
<tr>
<td><strong>16</strong> The Mollusca  M. J. Beech</td>
<td>293</td>
</tr>
<tr>
<td><strong>17</strong> The Metallurgical Debris  C. Salter</td>
<td>298</td>
</tr>
<tr>
<td>Bibliography</td>
<td>307</td>
</tr>
<tr>
<td>Index</td>
<td>319</td>
</tr>
</tbody>
</table>
Without the continuous and generous support provided by the Bulgarian Academy of Sciences, the Institute of Archaeology, Sofia and the Veliko Turnovo Historical Museum, this volume could never have been completed. The unswerving assistance offered by the British Academy and the Society of Antiquaries of London were essential to the success, not just of the excavations, but the progress towards its full publication. Thanks Jane. The British Council and the Bulgarian Ministry of Education provided Scholarship Grants for members of the team between 1985–1991.

Special thanks are due to the contributors to this volume, all of whom persevered, without financial help from the excavation fund. I wish to acknowledge, in particular, the contribution made by Tom Blagg who finished the final revisions to his manuscript shortly before his untimely death. As a good friend and a great scholar, he is missed by many and with good reason. Mark Beech not only contributed reports to this volume but also co-ordinated the environmental programme as a whole.

The illustrators, who produced the publication drawings during the field-seasons in Bulgaria, worked in often difficult conditions and merit special commendation for their achievement; Paul Stroud, Helen Jeffries and Kirsty Norman. In Britain, Jane Goddard added to the corpus of final drawings for publication and more than matched the high standards set by those who had joined the field team. David Taylor also drew finds. Moreover, he successfully organized and assembled the large number of drawings and contributed the advice and practical knowledge which underpins the publication of the illustrations. Dr A. Jones has spent a year working with me on the final revisions of the texts. Her painstaking attention to detail and determination have contributed enormously to the final publication.

To all the above and the others who have offered advice and assistance in the preparation of this volume, I offer my heartfelt thanks. As in all successful outcomes, it is the combination of team-work and individual responsibility which achieves the best results.
This, the third and final monograph completes the description of the excavations carried out by the British team on the site of the Roman city of Nicopolis ad Istrum in northern Bulgaria. The reports which follow detail the results from two key aspects of the research programme; providing a full description of finds assemblages (including 6,231 finds records) from well-dated deposits and reconstructing the ancient site’s natural setting and changing economic fortunes based upon a comprehensive archaeobiological programme, using primarily archaeobotanical and zooarchaeological remains. Included also are studies on the molluscs and the evidence for metallurgical activity in the ancient city. Apart from the importance of these studies for the immediate region, very little research of this kind—and on this scale—has taken place within the Balkans as a whole. These reports therefore offer a rare insight into the palaeoeconomy and material culture of an urban centre in the Roman, late Roman and early Byzantine periods.

The reports are intended both for specialists working within the region, and for those seeking comparative information on aspects of the economy or site-finds from this part of the Roman Empire. Since such information is rarely available for the Balkan provinces, it is necessary to publish as full an account as possible. Of particular importance is the inclusion of dating and context descriptions for all finds and the publication with the specialist reports of sufficient data (in the form of tables and figures) to allow the reader to judge the validity of the overall conclusions. Those who require additional information (archive data sets for the specialist reports or context and small-find records from the excavations) may consult the full electronic archives held by the Archaeology Data Service. Those who wish to gain on-line access should apply to help@ads.ahds.ac.uk.

For the ancient city of Nicopolis, the historical interpretation of the excavations and the significance of the site rely heavily upon the conclusions contained in this volume. Already in print is the first volume on the excavations, geophysics, frescoes, coins and inscriptions (Poulter 1995), published by the Society for the Promotion of Roman Studies, and the second on the pottery by R. K. Falkner and on the glass by J. D. Shepherd (Poulter 1999), published by the Society of Antiquaries of London.

A.G.P
THE STRUCTURE AND PRESENTATION OF THE REPORT

The material here presented falls into two main sections: the finds from the excavations, and the archaeobotanical remains, followed by a contribution on slag deposits and metal-working. The evidence is presented for all periods of occupation, from the Roman to early Byzantine period, and including the early medieval and post-medieval settlements.

The compilation and writing of these reports involved lengthy and often complex discussion and exchanges of information between the director and specialists. It is to the credit of all of the contributors that they persevered in the task of producing final reports even though, after the conclusion of the excavations in 1991, there were no funds to support staff and only modest help was available for expenses. Although some of the specialists have been fully involved with the original fieldwork, the task of analyzing the results was especially difficult for those who had not participated in the excavations and who had to undertake additional study in order to understand the recording methods used, the process of the excavation and the character of the site; Zlatozar Boev, Johnna Buysse, Helen Bush, John Chapman, Martin Henig, Simon Parfitt and Chris Salter.

The director was responsible for providing the dating evidence for all finds and the interpretation of the contexts from which they came. In addition to editing the following contributions, the director has added new relevant sources of information which have appeared since the original reports were submitted. Rarely, in the finds sections, the director has added a comment after the description of the object by the primary author. In these cases and where a particular find is discussed by a contributor who is not the principal author of the report (for example, William Manning on the locks in metal finds) the second contributor’s name appears in brackets at the end of the additional note.

The objective, in the case of the finds reports, is not to include detailed discussion of particular types of find. However, where there exist local catalogues - which may not be known by a reader unfamiliar with the Balkans – these works are cited when appropriate. Each find record includes the date of the context and the circumstances of deposition.

Nevertheless, these reports do not pretend to represent an exhaustive account of the object’s significance and distribution across the Empire. Rather they fulfil the more modest aim of presenting the evidence in a concise format, as a resource for further study by specialists seeking information about the character and range of finds from this ancient city and this part of the Roman and early Byzantine Empire. Exceptionally, where a category of finds is of direct relevance to the interpretation of the site, this is noted and cross-references are made to the excavation report (Poulter 1995).

In the archaeobiological sections, sufficient data is included to allow the reader to consider the evidence upon which the essential conclusions are based. However, for those who wish to gain access to archive records for specialist reports or to consult the full electronic copy of the primary finds records and excavation documentation, this information can be obtained from Archaeological Data Service (Arts and Humanities Data Service) at info@ads.ahds.ac.uk.

All illustrations and catalogued objects are numbered in sequence within each report, prefixed by the appropriate chapter number. For example, following the introduction, the first report, the metal-work, has figure and catalogue numbers prefixed by the number 2 (eg, Fig 2.7, catalogue number 2.42). For the finds reports, the description of objects follows the same order. The simple description or name of the object is on the first line alongside the catalogue number (omitted only if a group of objects is listed by type, cf, straight shafted bone pins). There follows the description, material (if appropriate), measurements (mm), then its small-find number (SF), the area from which it came, its context number, the context description and then the date of that context. Where a find is unstratified (u/s) this is noted.
Occasionally, an object comes from an ‘undated’ context: a context which belonged to a short string in the matrix which provided insufficient evidence for it to be assigned with confidence to a single period. In the case of the metal-work report, all but a few finds (listed in the introduction) are illustrated so there was no need to identify which finds in the catalogue are drawn. In all other finds reports, however, all illustrated finds have a star symbol (*) immediately after the catalogue number.

In the archaeobiological reports, numbers on their own within round brackets are context numbers. Where the excavation area is not indicated in the text, it is included within the brackets immediately before the context number.

The illustrations of small-finds vary slightly in style. Although the Director was responsible for the overall guidance of illustrators, many of the final publication drawings were completed during the 1980's and early 90's, others later during preparations for final publication and by different illustrators. Consequently, styles inevitably vary although the general principle of producing realistic, rather than schematic drawings, has been invariably applied.
INTRODUCTION

by

Andrew Poulter

The Aims of the Excavations at Nicopolis

The primary objective of the joint Anglo-Bulgarian research programme (1985-92) was to examine the character of a well-preserved Roman city in Bulgaria: to identify how it changed and developed from its origin as a Trajanic foundation (established c AD 109) through the Roman, late Roman and early Byzantine periods down to its final destruction and abandonment in the late 6th century AD (Fig 1.1 and 1.2). Whereas the Bulgarians continued excavations within the Roman city, the British team investigated the smaller fortified enclosure of 5.6 ha, immediately to the south, which had been identified as the site of Nicopolis in Late Antiquity (Poulter 1983, 90-97), built after the original Roman city had been abandoned (Fig 1.3). It was anticipated that a combined programme of geophysical research and area excavation would offer a unique opportunity to explore the physical layout of the city in the late Roman period. Few sites exist for such an extensive study of late Roman urbanism, either because the remains have been extensively robbed or else because the Late Roman city overlies its Roman predecessor, making it difficult to disentangle the general character of the site in just the late Roman period. Nicopolis, with its two separate sites, one Roman and the other late Roman, appeared not to have been significantly affected by later occupation. Research therefore offered every prospect of uncovering the character of this particular city which would serve as a case study to be compared with other, generally less well understood cities of Late Antiquity. The traditional view for the Balkans, and for the Eastern Empire as a whole, has been that there was no fundamental change in the organization and character of ancient cities down to the 6th century and that it was only after a last period of prosperity ‘in the Age of Justinian’ that the basis of urbanism was fatally weakened and finally extinguished, first by the Slav and Avar invasions in the northern Balkans and then, in the Near East, by the arrival of the Arabs in the 7th century. It has been the results from Nicopolis and the reinterpretation of the evidence emerging for other cities within the early Byzantine Empire that this view has been modified to reveal a much more complex picture with striking regional variations but also a more general and radical decline in the traditional nature of classical urbanism from the onset of the late Roman period (Liebeshuetz 2001). Even before the excavations at Nicopolis begun, there were indications, in the Balkans at least, that the cities had abandoned their classical form at a much earlier date. The only cities which appeared to still offer some of the amenities and private investment characteristic of urban life in the Roman period were centres of imperial administration where these signs of modest recovery were probably a response to imperial investment for the benefit of the new provincial administration, rather than representing a local revival of civic prosperity (Poulter 1992).

Although the physical development of the city was of importance and might provide clues as to functional continuity or change, the excavations were planned from the outset to include a large scale programme of archaeobiological analysis, aimed at providing evidence for the economy of the city, especially its role in the exploitation of its rich agricultural hinterland. Also, because there exist few sites in the Balkans which have produced a full and reliably dated sequence of occupation, a second objective was to reconstruct a largely site-based ceramic chronology, using coins, imported fine-ware and amphorae, but not relying upon other published corpora from the region. Although this potentially produces a more robust sequence, as well as more reliable dating for finds and biological evidence, it
Fig 1.2 The Lower Danube in the Roman period
is an approach which is not without its own drawbacks, as will be described below (pp. 4-5).

Circumstances also conspired to significantly widen the scope of the enquiry. The original agreement presupposed that our Bulgarian colleagues would be working on the Roman site and that the British excavations would be confined to the late Roman to early Byzantine periods. However, within the British sector, well-preserved Roman and late Roman levels were encountered and this allowed the British programme to be expanded to include a study of the Roman city from its foundation down to its eventual destruction in the late 6th century. At the other extreme, because it was discovered that the site had been reoccupied, if sparsely, in the ninth to tenth centuries, and extensively in the eighteenth to early nineteenth, the research was further extended to include both the early medieval and post-medieval periods.

The Publication of the Excavations

The results of the first three years of excavation were published as an interim report in the Antiquaries Journal (Poulter 1988). Field-work was completed in 1992 and research commenced on the analysis of the results of the excavations, the finds and archaeobiological evidence. The task was made easier because the recording, analysis and drawing of the finds to publication standard had continued during each field season and was largely completed by the final year in Bulgaria. All specialist reports were available in first draft before the excavations, geophysics, inscriptions, coins and wall-plaster were published in the first monograph (Poulter 1995). Preparations then continued for the second volume.
which contained the pottery report by Falkner and the analysis of the glass finds by Shepherd (Poulter 1999). Since then, the original finds and archaeobiological reports have been revised and, in some cases, radically rewritten for publication in this volume although the general conclusions, summarized in the excavation report, remain essentially the same as those presented here.

Producing three separate volumes over a decade is not an ideal method of publishing a major excavation. The Society for the Promotion of Roman Studies published the first volume on the excavations (with substantial financial assistance from the excavation fund) but declined to continue its support. I and my team are therefore much indebted to the Society of Antiquaries of London for taking on the task of publishing the second monograph and now overseeing the publication of the final volume. In part, this explains the long delay in completing the task. It also accounts for the fact that there is a difference in format between the three books. Nevertheless, we hope that this does not unduly detract from the value of the material which is now all finally available in print.

**Dating**

It was recognized at the start of the excavation that, because there was no agreement as to the exact dating of ceramics and finds from the region, it was safer to construct and to rely upon a site-based chronology. The method and its more obvious disadvantages have been described (Poulter 1999, 6–7). The most significant of the problems are those presented by residuality which, as on all urban sites, proved to be high. In the case of the pottery, it was clear that in post-medieval contexts, as much as 95% of the ceramic assemblage was residual. Only for the very earliest period in the history of the site, was residuality of negligible significance. Recent work at Dichin has confirmed that residuality at Nicopolis has artificially extended the life of the local fine wares which, though they occur in early Byzantine contexts in the city, we can now demonstrate ceased production before the end of the 4th century. Clearly, in the case of small-finds, the terminal context date provides only a *terminus ante quem* for the use and manufacture of the object. Even so, the nature of the context should indicate whether there is a high or low probability that the find is residual. For example, a pit-fill may include objects of earlier date than the digging of the pit but finds from a destruction deposit, as in the case of the destruction of the Roman city c 450, are likely to have been in use at that time.

Despite these caveats, the provision of dating for all the small-finds is here considered of importance for researchers in the region as well as those interested in the dating of finds which occur broadly across the Roman Empire. In a few cases the date of the contexts can be relatively precise (as above, c 450). More often, a date range can be provided, based upon the associated finds from that context and its stratigraphic position within the sequence (e.g., 300–350). All the dates listed are taken directly from final matrices, drawn up by the director for each area of the site and checked against associated material, notably coins and the final ceramic chronology.

**The quantitative Assessment of the Data by Period**

The essential breakdown of the history of the site falls into five distinct periods; Roman c 110–296, late Roman c 296–450, early Byzantine c 450–600, Slav c 800–1000, post-medieval c 1750–1850. For the most part, this chronology provides the framework into which the sequence can be most appropriately described. However, the reader should also be aware of the nature of the excavations and how this can affect – and may possibly distort – the validity of the results described below. The most obvious is the accuracy of the site dating: a problem deserving particular explanation and is discussed below. The other, less obvious, but equally important qualification concerns the relative representation of data in each of the periods. True, the quantities of bones, seeds and finds constitute major corpora but they are not evenly distributed. The Roman period was only examined in restricted areas in the centre of the site and along the northern defences. However, the late Roman period was by far the best represented period with deep, well-stratified deposits from all excavation areas except for area E. Although the early Byzantine period was well-understood in terms of buildings, there were
relatively few areas which produced good occupation surfaces, partly because many of the structures
were unlikely to have acquired domestic debris (the churches in areas F and K) and partly because the
deposits were close to the surface and often contaminated or disturbed (area M). An additional
complication is the failure of the excavations to identify major areas of intensive domestic occupation
in this period — although, this probably accurately reflects the nature of the site at that time. For the
Slav period, pottery indicated occupation close to area K, but only one building was found and
excavated (area F). The evidence from the post-medieval period was abundant. Inevitably, this bias in
the availability of data by period must be taken into account when judging the significance of the
results. For example, Boev argues that the most extensive range of birds belongs to the late Roman
period. This is true. What is less certain is whether this is significant in terms of the importance of;
say, domestic fowl in the 4th century AD or whether it simply reflects the obvious fact that he had
more material available for study from this period than from any other. The problem is of direct
relevance to any attempts to accept, at face value, the conclusions based on the quantification of data,
a difficulty that is rarely stated explicitly though it applies as much to Nicopolis as it does to any major
excavation (Poulter 1999, 28–9).

The Excavations (Fig 1.4)


High banks of spoil followed the line of the tower walls and curtain but only the occasional irregular
hole indicated spasmodic robbing across the interior of the site. Consequently, it was anticipated that
a resistivity survey over the full extent of the interior would guide the choice of areas for excavation.
Because the early Byzantine level survived just below the modern ground surface, the survey proved
remarkably successful and did locate structures and provided a clear distribution of buildings across
the site, the majority of which were of early Byzantine date: earlier Roman and late Roman structures,
even when surviving as upstanding walls, were so deeply buried that their existence was masked by
the early Byzantine occupation level. Only in the case of the paved Roman road coming out from the
south gate, did a prominent early feature appear clearly in the geophysical survey (Strange in Poulter
1995, 259–267). Despite the fact that internal floors remained mostly intact, the robbing of mortared
structures in the post-medieval period had been so extensive that the walls of major buildings, such
as the two basilicas (areas F and K), had been reduced to their lower foundations. However, earlier
structures, built of stone with earth bonding, survived remarkably well. None must have been visible
on the surface, even where the walls survived almost to the modern turf line (especially D and K). The
post-medieval settlement was extensive and five of the excavation areas produced buildings of this
date but the structures were flimsy and consequently rarely appeared in the geophysical survey.

Although, in the central area, all excavation areas were selected to investigate positive anomalies
visible in the resistivity survey, the mounds of spoil, immediately inside the line of the defences,
masked all buried features. Here, the selection of sites was dictated by upstanding visible remains or
by the negative plan of structures which had been robbed, notably the sites of towers and the east
gate. All were, from the outset, area excavations except for H, K, L, M and N. These cuttings
examined the stratigraphy at key points across the site. All were recorded in plan and section but were
not subsequently extended, apart from K and M which were enlarged into full area excavations. None
of the cuttings were carried down below the early Byzantine occupation level so neither the extent
nor the character of earlier occupation is known for these sites.

Area A was an area excavation, located where it was anticipated that the south gate of the Roman
- city would be found, at the end of the cardo running along the east side of the agora and which
- terminated at its northern end with a well-preserved town gate. This presumption proved to be
- mistaken: the south gate was found further west (area C). Instead, finds included an early Roman
- house, destroyed by fire in the late 2nd century, the berm of the city defences immediately south of
- the wall (here robbed to its lowest foundations) and the Roman defensive ditch, replaced in the early
5th century by a larger ditch and an outwork or proteichisma on the edge of the berm which had been destroyed by fire, then collapsed into the ditch when the city was destroyed c 450. After the subsequent backfilling of the ditch (largely with spoil and destruction debris from the latest levels within the abandoned city), the only evidence for occupation in the area during the 6th century was a hearth and one side of a building preserved in the east section and extending further east.

Area B was positioned to intersect both the strong north/south positive anomaly which turned out to be the paved surface of a Roman road, partly dismantled in the 3rd century and then repaired with an extensive cobbled surface, used for the slaughtering of cattle and industrial activity during the 4th to early 5th centuries. Apart from isolated finds in the subsoil, there was no sign of occupation in the 6th century or in the post-medieval period.

Area C investigated a number of large stone blocks which survived above ground and which appeared to be in situ. These proved to be the remains of a well-preserved Roman gate. The area was subsequently extended south to join with area B. Some slight traces of early 2nd century occupation were found as well as the massive, central slabs of a mid 2nd century Roman road which continued in use after the construction of the defences c 175. During the 3rd century, road slabs were removed and the defensive ditch was extended across in front of the gate, presumably to increase security for the city. Since the gate was no longer in use, it was probably blocked. During the 4th century, the road across the ditch
wa s reinstated and repaired with a cobbled surface. A guard-chamber was added to the outside of the Roman gate-tower. As in area B, this surface produced numerous finds of iron and copper-alloy, including coins, perhaps because this area, was used for commercial transactions. Clear evidence for the destruction of c 450 covered the inside of the gate and lay across the roadway. With the early Byzantine reconstruction of the site, the gate was blocked, the curtain-wall thickened and a tower was attached the outer face of the new defences. A single building was identified, built up against the inside of the curtain-wall. Following a subsequent destruction, towards the end of the 6th century, the area was abandoned until its reoccupation in the post-medieval period when a roughly cobbled surface continued south of the gate and another building, like its early Byzantine predecessor, abutted the inside face of the curtain-wall which consequently must have been still standing in the late 18th century.

Area D produced the earliest evidence for occupation, dating to the early 2nd century, following the clearance of tree cover, no doubt carried out when the city was first founded. During the late Roman period, a structure with a tiled roof but walls bonded with earth was erected, probably the back range of a large building extending north of the area. The excavated rooms served as an agricultural store, an area for crop processing and was used for the manufacture of bone tools. The complex was destroyed by fire and the area was subsequently used for the dumping of refuse in pits during the first half of the 5th century. After the early Byzantine reoccupation, there was just one simple earth-bounded building, a two roomed structure, open to the south, perhaps workshops. After its late 6th century destruction, the site was abandoned until the post-medieval period when a house occupied the eastern side of the area. Its life also terminated in destruction by fire.

Area E was selected because a small portion of clearly late Roman wall (with mortared tile courses) was visible before excavation. This turned out to be the top of a very well-preserved early Byzantine gate and a section of curtain-wall. Slight traces of a cobbled surface indicated that the site, as its topographic situation suggests, had provided access down to the river and probably harbour installations. Two periods of occupation were identified along the inside of the early Byzantine wall and significant finds came from the silty primary fill of the large drain constructed beneath the tower gate.

Area F, as the geophysical survey suggested, was the site of a Christian basilica of early Byzantine date, commanding the central and most elevated location within the defences. Beneath, late Roman levels were examined. They included successive buildings and a cobbled road surface of 4th to early 5th century date. Although the interior of the basilica with its tiled floor was well-preserved, robbing had removed most of the wall foundations. The church had been destroyed by fire at the end of the early Byzantine period and was subsequently abandoned although a Slav grubenhaus, still with jars full of grain in situ on its floor, was found immediately to the north. Evidently, at least in this area, occupation in the 9th–10th centuries had occurred and was terminated abruptly by fire. Two grubenhäuser occupied this site in the post-medieval period.

Cutting H located another early Byzantine building, one which formed part of the line of structures, roughly aligned east/west, which crossed the centre of the enclosure.

Area K was examined by a cutting, followed by area excavation where the resistivity survey indicated the presence of a building. This proved to have been a small early Byzantine church. Beneath, a late Roman structure was excavated above successive dumps of domestic and industrial waste belonging to the late 3rd to early 4th century AD. Slav pottery suggests medieval occupation in the vicinity and slight remains of several post-medieval houses were found.

Cutting L was made to examine one of the few sizeable structures which had been robbed in recent times and which clearly indicated the presence of a large, roughly square building close to the southern defences. It proved to be of early Byzantine date and appears to have been reused in the post-medieval period.
Area M was first a cutting, positioned to intersect the line of massive buildings, the foundations of which were clearly visible in the geophysical survey. Although no occupation surface survived, the massive earth and stone foundations of the early Byzantine building were identified. Totally unexpected, however, was the discovery that they cut the well-preserved upstanding remains of a Roman house, constructed c 200 and destroyed by fire about the middle of the 3rd century. Because the excavation uncovered substantial quantities of frescoes and moulded stucco cornices, only the north-west corner of the house was uncovered, leaving the remainder of the structure undisturbed. Even so, a large main room and two side chambers were excavated and the adjoining section of a central court where one of the columns and its stone column base were found lying where they had fallen when the house was systematically demolished, immediately after its destruction by fire. Subsequently, during the 4th century and probably on into the early 5th, the abandoned area was used for the dumping of domestic waste in pits. After the end of early Byzantine occupation, the area was only subsequently disturbed by more post-medieval houses. As elsewhere, occupation ended with destruction by fire.

Cutting N transected the interior of a building, destroyed by fire and probably of early Byzantine date. This was identified at the southern end of the excavation and no structures were found in the central and northern ends of the cutting.

Area P examined the interior of tower 1, immediately north of the gate on the west side of the early Byzantine defences. Although the walls of the fortifications had been badly robbed, internal stratigraphy survived intact. The earliest occupation surface contained an in situ column-base which presumably belonged to a public building, flanking the cardo which must have passed immediately to the east of the area, at least until the construction of the city’s defences c 175. It was covered by a dump of redeposited destruction debris, dating to the late 3rd century. Thereafter, the area was abandoned and perhaps used for cultivation, as is suggested by a deep build-up of organic rich soil. With the early Byzantine reoccupation, the foundations were cut for an externally projecting, rectangular tower. The interior was then backfilled with successive dumps of soil, rich in finds and destruction material, surely borrowed in from the last level within the abandoned Roman city to the north. This was used to level up for a simple clay floor. Two periods of occupation were identified, both early Byzantine in date.

Area R investigated a massive prow-shaped tower (tower 8) on the eastern curtain. The interior was rather more impressive than that in area P: it had a tiled floor beneath which was a levelling deposit of earth and destruction debris, similar in character but lesser in quantity to that used as make-up during the construction of tower 1 (area P). Probable is it that this dump of soil, rich in finds, was also taken from the final occupation level within the Roman city to the north. There was no sign that the tower was reused or that occupation existed in the immediate vicinity after the early Byzantine period.

Area S lay at the mid point along the eastern defences and, as expected, proved to be the main gate on this side of the early Byzantine enclosure. The earliest occupation included the remains of a building destroyed by fire. Its date remains uncertain: it may have burnt down in the 3rd or 4th centuries AD. Thereafter, skeletons suggest that the area formed part of a late Roman cemetery before the defences were built. Large stone blocks, taken from the Roman city, were used in the construction of this tower gate which had two periods of use, both early Byzantine. During the second phase, it probably served only as a tower and the gate was blocked. There was no sign of later occupation although Slav pottery suggested that there had been early medieval settlement close by.

The Results of the Excavation: a Summary

What emerged was a very different and more complex history of the site than had been anticipated. The rapid development of the city in the provision of fine, paved roads and civic amenities during the first half century of its existence was matched by an immediate and rapid economic development: local fine
wares were being produced to supply the city’s needs before c 130 and the exploitation of the fertile territory was soon underway, resulting in the provision of a wide range of agricultural goods (Fig 1.5). Native involvement in the city’s affairs would seem to have been limited: only in the very early years was local Thracian pottery in use and then only in small quantities, before being completely supplanted by Roman wares. In the city’s inscriptions there is equally no suggestion that natives were involved in civic administration, at least not until the Severan period. The majority of the citizens, artisans and craftsmen, as well as high ranking members of the city elite, came from Asia Minor and, in particular, from the two cities of Nicaea and Nicomedia. Nicopolis, rather than representing a native community which gained civic status, would seem to have been an artificial creation, attracting immigrants, especially from western Asia Minor. To what extent this was a spontaneous initiative or whether it was part of an official policy to foster urban growth in the hinterland of the Danubian frontier, now partly demilitarized after the conquest of Dacia, remains uncertain. Nevertheless, the city’s growth is attested by further, if still sporadic, development across the plateau, including agricultural buildings and some civic structures.

That the peaceful development of the city was abruptly, perhaps violently interrupted, is suggested by the excavation of a fine town house, destroyed by fire and then immediately buried in the berm inside a defensive ditch which was dug at the same time as the urban defences were erected c 175. Quite possibly Nicopolis was sacked by the Costobocci in 170 when they crossed the Danube and inflicted devastation upon the open settlements of Thrace and Greece. The city walls, built of large limestone blocks and some reused architectural fragments, formed part of a general programme of refortification in the 170’s and 180’s, protecting for the first time the urban centres of Moesia and Thrace, a measure carried out under imperial orders and probably with military assistance.

The effects of the barbarian invasion were short-lived. Although the defences were maintained, urban development resumed outside the walls. Indeed, an extramural quarter, by c 200, included well-appointed town houses, one of which was excavated (area M). This contained rooms decorated with frescoes, including architectural scenes of some pretension and fine moulded stucco freezes. This, to judge from the building inscriptions and the number of statue bases erected in the agora, was a still more prosperous period than the 2nd century, a picture reflected in the range of agricultural supplies available in the city. It did not last. Before the middle of the 3rd century, the fine extramural town house had been abandoned by its occupants and the rooms were used for agricultural and industrial purposes: what must have been fine marble floors were removed and replaced by simple clay surfaces and rough stone steps. Finally, the house burnt down and, after its tiled roof had collapsed across the floor and the marble colonnade in the courtyard had fallen down, the remains were systematically demolished and the site levelled. For the next quarter century, the region suffered from the Gothic invasions and the city was probably besieged by Goths on at least two occasions. Perhaps, the demolition of the extramural houses was a measure taken by the citizens themselves to deny cover to an enemy in the event of an attack. Certainly, the south gate (area C) was blocked and the defensive ditch was extended, cutting through the roadway which had previously provided the only means of access to the city on the south side of the fortifications. The extramural area would seem to have been abandoned until the closing years of the 3rd century when the frontier was restored during the reign of the emperor Diocletian.

The fate of Nicopolis in the 4th century is of especial interest since the intramural situation was very different in character from that existing on the plateau to the south of the city walls. Thanks to intensive robbing of upstanding walls of buildings in the 18th to early 19th centuries AD, it proved possible to draw up a remarkably full plan of the city as it must have appeared in the last years of its existence, in the late 4th to early 5th century AD (Fig 1.1). It seems that, apart from the obviously civic development in the centre of the city, and probably also in the northern insulae, there is remarkably little sign of modest housing. Some small, two-roomed buildings along main streets may well have been shops but the most striking feature of the city plan, especially the outer insulae, is the existence of town houses. These well-built structures of brick and mortar are conspicuously large although, in number, they would appear to represent residences for only some thirty to forty families. This suggests a very small intramural population of several hundred, mostly members of the elite with their dependants but
Fig 1.5 Nicopolis and its territory
certainly not thousands. On the other hand, some of the finds, including the glass, suggest that there was still wealth in the city, at least in the hands of some of those who were privileged to own a substantial dwelling. The variety of agricultural produce reaching Nicopolis in this period appears greater than ever before and there is no hint either, in animal husbandry, that Nicopolis was in any way short of money. Still, the preservation of the same primitive Roman fortifications is some indication that the city was no longer the important centre it had been in the Severan period. Many other contemporary communities, such as Tropaeum Traiani, were embellished with large and impressive defences in the early 4th century (Fig 1.2). The fact that it was not a city used by the imperial administration as a provincial capital may well be the reason: there was no additional source of imperial funding to pay for new defences and the construction of new public buildings (Poulter 1992).

The extramural area was quite different. It was a hive of activity. Immediately south of the defences, the area was kept free of buildings, not doubt to maintain a free-fire zone within bowshot of the walls. But even here, the open space was used for industrial purposes, metal-working and the slaughter of cattle, apparently brought to the city on the hoof. The substantial number of 4th to early 5th century coins from the cobbled area outside the gate also suggests that it may have served as a market. Further south, there were large buildings (D and F), some serving as accommodation, others as agricultural buildings and workshops. Small cobbled streets criss-crossed the plateau. It would seem that there existed a substantial community, certainly on the south side of the city. But it differed from the houses within the city in that these were made simply of stone, bonded with earth and not with mortar and brick - although they did have tiled roofs. So, although the extramural area would seem to have been occupied by a large number of people, they would appear to have been of a lower status and could not aspire to the quality of the housing provided for those fortunate enough to reside within the city walls. In metal-work and other finds, this settlement was no different from what one would expect of any Roman site in the region in the late Roman period. However, one perhaps significant development was the appearance, from the middle of the 4th century, of new types of pottery similar to that produced by the Sintana-de-Mures/Chernyachov Culture beyond the Danube. In some cases, the forms are traditional and Roman but others are new and unparalleled in earlier Roman assemblages. In either case these black wares with their characteristic burnished decoration are new to the region and have been linked with the arrival of the Goths (Falkner in Poulter 1999, 111-112). This would not be an improbable explanation. In 347/8 Constantius II permitted Ulfila and his Gothic followers to cross the Danube and they were settled in Nicopolis' territory. That some should be attracted to Nicopolis and settle outside the city would not be at all surprising. Moreover, the use of massive walls, but built of stone, bonded only with earth, is not a building style which existed in the region in the 2nd or 3rd centuries and it is tempting to suggest that this change in construction technique, especially for domestic buildings, and which becomes dominant in the 4th to 5th centuries, was introduced by new immigrants.

By the late 4th century, this extramural settlement had declined and perhaps had been totally abandoned. At least one building (area D) was burnt to the ground and never rebuilt. Part of the plateau (area S) may well have been used as an extramural cemetery. This retreat, perhaps behind the security of the fortifications, may well have occurred during the turbulent years immediately proceeding and following the revolt of the Goths which culminated in the death of the emperor Valens and the destruction of his army at the battle of Adrianople in 378.

There is no sign of any revival in the city's fortunes during the first half of the 5th century. On the contrary, the extramural area would seem to have been totally abandoned and the only activity was concentrated on the defences. The defensive ditch was widened and deepened while a second line of defence, a mudbrick outwork (proteichisma), was constructed outside the main walls: measures taken to strengthen the defences. About the middle of the 5th century, the city was destroyed by fire. A date c 450 is most likely and it would seem probable that the destruction of Nicopolis was carried out by the Huns. No attempt was made to restore the Roman defences and the city was abandoned.

How long the site was left derelict it is impossible to say. It may have been only a few years. A reoccupation during the reign of Marcian is the earliest historical context but it could have been later
in the 5th century. Certainly, Nicopolis was rebuilt and reoccupied by the beginning of the 6th century. The new fortifications were located south of the city, reusing the eastern portion of the old south wall as its northern side and extending south so that its opposing wall could command the steep river cliff, overlooking the river Rositsa (Fig 1.1). When compared with the now abandoned Roman city (25ha), the new site of 5.7ha would seem small but it nevertheless required impressive new defences.

The interior was surprisingly open and lacked the organized layout characteristic of early Roman cities and of Nicopolis itself. Indeed, there was hardly any sign of roads at all. Only at the east gate, was a cobbled surface identified (area S). A range of buildings crossed the centre of the site, almost certainly two stories in height, perhaps barracks or storebuildings. A main basilica occupied the highest point in the centre of the enclosure (area F) and a second, smaller church (area K) existed towards the south-eastern corner. In the middle of the site there was a small open-ended, two-roomed building, possibly workshops but with no other structures in the immediate vicinity. Especially on the northern side, there were very few buildings but instead large open areas. The economy also appears to have changed. There was little evidence for the large-scale cultivation of crops such as wheat, so characteristic of the Roman and even the late Roman period. Instead, Spring grown crops and pulses appear more important, suggesting a greater dependence upon a ‘market garden’ form of farming, producing food which could be grown close to or even within the defences. The increasing importance of pork over beef may also be explained by the need to keep animals that could be quickly and easily brought within the protection of the defences. Instead of relying upon its own territory, there is a notable rise in the proportions of imported amphorae from North Africa and the Aegean. But the most surprising feature of this ‘city’ was that it contained, apparently, so few people. It was no longer a centre of civilian population; there is more evidence for the existence of settlement outside, within the ruins of the Roman city. In general terms, it seems that the city acted as an ecclesiastical and probably military centre, almost certainly maintained by central authority and no longer, as in the past, supported by the exploitation of its rich agricultural hinterland.

Occupation ended with destruction by fire, perhaps as early as the 580’s, although Nicopolis is recorded for the last time in 598 during the last major campaign waged by Byzantine forces in the region. The end of the city may not have been violent. There are suggestions that the main basilica (Area F) and the roof of at least one tower (area P) had been systematically dismantled before the site was set on fire and abandoned. Thereafter, there is no evidence of renewed occupation until the medieval period when the site was occupied in the 9th or 10th century by a small community. The next and final period of occupation dates to the 18th to early 19th century when the ancient site would seem to have been on the edge of a substantial post-medieval settlement which, in its turn, was burnt to the ground and hastily abandoned; the numerous finds of military equipment, including grenades and cannon-balls, indicate that this event involved a violent assault. Thereafter, the only activity attested is the extensive robbing of buildings and even the foundations of the curtain-wall and towers which had been completed before the site of Nicopolis was first identified by Felix Kanitz in 1871.

The Transition to Late Antiquity programme (1996–2005)

One of the most striking results of the excavations at Nicopolis was the dramatic change in the nature of the site, in its physical character and apparently in its economic base during the early Byzantine period. Far from remaining essentially unchanged for the five hundred years of its existence, the city of the 6th century was clearly very different, not just in appearance, but also in function from the Roman city it replaced in the 5th century. But the excavations could offer no explanation as to why this should have occurred. Clearly, one possibility was that it followed a catastrophic collapse of the regional economy, evidently based in the Roman period on the exploitation of its rich agricultural hinterland. Alternatively, it was possible that the reasons for this change were more general, perhaps promoted by central imperial policy. In which case, the changes at Nicopolis might be an indicator of change in the nature of cities in the 6th century and applicable more widely to the Byzantine Empire. It seemed that the best and most practical way of approaching this question was to explore the character of the
Fig 1.6 The survey region
landscape around the city and to try and ascertain if there had been a change in the economy or settlement pattern which could explain the demise of the classical city of Nicopolis in the 5th century. If, however, no such temporal connection could be found then it would seem more plausible that the explanation was not regional but of more general significance for the Eastern Roman Empire.

Consequently, the second Anglo-Bulgarian research programme (The Transition to Late Antiquity), 1996–2005) was set up to answer this major question posed by the excavations at Nicopolis. It involved two distinct but related projects.

The first was to explore a sample area of 2,000 square kilometres, extending from the Danube (the late Roman and early Byzantine frontier) south as far as the Stara Planina (Haemus mons) in north central Bulgaria (Fig 1.6). This involved developing a new method of site-specific survey which examined a selection of thirty-five sites within the survey region, chosen from the 500 known Roman to early Byzantine settlements identified by members of the Veliko Turnovo Museum, lead by Mr Ivan Tsurov. The aim was to explore the character of these sites, to identify their function and date. As they had all been identified by non-intensive survey methods, it seemed likely that the majority would belong to the upper levels in the settlement hierarchy. This proved to be so: all but one can be confidently identified as having been Roman villas. The fact that smaller settlements were excluded does not prejudice the results of the fieldwork. Since the fate of the city rested upon the success or otherwise of the wealthy landowning class, it was sufficient for the aims of the project to concentrate on this category of site. If there was any radical dislocation of the villa economy in the late 4th or 5th century then that could account for the radical down-turn in Nicopolis’ fortunes, evident from the excavations of the first programme.

The second element was to be the excavation of a typical ‘village’ in the countryside, some 15km west of ancient Nicopolis. The primary aim of the excavation was to provide good zooarchaeological and archaeobotanical evidence for the late Roman and early Byzantine periods and in this the project was remarkably successful. The site selected, Dichin, proved to have been built c 400, and to have suffered its first destruction c 485. It was then rebuilt but finally destroyed and abandoned c 585. The two destruction levels, and in particular the first, produced a considerable quantity of archaeobotanical material, recovered from granaries and buildings which had been destroyed by fire. What was not expected was that the site proved not to have been a humble village but an impressive stronghold with well-built defences. From the finds, it seems to have contained in the 5th century a community of soldier/farmers and storage facilities for local agricultural produce.

Now that this programme has terminated, some provisional conclusions have been published. An interim report (Poulter 1999) has been followed by reviews of the implications of the programme (Poulter 1999a, 1999b, 2002). Particularly important is the new archaeobotanical evidence (Dr P. Grinter), the archaeozoology (A. Hammon, C. Johnstone and R. Parks) and the ceramic analysis (Dr V. Swan). These results from Dichin will be of singular importance for placing the results at Nicopolis in a broader economic context. The process of post-exavcation analysis is well advanced and the results should soon be available in print.
THE MOLLUSCA

by

Mark J. Beech

Introduction
Analysis of the mollusca from Nicopolis was undertaken in order to recover information about the environmental conditions prevailing in and around the ancient city. The primary questions were:

(1) What were the prevailing environmental conditions within the city and its immediate vicinity?
(2) Do the molluscs provide any information about the nature of activities taking place on the site?
(3) Was there any evidence for the importation of marine mollusca?

This report is based upon field notes written by Bob Alvey (formerly the Technician in the Department of Archaeology, University of Nottingham) and also upon an undergraduate project carried out by Rachel Tassell (a 3rd year Zoology graduate at the University of Nottingham).

Methods
The mollusca were retrieved using three methods: hand collection, on-site dry sieving using 0.5cm mesh, and from the residues produced by the flotation programme (see above, p. 154).

Preliminary sorting and analysis of the molluscan assemblage was carried out by Bob Alvey. The molluscan assemblage was identified by Alvey using his own reference collection and the following published sources: Evans 1972, Kerney and Cameron 1979, Kerney et al 1983 and Lozek 1964.

Results

LAND MOLLUSCA

The following list of land mollusca was recorded from the samples processed:

Argina truncatella (Pfeiffer, 1841)  
Carychium minimum (Müller, 1774)  
Carychium tridentatum (Risso, 1826)  
Ceciliodes acicula (Müller, 1774)  
Cepaea vindobonensis (Férussac, 1821)  
Chondrula tridens (Müller, 1774)  
Cochlicopa lubricella (Porro, 1838)  
Fausitana trizona balcanica (Kobelt, 1876)  
Helicella candicans (Pfeiffer, 1841)  
Helicella derbentina (Krynicki, 1836)  
Helicella spp.  
Helix pomatia (Linnaeus, 1758)  
Lacinaria plicata Draparnaud, 1801  
Lacinaria (Bulgariana) varnensis (Pfeiffer, 1848)  
Lindholmiola corcyrensis (Deshayes, 1839)  
Oxychilus spp.  
Pupilla muscorum (Linnaeus, 1758)  
Succinea oblonga Draparnaud, 1801  
Truncatellina cylindrica (Férussac, 1807)  
Vallonia enniensis (Gredler, 1856)  
Vallonia excentrica Sterki, 1893  
Vallonia pulchella (Müller, 1774)  
Vertigo pygmaea (Draparnaud, 1801)  
Vitre a contracta (Westerlund, 1871)  
Zebrina detrita (Müller, 1774)  
Zonitoides nitidus (Müller, 1774)
FRESHWATER MOLLUSCA

In addition to the land mollusca, a considerable number of freshwater molluscs was recovered during the excavations. Species include:

- *Fagotia esperi* (Féruissac, 1823)
- *Fagotia avicularis* (Féruissac, 1823)
- *Gyrulaus albus* (Müller, 1774)
- *Planorbis planorbis* (Linnaeus, 1758)
- *Planorbis corneus* (Linnaeus, 1758)
- *Theodoxus danubialis* (Pfeiffer, 1828)
- *Theodoxus transversalis* (Pfeiffer, 1828)
- *Unio crassus* Philipsson, 1788

MARINE MOLLUSCA

At least 9 species of marine mollusca were identified. These included the following species:

- *Bittium reticulatum* (da Costa, 1778) – Needle shell
- *Cardium* spp. – Cockles
- *Flexopecten glaber* (Linnaeus, 1758) – Scallop
- *Glycymeris violascens* (Lamarck, 1819) – Cockle
- *Mystilus galloprovincialis* (Lamarck, 1819) – Mussel
- *Nucula nucula* (Linnaeus, 1758) – Common Nut shell
- *Ostrea edulis* (Linnaeus, 1758) – Oyster
- *Patella coerulea* (Linnaeus, 1758) – Limpet
- *Trunculariopsis trunculus* (Linnaeus, 1758) – Murex

A list of the major deposits of marine mollusca at Nicopolis is presented in Appendix 16.1. There were comparatively few locations where in situ fills provided a good sequence of deposits laid down over a long period of time. By far the most important was a wide ditch cut across the Roman road in area B. It silted up gradually before it was finally filled in and sealed by cobble spreads reinstating the roadway in the 4th century.

The Terrestrial Molluscan sequence in Area B

A series of terrestrial molluscan samples from the 3rd century ditch cutting the road in area B (Poulter 1995, 71–3) was studied by Tassell. The earliest levels in this ditch can be dated to c 175–250. Later fills, dated to the period c 250–275, included domestic waste and wind blown natural buildup. The final backfill of the ditch occurred at the end of the third or during the first half of the fourth century.

Samples were collected from the successive fills within the ditch. Identifications were then made by Alvey and Tassell. Calculations as to the total number of shells in each sample were carried out by Tassell, excluding non-apical fragments and the burrowing species *Ceciliodes acicula*. The fragmentary nature of many of the shells meant that it was difficult in many cases to identify them to species. Shells belonging to the genera *Helicella, Oxychilus, Helix* and *Chondrula* were all noted. In the case of the latter two genera these were not included in percentage abundance calculations because they were poorly preserved and no apical fragments being present.

Identification of the preferred local habitats/conditions of present day molluscs was made with reference to Kerney and Cameron 1979, Evans 1972, Boycott 1934, Ellis 1969, Beedham 1972, Lozick 1964, Likharev and Rammelmeier 1962. They agree that all members of the genus *Helicella* prefer dry open and often exposed areas. Most members of the genus *Oxychilus* prefer shady, damp areas. However, some species are more catholic than others: *Oxychilus alliarius* exists quite happily in more open areas (Likharev and Rammelmeier 1962).

In the earliest levels of the ditch in area B, relatively few species were present. Members of the genus *Helicella* are the only ones in abundance, accounting for 73.3% of the terrestrial molluscan fauna in this sample (Fig 16.1). The xerophilous nature of this genus in Bulgaria, coupled with the presence of the highly xerophilous mollusc *Truncatellina cylindrica*, which constituted 13% of the total sample, suggests a local habitat which is predominantly open and dry. The only shade-loving molluscs present in this early assemblage is the genus *Oxychilus*, which only accounts for 4.3% of the total assemblage. The presence of a small proportion of hygrophilous species, ie, *Carychiun minimum* (4.3%) and *Succinea oblonga* (4.3%), indicate, however, that conditions were not completely dry and that areas with a wetter habitat also existed close by. The species *Succinea oblonga* is normally a true marsh species, found only in marshes and along river banks.
By 250 it seems probable that much of the local area around Nicopolis was open grasslands with isolated trees or shrubs. Wetter marshlands were also not far away, no doubt existing along the river Rositsa, immediately south of the site.

The later samples also comprised relatively few species. There was a slight reduction, however, in the percentage of species favouring open habitats, although they still formed the larger proportion of each sample. The apparent increase in the essentially woodland species *Oxychilus* may suggest greater tree cover. However, there are still some more catholic members of this genus present such as *Oxychilus alliarius*. Shelter and shade still seems to be limited between c 175 and 350.
The presence of hygrophilous species like *Vallonia enniensis* until at least 275 and, in particular, the presence of *Laciniaria plicata* is significant since the latter, although preferring open habitats, favours damper conditions than the species found in the primary fills. This suggests that wetlands such as marshy areas continued to exist in the vicinity, along with drier exposed grasslands until at least the latter part of the third century.

A number of the molluscs found in two of the samples, B 312 (250–275) and B 300 (250–350) were blue in colour. This appeared to have been caused by exposure to fire. The phenomenon of burnt molluscs was not unique to the ditch in area B. It seems that, between c 250 and 350, flash fires occurred regularly on the site.

**Discussion**

A range of general habitats is indicated by the land mollusc species present. Many of those recorded prefer dry, open grassland conditions, eg. *Vertigo pygmaea, Papilla muscorum* and *Vallonia pulchella*. Although this latter species prefers open calcareous habitats, it can also be found in slightly damper localities. A further example of a dry, open grassland-type species is a specimen of *Zebrina detrita*, found encased in the matrix of a Roman mudbrick. Damp-loving species, eg. *Succinea oblonga* and *Carychium minimum*, were found in abundance at the foot of the steep slope on the southern side of the site, where a number of springs exist today. It is possible that they found their way up to the site with drinking water or with water used in mixing lime plaster.

The freshwater molluscs could well have come from the Rositsa. It is possible that, in Roman times, its course was much closer to the site than it is today. A surprising find from a soil sample taken from the road surface in area C was a single valve of an Ostracoda. These are found in abundance in the springs on the southern side of the site. *Unio crassus*, another freshwater species, was no doubt used as food during the Roman period. It was found in 6th century contexts. Other freshwater species would have come to the site along with sand taken from the river and used in the construction of buildings, as in the provision of bedding for the floor tiles in the basilicas (Poulter 1995, 158). One freshwater mollusc was found embedded in the fabric of a potsherd, again perhaps suggesting activity by the river; the river gravels were probably used as tempering material in pottery manufacture.

The presence of marine mollusca indicates some connection with coastal areas, presumably along the Black Sea. The needle shell (*Bittium reticulatum*) is a small narrow example. It is typically found along the shore line in shallow water on rocky or soft bottomed habitats. Cockles (*Cardium spp.*) are found in soft substrates such as sand or mud, where they burrow into the sea floor. Scallops (*Flesopecten glaber*) inhabit various types of sea beds. The cockle (*Glycymeris violascens*) typically burrows just below the surface in mud and sand. Mussels (*Mytilus galloprovincialis*) attach to rocks and stones on the shore and in shallow water. The common nut-shell (*Nucula nucleus*) lives in offshore habitats in gravel, muddy or coarse sand bottoms. Oysters (*Ostrea edulis*) similarly belong in offshore habitats from low water to around 50 fathoms, typically inhabiting firm, immobile substrates. Limpets (*Patella coerulea*) firmly attach themselves to rocks in coastal habitats. The murex shell (*Trunculariopsis trunculus*) inhabits stones and rocks in the upper littoral zone. Some of these marine shells may have arrived by chance in barrels containing luxury imports, such as large oysters (Poulter 1995, 176).

**Conclusions**

A detailed examination of the condition of the mollusca reveals that many of the smaller specimens exhibited considerable wear and abrasion, and even a slight blueing to the tops of some of the shells. This may be due to strong winds promoting flash fires. Such a fire was seen in 1988 when it quickly spread across the site, but giving off only small amounts of heat, and so did not destroy the shells altogether. Such fires appear to have been as common in Antiquity as they are today. Indeed, the general environmental conditions would seem to have been similar to the present time with largely dry, open, calcareous grassland, albeit with some small wetter marshy areas close by.

As would be expected, the molluscs found suggest that water was brought up from the river and was
used for drinking or the mixing of lime plaster. Bedding sand was taken from the river and used in the two basilica floors. Possibly, river gravel was used as a tempering material in the local manufacture of pottery.

The range of marine mollusca recorded at the site demonstrates that regular contact was maintained with coastal areas, presumably on the Black Sea, although wider contacts with the Mediterranean can not be excluded. Although the needle shell (*Bittrum reticulatum*) and common nut-shell (*Nucula nucleus*) might be considered to be too small for eating, the other molluscs such as the oyster (*Ostrea edulis*), mussel (*Mytilus galloprovincialis*), cockle (*Cardium* spp.), limpet (*Patella coerulea*), scallop (*Flexopecten glaber*), and cockle (*Glycymeris violascens*), would have all been eaten by the inhabitants of Nicopolis. The presence of the murex shell (*Trunculariopsis trunculus*) may be associated with the manufacture of purple dye, but it could also have been used as food. As the sizes of some of the Nicopolis molluscs are on the small to very small size, we may be looking at the residues from whatever containers were used to bring them to the site. Discarded shells, not suitable for sale, may have formed the residue at the bottom of large containers used to import delicacies such as oysters. Such an activity, on the south side of the town, close to the presumed site of the harbour, might well explain the nature of these waste deposits (Poulter 1995, 176).

In general, however, only small quantities of marine molluscs were found. In contrast, considerable quantities of local freshwater mussels (*Unio crassus*) were found in nearly all the major archaeological deposits across the site. This suggests that the inhabitants regularly exploited the local resources available in the river Rositsa. These mussels are indeed still eaten today in the nearby village of Nikiup.

**APPENDIX 16.1**

List of occurrences of major deposits of marine mollusca at Nicopolis.

<table>
<thead>
<tr>
<th>Species</th>
<th>Area</th>
<th>Context</th>
<th>Description / Comments</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cockles (Cardium spp.)</td>
<td>F</td>
<td>3344</td>
<td>silty clay, pot, bone, dump</td>
<td>400-450</td>
</tr>
<tr>
<td>Cockle (Glycymeris violascens)</td>
<td>C</td>
<td>5311</td>
<td>charcoal, silty clay, backfill of early ditch (5316)</td>
<td>250-350</td>
</tr>
<tr>
<td>Common nut-shell (<em>Nucula nucleus</em>)</td>
<td>C</td>
<td>4031</td>
<td>possible occupation surface – Byzantine</td>
<td>?</td>
</tr>
<tr>
<td>Limpet (<em>Patella coerulea</em>)</td>
<td>F</td>
<td>3344</td>
<td>silty clay, pot, bone = dump</td>
<td>400-450</td>
</tr>
<tr>
<td>Murex (<em>Trunculariopsis trunculus</em>)</td>
<td>F</td>
<td>3151</td>
<td>ashy destruction of slav grubenhause</td>
<td>800-1000</td>
</tr>
<tr>
<td>Mussel (<em>Mytilus galloprovincialis</em>)</td>
<td>A</td>
<td>2277</td>
<td>fill of pit (2268) – domestic rubbish</td>
<td>100-130</td>
</tr>
<tr>
<td>Mussel (<em>Mytilus galloprovincialis</em>)</td>
<td>B</td>
<td>238</td>
<td>fill of small pit/post-hole</td>
<td>100-350</td>
</tr>
<tr>
<td>Mussel (<em>Mytilus galloprovincialis</em>)</td>
<td>P</td>
<td>5024</td>
<td>pit, ash, finds, dump</td>
<td>150-250</td>
</tr>
<tr>
<td>Mussel (<em>Mytilus galloprovincialis</em>)</td>
<td>K</td>
<td>4515</td>
<td>Dump</td>
<td>250-450</td>
</tr>
<tr>
<td>Mussel (<em>Mytilus galloprovincialis</em>)</td>
<td>K</td>
<td>4516</td>
<td>Dump</td>
<td>250-450</td>
</tr>
<tr>
<td>Mussel (<em>Mytilus galloprovincialis</em>)</td>
<td>D</td>
<td>604</td>
<td>clay, charcoal, destruction deposit at end of 'early building'</td>
<td>350-450</td>
</tr>
<tr>
<td>Mussel (<em>Mytilus galloprovincialis</em>)</td>
<td>M</td>
<td>4846</td>
<td>fill of pit (4847), finds, pot, bone = dump</td>
<td>350-450</td>
</tr>
<tr>
<td>Mussel (<em>Mytilus galloprovincialis</em>)</td>
<td>P</td>
<td>5018</td>
<td>Make-up deposit for tower</td>
<td>450</td>
</tr>
<tr>
<td>Mussel (<em>Mytilus galloprovincialis</em>)</td>
<td>P</td>
<td>5050</td>
<td>finds, pot, glass dump</td>
<td>450</td>
</tr>
<tr>
<td>Mussel (<em>Mytilus galloprovincialis</em>)</td>
<td>P</td>
<td>5051</td>
<td>make-up for tower, same as above 5018</td>
<td>450</td>
</tr>
<tr>
<td>Mussel (<em>Mytilus galloprovincialis</em>)</td>
<td>D</td>
<td>636</td>
<td>clay, charcoal, destruction deposit of 'early building'</td>
<td>450-600</td>
</tr>
<tr>
<td>Needle Shell (<em>Bittrum reticulatum</em>)</td>
<td>S</td>
<td>5261</td>
<td>Byzantine destruction deposit</td>
<td>450-600</td>
</tr>
<tr>
<td>Oyster (<em>Ostrea edulis</em>)</td>
<td>C</td>
<td>4127</td>
<td>cut of early rectangular pit</td>
<td>150-175</td>
</tr>
<tr>
<td>Oyster (<em>Ostrea edulis</em>)</td>
<td>K</td>
<td>4509</td>
<td>make-up for floor of building</td>
<td>250-450</td>
</tr>
<tr>
<td>Oyster (<em>Ostrea edulis</em>)</td>
<td>K</td>
<td>4516</td>
<td>same deposit as 4515</td>
<td>250-450</td>
</tr>
<tr>
<td>Oyster (<em>Ostrea edulis</em>)</td>
<td>K</td>
<td>4515</td>
<td>ashy dump deposit</td>
<td>350-450</td>
</tr>
<tr>
<td>Oyster (<em>Ostrea edulis</em>)</td>
<td>F</td>
<td>3367</td>
<td>rubble roadway</td>
<td>400-450</td>
</tr>
<tr>
<td>Scallop (<em>Flexopecten glaber</em>)</td>
<td>A</td>
<td>-</td>
<td>Unstratified</td>
<td>?</td>
</tr>
</tbody>
</table>
ABBREVIATIONS

IGBu'g Mihailov, G (ed) 1956-71. Inscriptiones Graecae in Bulgaria repertae, volumes I-IV, Sofia,


Novaensia Novaensia: badania Ekspedycji Archeologicznej Uniwersytetu Warszawskiego w Novae, Warsaw, 1987-

Tropaeum Traiani 1 Barnea, A and Barnea, I (eds) 1979. Tropaeum Traiani I: Ceatea, Bucharest


BIBLIOGRAPHY

Alvey, R 1995. 'Notes on the molluscs from Nicopolis', unpublished manuscript, University of Nottingham


Angel, J L 1966. 'Porotic hyperostosis, anemia, malaria and the marshes in prehistoric Eastern Mediterranean', Science, 153, 760-763

Angel, J L 1967. 'Porotic hyperostosis or osteoporosis symmetraca', in Disease in Antiquity (eds D Brothwell and A T Sandison), 378-387, Springfield, Illinois

Angelov, N 1958. 'Selishnata mogila pri s. Hotnitsa' in Izsl edvaniya v che st na akad D Dechev (eds V Beshheivlev and Vl Georgiev), 389-403, Sofia


Audoin, F 1984. 'Point sur les rat', *Anthropozoologica*, 1, 11-13
Auffray, J-C and Britton-Davidian, J 1992. 'When did the house mouse colonize Europe?', *Biological Journal of the Linnean Society*, 45, 187-190
Badham, K and Jones, G 1985. 'An experiment in manual processing of soil samples for plant remains', *Circeae*, 3, pt 1, 15-26
Berry, R J 1981. 'Town mouse, country mouse: adaptation and adaptability', *Mammal Review*, 11, 92-130
Boessneck, J 1969. 'Osteological differences between sheep and goats', in *Science in Archaeology* (eds D R Brothwell, and E S Higgs), 331-58, London
Boev, Z N 1958. 'Ocherk vurhu izchezvaneto na bobara u nas i susedeniti strani (The extinction of the beaver in Bulgaria and neighbouring countries), Izvestiya na Zoologicheskiya Institut, 7, 433-456, Sofia (in Bulgarian, with French summary)
Boev, Z N 1986a. 'Bone remains of birds', in The Medieval Settlement Garvan, Silistra district, 6th-11th century (ed Zh Vazharova) Sofia
Boev, Z N 1986b. 'The Peacock', in Ornamental Birds, 39-42, Sofia (in Bulgarian)
Boev, Z N 1986c. 'First proofs for the existence of the Black grouse (Tetrao tetrix (L.)) (Aves, Tetraonidae) in Bulgaria', Acta Zoologica Bulgarica, 36, 72-77 (in Bulgarian, with English summary)
Boev, Z N 1991a. 'Studies of birds from the archaeological sites of Bulgaria', Priroda, 1, 35-39 (in Bulgarian)
Boev, Z N 1991b. 'Waterfowl in ancient Bulgaria', in Paleoecologia e Arqueologia II (eds F Querigo and A P Dinis), 111-120
Boev, Z N 1991c. 'The birds of the Roman town of Nicopolis (2nd-6th century AD) at Nikjup, Lovech region', Historia Naturalis Bulgarica, 3, 92-102 (in Bulgarian, with English summary)
Boev, Z N 1993a. 'Archaeo-ornithology and the synanthropisation of birds: a case study for Bulgaria', Archaeofauna, 2, 145-153
Boev, Z N 1993b. 'Neolithic birds from the prehistoric settlement at Kazanluk (Bulgaria)', Historia Naturalis Bulgarica, 4, 57-67 (in Bulgarian, with English summary)
Boev, Z N 1993d. 'Holocene avifauna of Bulgaria (A review of the ornitho-archaeological studies)', Historia Naturalis Bulgarica, 6, 59-81
Boev, Z N and Iliev, N 1989. 'The birds in the food of the population of the inner town of Veliki Preslav (9th-10th century)', Arheologiya, 4, 46-49 (in Bulgarian, with French summary)
Boev, Z N, and Iliev, N 1991. 'The birds and their significance for the inhabitants of Veliki Preslav (9th-10th century)', Arheologiya, 3, 43-48 (in Bulgarian, with English summary)
Boev, Z N and Ribarov, G 1989. 'The birds in the life of the inhabitants of the medieval settlement of Hisarluka (Sliven, 10-12th century)', Izvestiya na muzeete ot Yagoizochna Bulgaria, 12, 207-212 (in Bulgarian, with French summary)
Boev, Z N and Ribarov, G 1990. 'The avifauna of the sunken early bronze age settlement of Urdoviza (present Kyten)', Arheologiya, 2, 53-57 (in Bulgarian, with French summary)
Boev, Z N and Ribarov, G 1993. 'Birds from the ancient town of Kabyle (1st millennium BC - 6th century AD) near Kabyle (Bourgas district)', Historia Naturalis Bulgarica, 4, 68-77 (in Bulgarian, with English summary)
Bogoljubskyi, S 1959. 'Ornamental birds', in The Origins and Transformation of domestic Animals, 567-569, Moscow (in Russian)
Bökönyi, S 1974. History of Domestic Mammals in Central and Eastern Europe, Budapest
Bonhomme, F 1986. 'Evolutionary relationships in the genus Mus', in The Wild Mouse in Immunology (eds M Potter, J H Badeau and M P Cancro), 19-26, Berlin
Brandt, E 1942. Antike Gemmen in Deutschs Sammlungen. I Staatliche Münzsammlung München III, Munich


Carrascosa, M C, and López-Martínez, N 1988. ‘The house mouse from a prehistoric site in Fuerteventura (Canary Islands, Spain)’, Bonner Zoologische Beiträger, 39, 237–256


Chrzanowska, W and Molenda, O 1983. ‘Szczątki kostne ssaków ze stanowiska Novae (Bulgaria)’, Roczniki Akademii Rolniczej w Poznaniu 145, Archeozoologia, 8, 3–19


Conça, E 1974. Istoria comunicaților cultura Boian, Bucharest


Corbet, G B 1990. ‘The relevance of metrical, chromosomal and allozyme variation to the systematics of the genus Mus’, Biological Journal of the Linnean Society, 41, 5–12


Deelder, C L 1984. Synopsis of Biological Data on the Eel, Anguilla anguilla (Linnaeus, 1758), FAO Fish. Synop 80, Rev. 1, Rome


Evans, J G 1972. Land Snails in Archaeology, London
Gatsov, I 1993b. Neolithic Chipped Stone Industries in Western Bulgaria, Kraków
Gencheva, E 1987. ‘Tipologiya i datirane na rannorimskite fibouli ot uzhna Bulgaria’ Arheologiya, 28, 30-43
Gencheva, E 2004. Rimskite Fibouli ot Bulgaria, Veliko Turnovo (in Bulgarian, with French summary)
Gerasimov, S, Nikolov, and Mihailova, V 1990. ‘Morphometric stepwise discriminant analysis of the five genetically determined European taxa of the genus Mus’, Biological Journal of the Linnean Society, 41, 47-64
Grzegor, A, and Lasota-Moskalewska, A 1996. ‘Szczątki zwierzęce z principia w Novae z I w. n.e. ‘ Novaesia 12, 203-209 (in Polish)
Guido, M 1978, The Glass Beads of the Prehistoric and Roman Periods in Britain and Ireland, Rep Res Com Society of Antiquaries XXXV
Hamburger, A 1968. *Gems from Caesarea Maritima*, Jerusalem
Henig, M 1988. 'The chronology of Roman engraved gemstones', *Journal of Roman Archaeology*, 1,142–152
Hillman, G 1984. 'Interpretation of archaeological plant remains: the application of ethnographic models from Turkey', in *Plant and Ancient Man: Studies in Palaeoethnobotany* (eds W van Zeist and W A Casparie), 1–41, Rotterdam
Horáček, I, Cerveny, J, Tausl, A and Vitec, D 1974. 'Notes on the mammal fauna of Bulgaria (Insectivora, Chiroptera, Rodentia)', Věstník Československé Společnosti Zoologické, 37, 19–31
Iliev, N and Boev, Z 1990. 'The birds in the food of the population of the outer town of Veliki Preslav (9th–10th century)', *Inter-disciplinarni Izludvantiya*, 17, 91–94 (in Bulgarian, with English summary)
Iliev, N, Boev, Z and Spassov, N 1992. 'Animal bones from the late Roman and early Byzantine settlement in the Bela Voda area, Pernik district', *Arheologiya*, 1, 44–53 (in Bulgarian, with French summary)
Iliev, N, Boev, Z and Spassov, N 1993. 'Animal bones from the Roman villa at Ratiaria (2nd–4th century AD), near Arčar, a village in the Montana region', *Arheologiya*, 4, 52–59 (in Bulgarian, with French summary)
Iliev, N, Boev, Z and Spassov, N 1992. 'Animal bones from the late Roman villa and early Byzantine settlement of Bela Voda, Pernik', *Arheologiya*, 1, 44–53 (in Bulgarian, with French summary)
Iliev, N, Boev, Z and Spassov, N 1992. 'Zhivotinski kosti ot kusnoantichna villa i rannovyzantisko selishte v kv. Bela Voda, Pernik (Animal bones from the late Roman villa and early Byzantine settlement in Bela voda district, Pernik)', *Arheologiya*, 1, 44–53. (in Bulgarian, with French summary)
Iliev, N, Boev, Z and Spassov, N 1993. 'Animal bones from the Roman city of Ratiaria (2nd–4th c. AD) near Arčar, Montana', *Arheologiya*, 4, 52–59 (in Bulgarian)
Ivanov, S 1959. 'The animal food of the inhabitants of the southern gate in Preslav', *Ivestiya na Arheologicheskiya Institut*, 22, 209–221 (in Bulgarian)
Ivanov, S 1956. 'Domestic and wild animals from the settlement near Popina, Silistra district', in *The Slavonic-Bulgarian Settlement near Popina, Silistra District* (ed Z Vazjaro), 69–95, Sofia (in Bulgarian, with French summary)
Ivanov, T and Ivanov R 1994. *Nicopolis ad Istrum I*, Sofia
Ivanova, I 1995. 'Bat research and bat protection in Bulgaria', *Myotis*, 32–33, 145–153
Jones, G E M 1984. 'Interpretations of archaeological plant remains: ethnographic models from Greece', in
Plan__ts_ and Anci__nt Man:__ Studies in Pala__ethno__botany__ (eds W Van__ Zeist and W A Casparie)__, 43-61, Rotterda__m

Jones, G E M 1987. 'A statistical approach to the archaeolog__cal identif__ication of crop proces__sing',__ Journal of Ar__chaeological Scien__ces, 14, 311-323

Jones, G E M 1992. 'Weed phytosociology and crop husbandry: identifying a contrast between ancient and modern practice'.__ Review of Palaeobotany and Palynology, 73, 133-143


Karapekova, M 1976. 'Composition and character of the ichthyofauna in the Bulgarian rivers flowing to the Black Sea'.__ Hydrobiology, 4, 52-59 (in Bulgarian)

Karapekova, M and Zhivkov, M 1995. Fishes of Bulgaria, Sofia (in Bulgarian)

Keller, E 1971. Die Spätromischen Grabfunde in Südbayern, Munich


Kerny, M P, Cam__eron, R A D and Jungbluth, J H 1983. Die Landschmeck__en Nord- und Mitteleuropas, Hamburg

Kim, J-O 1975. 'Factor analysis' in SPSS: Statistical Package for the Social Sciences __ (eds N H Nie, C Hadlai__ Hull, J G Jenki__ns, K Steinbrenne__r and D H Bent, 2nd ed, 208-244, New York


Kuzev, K 1979. 'Verkohlte Pflanzenreste aus den slawischen Siedlungslächen Brandenburg und Zirzow (Kr. Neubrandenburg)', in Festschrift Maria Hopf, Archaeo-Physica, 8, (ed U Körber-Grohne), Bonn

Levitan, B 1982. Excavations at West Hill Uley 1979: the Sieving and Sampling Programme, Western Archaeological Trust, Occasional Papers 10, Bristol

Morales, A and Rosenlund, K 1979. *Fish Bone Measurements: an Attempt to standardise the Measuring of Fish Bones from Archaeological Sites*, Copenhagen
Nadachowski, A 1982. *Late Quaternary Rodents of Poland with special Reference to Morphotype Dentition Analysis of Voles*, Warsaw
Payne, S 1985. 'Morphological distinctions between the mandibular teeth of young sheep Ovis and goats Capra', Journal of Archaeological Science, 6, 139-47.
Payne, S 1975. 'Partial recovery and sampling bias', in Archaeozoological Studies (ed A T Clason), 7-17, Amsterdam.
Pescov, T C 1987. 'A history of Mammalogy in Bulgaria', in An International History of Mammalogy; Eastern Europe and Fennoscandia I (ed K B Sterling), 131-149, Bel Air.


Poulter, A G 1999c. Nicopolis ad Istrum: a Roman to early Byzantine City: the Pottery (by R K Falkner) and the Glass (by J D Shepherd), London


Rackham, J D 1979. ‘Rattus rattus: the introduction of the black rat into Britain’, Antiquity, 53, 112–120


Radovanović, I 1996. The Iron Gates Mosolithic, Ann Arbor

Kausing, G 1967. ‘The bow: some notes on its origin and development’, Acta Archaeologica Lundensia, 6, Lund

Reitsma, G 1932. Zoologisch Onderzoek der Nederlandsche Terpen, 1, 1–139, Wageningen


Ribarov, G and Boev, Z 1990. ‘Studies of the animal remains in the settlement Yassa-Tepe near Yambol from the late Iron Age’, Interdiszpl. Izst, 17, 83–90 (in Bulgarian)

Robert, L 1940. Les Gladiateurs dans l’Orient Grec, Paris


ABBREVIATIONS AND BIBLIOGRAPHY


Sena Chiesa G 1966. Gemme del Museo Nazionale di Aquileia, Padua


Sirakov, N and Tsonev, T 1995. ‘Chipped-stone assemblage of Hotnitsa-Vodopada (Eneolithic/Early Bronze Age transition in Northern Bulgaria) and the problem of the earliest “steppe” invasion in Balkans’, Préhistoire Européenne, 7, 241–264


Sossinka, R 1982. ‘Domestication in birds’, Avian Biology, 6, 373–403

Soultov, B 1976. Centres antiques de Poteries en Mesie Inférieure, Sofia

Soultov, B 1985. ‘Ceramic production in the territory of Nicopolis ad Istrum (2nd–4th centuries), Terra Antiqua Balcanica 1, Godishnik na sofisskiya univarsitet, istorishcheski fakultet, 76, 2, Sofia


Szymczyk, W 1987. ‘Szatki kostne ryb z odcinka II w Novae’, Studi i Materialy Archeologiczne, 6, 113–128 (in Polish)

Tassell, R 1992. ‘The value and implementation of subfossil and living terrestrial molluscs, as indicators of local conditions, unpublished BSc dissertation, University of Nottingham


Templemann-Maczynska, M 1985. Die Perlen der römischen Kaiserzeit und der frühen Phase der Völkerwanderungszeit im mitteleuropäischen Barbaricum, Römisch-Germanisch Forschungen Band 43, Mainz


Van Zeist, W and Buitenbuis, H 1983. ‘A palaeobotanical study of Neolithic Erbaba, Turkey, Anatolica, 10, 48–65


La Tène au IIIème s. ap. J.-C', *Cahiers de l’Association pour la Promotion de la Recherche Archéologique en Alsace*, 10, 68–96


Vostadovský, J 1973. *Freshwater Fishes, London*


antler objects. 71, 72, 75, 76, 79
Augusta Traiana, 123

bird bones. 242–253
  ornamental species, 250–251
  wild species, 242–245, 248, 249–250, 251–253
bone finds, see also antler
  beads, 72, 76
  beater?, 76
  bow stiffener, 76
  boxes, 72
  combs, 71
  counters, 72, 75
  dice, 72
  figurine, 76
  handles, 75
  hinge?, 76
  looped handles, 75–76
  mounts, 75
  needles, 70–71, 76
  peg, 76
  pin shafts and points, 69–70
  pins, 65–66, 68–69, 76
  plano-convex strips, 75
  spindle whorl, 76
  spoons, 71–72
  toggle?, 76

botanical remains, 260–281
  cereals and pulses, 261, 263, 264
  crop processing, 265–269, 277–279
  fruits and nuts, 263–264
  wild species, 264–265

ceramic,
  figurines, 88, 91
  lamps, 104–116
    imported, 113–114, 116
  local, 106, 108–110, 112–113
  lid, 97
  loomweights, 98
  opus sectile, 100
    see also stone finds,
  plaque, 91
  decorative appliqué, 33, 51, 53
  toys?, 91, 94
  wall spacers, 100
  water pipes, 99
  chibouks, see ceramic, tobacco pipes
  copper alloy, see metalwork

Dichin (early Byzantine fort), 4, 14, 187, 189, 234

fannal remains,
  domestic species, 156–183, 185–186, 187, 190
  small mammals, 198–223
  wild species, 183–185, 187, 190
  fibulae, see metalwork, brooches
  flint, see lithic material

glass,
  beads, 80, 82–83
  bracelets, 83–84
  gaming pieces, 84
  mount, 84

Hotnitsa, 150, 151, 153

intaglios, 86–87

jet,
  beads, 83
  pins, 84
  rings, 84

lithic material, 148–153

metalwork, see also copper alloy; military equipment
  awl, 34, 36
  axe, 51
  bead (copper alloy), 20
  bells (copper alloy), 33
  belt fittings, 23–25
  billhook, 33–34
  binding (copper alloy), 33, 50–51
  box fittings, 31, 33
  binding (for wooden box), 33
  bracelets, 20
  brooches, 16, 19–20
  calkins (post-medieval), 54–56
  chains, see rings
  clamps, see joiner’s dogs
  coins, 64
  debris, 298–305

  decorative appliqué, 33, 51, 53
320 NICOPOLIS AD ISTRUM: THE FINDS AND BIOLOGICAL REMAINS

dividers, 36
double-spiked loops, 37, 39
drill bit, 36
earrings, 22–23
inging (copper alloy), 50
terrule, 36
finger rings, 20, 22, 49
fittings and fastenings,
clap, 37
ring-headed pin, 37
rivet, 37
harnesses (horse), 33
hass, 31
hooks, 39, 41, 51, 53–54
horse shoes, 56
joiner’s dogs, 41
keys and locks, 41–42
knives, 31
leatherworking implements, 34
lid?, 54
locks, see keys and locks
loop-headed spike and ring, 39
lorica squamata, see military equipment, scale armour
military equipment, 42–46
arrowheads, 44
caltrop, 44
cannon-ball (post-medieval), 44, 45
catapult bolt-heads, 44
grenade (post-medieval), 44, 45–46
ring-mail, 42
scale armour, 42, 44
spearhead, 44
mounts (copper alloy), 33, 37, 51, 54
nails, 56, 58–59
necklace, 20
needles, 28
pins (copper alloy), 20
punch, 34, 36
rings (chains), 46, 49–50
scrap (copper-alloy and lead), 59–64
statue fragment (copper alloy), 51
stud, 31, 36
styl, 28
toilet/surgical instruments, 25, 27–28

cosmetic instrument holder, 28
probe, 25
spatula, 25
spoon probe, 25
spoon strainer, 27–28
toilet spoon, 25, 27
tweezers, 25
tube, 53
vessels, 28
weights, 51, 54
Moesia, 9
molluscan remains, 293–297
freshwater species, 294, 297
land species, 293, 294–296
marine species, 294, 297
Niccoa, 9
Nicomedia, 9
Novae, 59, 187, 189, 236
Radingrad, 150
shale, 84
Sintana-de-Mureş/Chernyachov Culture, 11
skeletal remains, 254–259
pathology, 257–258, 259
Statuette of Mercury, 51
stone finds,
architectural finds, 117–118, 126, 128–130, 133–134, 136–137, 139–140, 143–144, 146
mortar, 146
mouldings, 137, 139–140, 143
opus sectile, 143
quern, 146
sculpture, 117, 118, 121–124
tile, 146
veneer, 137
Thrake, 9
Transition to Late Antiquity programme, 12, 14
Tropaeum Traiani, 11
Tsaravets, 55, 56
worked bone, see bone finds
NICOPOLIS AD ISTRUM
A LATE ROMAN AND EARLY BYZANTINE CITY
THE FINDS AND BIOLOGICAL REMAINS

This, the third and final monograph, completes the description of the excavations carried out by the British team, part of the Anglo-Bulgarian archaeological programme on the site of Nicopolis ad Istrum in northern Bulgaria, one of the best-preserved ancient cities of the Roman Empire. The site provided a unique opportunity to compare the changing layout and economy of an urban centre from the Roman to the late Roman and the early Byzantine periods (c. AD 100–600). The excavations, geophysics, coins and wall-plaster were published in volume 1. Volume 2 describes the evidence for economic changes between the Roman and early Byzantine periods and contains full reports on the pottery and the glass.

This volume includes full descriptions of all the small finds (ceramic, copper-alloy and iron objects, glass, lamps, sculpture, architecture and flints), each object being provided with a description of its archaeological context and the date of deposition. The second half of the volume identifies the environmental and economic differences between the three main periods in the history of the site. Reports include quantified assemblages of zooarchaeological finds (large and small mammals), fish, birds, archaeobotanical remains, mollusca and human skeletons as well as the results of metallurgical analysis: copper-alloy, iron and 'natural' steel.

Not only is the range and quantity of finds in these reports unparalleled in the Balkans, they represent a valuable resource for the material culture of the Roman and late Roman periods, coming, as they do, from a part of the Roman Empire which has produced very few comparable assemblages. Of no less importance are the quantified bioarchaeological data which offer a unique insight into the changing morphology and economy of a Roman, late Roman and early Byzantine city.