NICOPOLIS AD ISTRUM
A LATE ROMAN AND EARLY BYZANTINE CITY

THE FINDS AND BIOLOGICAL REMAINS

A. G. POULTER
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with contributions from
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Oxbow Books
on behalf of
The Society of Antiquaries of London
## CONTENTS

Acknowledgements vii
Preface viii
The Structure and Presentation of the Report

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
<th>Authors</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Introduction</td>
<td>A. G. Poulter</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>The Metalwork</td>
<td>A. G. Poulter</td>
<td>15</td>
</tr>
<tr>
<td>3</td>
<td>Worked Bone</td>
<td>A. Roberts</td>
<td>65</td>
</tr>
<tr>
<td>4</td>
<td>Beads and Glass, Jet and Shale Jewelry</td>
<td>A. Roberts</td>
<td>80</td>
</tr>
<tr>
<td>5</td>
<td>Intaglios</td>
<td>M. Henig</td>
<td>86</td>
</tr>
<tr>
<td>6</td>
<td>Ceramic Objects</td>
<td>R. K. Falkner</td>
<td>88</td>
</tr>
<tr>
<td>7</td>
<td>The Lamps</td>
<td>R. K. Falkner</td>
<td>104</td>
</tr>
<tr>
<td>8</td>
<td>Sculpture and Architectural Decoration</td>
<td>T. F. C. Blagg</td>
<td>117</td>
</tr>
<tr>
<td>9</td>
<td>The Worked Prehistoric Lithic Material and its Possible Re-use</td>
<td>J. Chapman and J. Kenworthy</td>
<td>148</td>
</tr>
<tr>
<td>10</td>
<td>The Large Mammal and Reptile Bones</td>
<td>M. J. Beech</td>
<td>154</td>
</tr>
<tr>
<td>11</td>
<td>The Small Mammals</td>
<td>S. A. Parfitt</td>
<td>198</td>
</tr>
<tr>
<td>12</td>
<td>The Fish Remains</td>
<td>M. J. Beech and B. Irving</td>
<td>224</td>
</tr>
<tr>
<td>13</td>
<td>The Bird Bones</td>
<td>Z. Boev and M. J. Beech</td>
<td>242</td>
</tr>
<tr>
<td>14</td>
<td>The Human Skeletal Remains</td>
<td>H. Bush</td>
<td>254</td>
</tr>
<tr>
<td>15</td>
<td>The Botanical Remains</td>
<td>J. L. Buysse</td>
<td>260</td>
</tr>
<tr>
<td>16</td>
<td>The Mollusca</td>
<td>M. J. Beech</td>
<td>293</td>
</tr>
<tr>
<td>17</td>
<td>The Metallurgical Debris</td>
<td>C. Salter</td>
<td>298</td>
</tr>
</tbody>
</table>

Bibliography 307
Index 319
ACKNOWLEDGEMENTS

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,

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.
Fig 1.1 Plan of Nicopolis (AGP)
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 (eg, 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
INTRODUCTION

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 cobble 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
was 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-bonded 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 grubenaus, 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 grubenhauser 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 borrowing 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 Tsurrov. 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-excavation analysis is well advanced and the results should soon be available in print.
THE BIRD BONES

by
Zlatozar Boev and Mark J. Beech

Introduction
Until recently, bird bone remains recovered from archaeological excavations in Bulgaria have not received the attention they deserve. Publications by Ivanov (1956, 1959) represent the first attempts to study the evidence for domestic birds from archaeological excavations. Moreover, the full publication of bird bones from archaeological sites in Bulgaria has only begun a few years ago (Boev 1986a, b, 1988, 1991a, b, c, 1993a, b, 1996a, b; Boev and Iliev 1989, 1991, Boev and Ribarov 1989, 1990, 1993, Iliev et al 1992, 1993, Ribarov and Boev 1990). Consequently, very little is known about birds and their relative importance to the local economy in the Roman period. A preliminary survey of the bird bones from the excavations at Nicopolis has already been published (Boev 1991c), but this was written before the full analysis of the results had been completed and a dated stratigraphic sequence established. The following final report includes a comparison of the Nicopolis material with what is known from other Bulgarian sites dating to broadly to the same period.

Material and Methods
Bird bones were recovered by hand retrieval, on-site dry sieving (using a 5mm mesh), and by wet-sieving of bulk samples to 500 microns. The majority of the bird remains were identified by comparing them with the osteological collection of birds in the Department of Zoology in the National Museum of Natural History, Sofia. The remainder were identified by consulting the reference collections in the Palaeontological Institute of the Russian Academy of Sciences in Moscow. The first author made all the identifications and was responsible for the quantification of the assemblage which used conventional fragment counts (NISP values). An attempt was made to identify all fragments and, so as to reduce the likelihood of counting the same bone twice the material from each context was checked for conjoining pieces. The second author assisted with the phasing and sorting of the material into chronological periods, was responsible for the first editing of the manuscript as well as writing the final section which compares the Nicopolis assemblage with data from other archaeological sites in the region.

Results and Discussion: Species Composition
A total of 1,997 bird bones were recovered from the excavations, of which 1,675 were identifiable to the level of species (Table 13. 1). The majority belonged to domestic species, in particular, domestic fowl (Gallus gallus domestica) and goose (Anser anser domestica) and only 16% belonged to wild birds (Fig 13.1). A peacock (Pavo cristatus) was also identified and was presumably kept for its decorative appearance, rather than being reared for food. Of the wild species, partridge and quail were the most common birds found on the site.

A total of 55 bird taxa were identified, of which 42 could be identified to species level. Eleven orders of the modern Bulgarian avifauna were present; Podicipediformes, Pelecaniformes, Anseriformes, Falconiformes, Galliformes, Charadriiformes, Gruiformes, Strigiformes, Columbiformes, Caprimulgiformes and Passeriformes.
Six types of birds can be distinguished according to their ecological classification, that is their natural habitat (Harrison 1975). These comprise; domestic species (4%), open country species (17%), petrophyllous species (13%), synanthropic species (13%), water species (28%) and woodland species (25%) (Fig 13.2).

The species composition established for Nicopolis represents 14% of the modern avifauna found in Bulgaria. Several of the species recorded are 'synanthropic,' that is bird species which today live in urban environments. These include the rock/feral pigeon (Columbia livia/Columbia livia domestica), little owl (Athene noctua), tawny owl (Strix aluco), house sparrow (Passer domesticus), chaffinch (Fringilla coelebs), starling (Sturnus vulgaris), magpie (Pica pica), carrion crow (Corvus corone), and jackdaw (Corvus monedula).

Although, in most periods, domestic fowl dominated the assemblages, it is notable that it was during the first occupation period (100–175) that the situation was reversed and over 70% of the finds were from wild species (Fig 13.3). At this time, the most common wild species represented in the finds was partridge (Perdix perdix), followed by quail (Coturnix coturnix). The ratio of domestic to wild species, according to the number of identified fragments, appears to have remained fairly constant in all later periods. The range of wild birds exploited during the Late Roman and early Byzantine periods appears markedly greater between 250 and 600, although this may appear so simply because the majority of all deposits excavated belong to the late Roman and early Byzantine periods (above, pp. 4–5, Poulter 1999, 28–29). Inevitably, the larger the assemblage, the greater the range of species identified.

The natural environment around the city

Birds from water and woodland habitats dominate the assemblage, accounting for 53% of all species represented (Fig 13.2 and Table 13.2). There must have been extensive areas of shallow water in the vicinity, such as swamps, lakes or wide, marshy river floodplains. It also follows that, unlike today when deforestation has substantially modified the landscape, the river valleys of the Rositsa, Yantra, Bobot, Negovanka, and Lefedja still contained extensive tracts of woodland in Antiquity (Fig 1.6). The numerous meanders and the marshland within the river valleys would have provided an excellent habitat for a variety of avifauna, a rich resource which must have been exploited for the wide range of wildfowl it would have provided. Species recorded include the great crested grebe (Podiceps cristatus),
### Table 13.1 Quantification of the bird bones by period (NISP values)

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<th>TAXON</th>
<th>100–175</th>
<th>175–250</th>
<th>250–450</th>
<th>450–600</th>
<th>800–1000</th>
<th>1750–1850</th>
<th>TOTAL</th>
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<td>Great crested grebe, Podiceps cristatus (Linnaeus, 1758)</td>
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<td>Cormorant, Phalacrocorax carbo (Linnaeus, 1758)</td>
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<td>Pelican, Pelecanus sp.</td>
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<td>Mute swan, Cygnus olor (Gmelin, 1789)</td>
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<td>30</td>
<td>16</td>
<td>-</td>
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<td>Great crested grebe, Anser anser (A.a.dom) (Linnaeus, 1758)</td>
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<td>3</td>
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<td>Bean goose, Anser fabalis (Latham, 1787)</td>
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<tr>
<td>White fronted goose, Anser albifrons (Scopoli, 1769)</td>
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<td>7</td>
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<td>Garganey, Anas querquedula (Linnaeus, 1758)</td>
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<td>Duck, Anas sp.</td>
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<td>Hawks, Accipitridae gen.</td>
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<td>Kestrel, Falco tinnunculus (Linnaeus, 1758)</td>
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<td>Falconiformes fam.</td>
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<td>Peacock, Pavo cristatus (Linnaeus, 1758)</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Rock partridge, Alectoris graeca (Meisner, 1804)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Pheasant/Alectoris</td>
<td>5</td>
<td>1</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>7</td>
</tr>
<tr>
<td>Quail, Coturnix coturnix (Linnaeus, 1758)</td>
<td>27</td>
<td>5</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>33</td>
</tr>
<tr>
<td>Domestic fowl, Gallus gallus dom. (Linnaeus, 1758)</td>
<td>24</td>
<td>76</td>
<td>657</td>
<td>359</td>
<td>3</td>
<td>224</td>
<td>1343</td>
</tr>
<tr>
<td>Domestic fowl/Pheasant, Gallus Phasianus</td>
<td>21</td>
<td>10</td>
<td>61</td>
<td>44</td>
<td>-</td>
<td>23</td>
<td>159</td>
</tr>
<tr>
<td>Galliformes fam.</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Great bustard, Otis tarda (Linnaeus, 1758)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>2</td>
</tr>
</tbody>
</table>

*Continued over the page*
pelicans (*Pelecanus* sp.), cormorants (*Phalacrocorax carbo*) and a number of geese, ducks and diving ducks. These species could not have been hunted unless extensive tracts of open water existed in the region. Of particular interest is the appearance of the crested grebe. The great crested grebe does not normally leave open water and its nests are built in marshes or in lakes on rafts of driftwood and decaying plants, far from dry land. Its appearance suggests that fowling was practiced, probably from boats, using lassos, nets or dogs to hunt game. Mute swans are usually found on open expanses of water, up to two metres deep, where, in shallow stretches near the margins, they could reach down to the riverbed for food. Gulls suggest that there were open stretches of sandy beach close to Nicopolis. They no doubt supplemented their diet by feeding on rubbish dumps outside the city.

The discovery of birds commonly found in woodland habitats points to the existence close by of old deciduous mixed woodland. The preferred habitat of the pheasant (*Phasianus colchicus*) is woodland on floodplains which occur on the lower reaches of large rivers. The goshawk (*Accipiter gentilis*) and the sparrow hawk (*Accipiter nisus*) hunt their prey in woodland clearings or in open country, where bush and tree cover is limited. The wood pigeon (*Columba palumbus*), the stock dove (*Columba*
Table 3.2 Habitats of birds present at Nicopolis

Habitat descriptions after Heinzel et al 1979.

<table>
<thead>
<tr>
<th>TAXON</th>
<th>HABITAT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cormorant, <em>Phalacrocorax carbo</em> (Linnaeus, 1758)</td>
<td>Inshore waters on all types of coast, also on lakes inland.</td>
</tr>
<tr>
<td>Pelican, <em>Pelecanus sp.</em></td>
<td>Fresh and brackish lakes and marshes, shallow coastal water.</td>
</tr>
<tr>
<td>Mute swan, <em>Cygnus olor</em> (Gmelin, 1789)</td>
<td>Still and slow-moving freshwater, estuaries, sheltered coastal water, sometimes breeding in swamps.</td>
</tr>
<tr>
<td>Greylag goose, <em>Anser anser</em> (A.a.dom.) (Linnaeus, 1758)</td>
<td>Breeds in lowland moors and marshes. The farmyard goose (A.a.dom.) is its domestic derivative.</td>
</tr>
<tr>
<td>Bean goose, <em>Anser fabalis</em> (Latham, 1787)</td>
<td>Breeds in marshy places and by freshwater on tundra and in taiga.</td>
</tr>
<tr>
<td>White fronted goose, <em>Anser albifrons</em> (Scopoli, 1769)</td>
<td>Breeds on marshy tundra.</td>
</tr>
<tr>
<td>Shelduck, <em>Tadorna tadorna</em> (Linnaeus, 1758)</td>
<td>By brackish or more rarely freshwater lakes and inland seas.</td>
</tr>
<tr>
<td>Mallard, <em>Anas platyrhynchos</em> (Linnaeus, 1758)</td>
<td>Breeds not far from all kinds of still and slow-moving water and marshes. In winter also estuaries and seashores.</td>
</tr>
<tr>
<td>Wigeon, <em>Anas penelope</em> (Linnaeus, 1758)</td>
<td>Breeds by freshwater on moors and tundra, rarely in coastal marshes. In winter on lakes, reservoirs, estuaries and shallow coastal waters, flocks often grazing on fields.</td>
</tr>
<tr>
<td>Teal, <em>Anas crecca</em> (Linnaeus, 1758)</td>
<td>Breeds on still and slow-moving freshwater with dense fringes of vegetation, also marshes, fens and bogs. In winter on lakes, reservoirs, estuaries and coastal water. As for teal.</td>
</tr>
<tr>
<td>Garganey, <em>Anas querquedula</em> (Linnaeus, 1758)</td>
<td>Still and slow-moving freshwater with vegetated margins. In winter also on reservoirs and other bare-banked waters. Breeds also on brackish lakes.</td>
</tr>
<tr>
<td>Pochard, <em>Aythya ferina</em> (Linnaeus, 1758)</td>
<td>Forests, both coniferous and broad-leaved.</td>
</tr>
<tr>
<td>Sparrowhawk, <em>Accipiter nisus</em> (Linnaeus, 1758)</td>
<td>High and usually remote mountains, nesting on rock ledges.</td>
</tr>
<tr>
<td>Goshawk, <em>Accipiter gentilis</em> (Linnaeus, 1758)</td>
<td>Forests and areas with scattered woods. In winter in more open country.</td>
</tr>
<tr>
<td>Buzzard, <em>Buteo buteo</em> (Linnaeus, 1758)</td>
<td>Open country, with crags or scattered trees, sea cliffs, towns and villages. Nest on rock-ledge, building or tree.</td>
</tr>
<tr>
<td>Hawks, <em>Accipitridae</em> gen.</td>
<td>Open country, including farmland, especially arable, moorland, steppes, and semi-deserts. The peacock is an ornamental bird originating in India. It is found widely in the Indian sub-continent from the south and east of the Indus river, Jammu and Kashmir, east Assam, south Mizoram and the whole of the Indian peninsula.</td>
</tr>
<tr>
<td>Kestrel, <em>Falco tinnunculus</em> (Linnaeus, 1758)</td>
<td>Rocky, stony and thorny grassy hill and mountain slopes. Also found in vineyards.</td>
</tr>
<tr>
<td>Partridge, <em>Perdix perdix</em> (Linnaeus, 1758)</td>
<td>Farmland, especially among growing crops, open grassland, steppes, and semi-deserts.</td>
</tr>
<tr>
<td>Peacock, <em>Pavo cristatus</em> (Linnaeus, 1758)</td>
<td>Open country with scattered woods, copses or riverine belts of trees or shrubs, marshes, extensive reed-beds, often feeding on cultivated land. In villages and towns.</td>
</tr>
<tr>
<td>Rock partridge, <em>Alectoris graeca</em> (Meisner, 1804)</td>
<td>Treeless plains, steppes and extensive cultivations.</td>
</tr>
<tr>
<td>Quail, <em>Coturnix coturnix</em> (Linnaeus, 1758)</td>
<td>Grassy and cultivated plains, sometimes with scattered trees and bushes.</td>
</tr>
<tr>
<td>Pheasant, <em>Phasianus colchicus</em> (Linnaeus, 1758)</td>
<td>Nesting grounds on cliffs or flat ground by the sea, also inland by freshwater.</td>
</tr>
<tr>
<td>Domestic fowl, <em>Gallus gallus dom.</em> (Linnaeus, 1758)</td>
<td>Various including fresh and brackish water, sand and littoral flats.</td>
</tr>
<tr>
<td>Great bustard, <em>Otis tarda</em> (Linnaeus, 1758)</td>
<td>Continued over the page</td>
</tr>
<tr>
<td>Little bustard, <em>Otis tetrax</em> (Linnaeus, 1758)</td>
<td></td>
</tr>
</tbody>
</table>
THE BIRD BONES

TAXON

Rock dove,
*Colomba livia* Gmelin, 1789

Stock dove,
*Colomba oenas* (Linnaeus, 1758)

Wood pigeon,
*Colomba palumbus* (Linnaeus, 1758)

Turtle dove,
*Streptopelia turtur* (Linnaeus, 1758)

Little owl,
*Athena noctua* (Scopoli, 1769)

Tawny owl,
*Strix aluco* (Linnaeus, 1758)

Nightjar,
*Caprimulgus europaeus* (Linnaeus, 1758)

Thrush,
*Turdus sp.*

House sparrow,
*Passer domesticus* (Linnaeus, 1758)

Chaffinch,
*Fringilla coelebs* (Linnaeus, 1758)

?Linnet,
*Acanthis cf. cannabina* (Linnaeus, 1758)

Starling,
*Sturnus vulgaris* (Linnaeus, 1758)

Nutcracker,
*Nucifraga caryocatactes* (Linnaeus, 1758)

Magpie,
*Pica pica* (Linnaeus, 1758)

Alpine chough,
*Pyrrhocorax graculus* (Linnaeus, 1766)

Rook,
*Corvus frugilegus* (Linnaeus, 1758)

Carrion crow,
*Corvus corone* (Linnaeus, 1758)

Jackdaw,
*Corvus monedula* (Linnaeus, 1758)

HABITAT

On cliffs and rocks. On mountains and hillsides where it nests in rock crevices or caves. A feral pigeon in towns, also on inland and sea cliffs. Woodland and country with scattered trees, also on cliffs and sometimes in towns.

Wooded country, feeding both in trees and on adjacent farmland.

Wide range of country with open woodland or scattered trees, often feeding in farmland.

Farmland and open country with scattered trees, open woodlands, and orchards.

Open, mainly deciduous woodland, parkland, large gardens and other areas with scattered trees, not uncommon in villages, towns and some cities.

Open woodlands, forest edges, patches of felled woodland, and open country with scattered trees.

Nest usually in bush or tree.

Highly gregarious, inhabiting human settlements of all kinds including large urban centres, often feeding in associated cultivated areas.

Woods and forests, areas with scattered trees, heaths, farmlands, town parks, gardens; frequent in town suburbs.

Open bushy country including mixed farmland, where both arable and grassland habitats are present.

Open woods, areas with scattered trees, cultivations, villages and towns.

Forests, especially coniferous; frequently perches on topmost branches of trees, and hops on the ground.

Areas with scattered trees and scrub, from tundra and semi-desert to farmland and town suburbs.

High rocky mountains with steep cliffs and crags.

Farmlands and grasslands with plenty of scattered trees or small woods, feeding in more open country.

Frequent in farmland, moorland, town parks and suburbs.

Open and cultivated country with rocks, crags and old trees, frequent in towns and villages, especially around ruins.

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![Fig 13.2 Relative percentages of different bird species, classified by ecological type](image-url)
oenas), perhaps the tawny owl (*Strix aluco*) and the buzzard (*Buteo buteo*) are usually to be found in woodland, nesting in the tops of large old trees. The magpie (*Pica pica*) prefers a generally open landscape with occasional trees or lives in clumps of high shrubs in open pastures or fields. The nutcracker (*Nucifraga caryocatactes*) lives in coniferous and mixed (predominantly beech) woodland and only during very cold winters comes down to the lowland plains and valleys. The nightjar (*Caprimulgus europaeus*) prefers coniferous, broad leaf and mixed woodlands, whereas the thrush (genus *Turdus*) is found in forest or shrubland. As the bird finds include nine species which prefer open landscapes, it also seems certain that in Antiquity, close to the city, there was unforested land, probably open fields. There would have also been pastures, meadows or open arable land. These habitats would have been ideal for the great bustard (*Otis tarda*), little bustard (*Otis tetrax*), partridge (*Perdix perdix*), quail (*Coturnix coturnix*) and rook (*Corvus frugilegus*), all of whom would have favoured these open areas to nest, feed and rear their young.

The preyphilous species, which include the lammergeier (*Gypaetus barbatus*), jackdaw (*Corvus monedula*), kestrel (*Falco tinnunculus*) and little owl (*Athene noctua*), dwell in rock massifs where they nest on high, inaccessible precipices and entrances to caves or rock crevices. Usually, the species migrates in search of food to overwinter in the lowlands and plains. The rock partridge (*Alectoris graeca*) is also a preyphilous species. It prefers stony terrain, screes, erosion sections and rocky areas within grasslands. Such habitats still exist in the region today. Since 1961 the lammergeier (*Gypaetus barbatus*) has disappeared from Bulgaria, and all data concerning its former distribution is therefore of considerable interest. According to Kuzev (1927), the lammergeier nested on rocks in the Eleno-Tvardishka mountains until the first quarter of this century. As it is difficult to distinguish between the bones of wild rock dove (*Columba livia*) and feral pigeon (*C. livia domestica*), bones identified as belonging to one or other of these species are classified together, the majority of finds probably belonging to rock doves.

**DOMESTIC FOWL**

Two types of domestic birds were identified in the Nicopolis assemblage. Although this only amounts to about 5% of the species represented, at least 84% of the bird bone fragments were from domestic birds. The remains of domestic fowl (*Gallus gallus domestica*) are the most numerous, represented by 1,343 bones, followed by those of domestic goose (*Anser anser domestica*), totalling 58 bones. Besides those bones determined to Gallus, most of the bone fragments classified as 'Gallus/Phasianus'
were probably also Gallus, because the ratio of both species (domestic fowl and pheasant) in the material which could be differentiated was 1343:20, or approximately 67:1. It follows that many of the bones classified as 'Gallus/Phasianus' are most likely to have been domestic fowl.

The occasional breeding of feral pigeon or domestic duck (Anas platyrhynchos domesticus) may have taken place, but the limited material collected is insufficient to decide whether they were wild or not. However, the relatively small amounts of bones from rock dove and mallard does suggest that these species were not reared in captivity.

It is clear that poultry breeding, rather than wildfowl hunting, made the most important contribution towards the citizens' diet.

**Breed and Sexual Composition of the Domestic Fowl**

Sexing of Gallus gallus domesticus was determined solely by the tarsometatarsus and the development on the bony base of the corneous spur on its mediocaudal surface in the case of roosters (this distinguishing feature is only present in mature males). It is relatively easy to identify different breeds by comparing their metrical differences. Analysis indicated the presence of at least two breeds of domestic fowl. One was large and was about the same size as present day meat breeds. The other was small and gracile, suggesting that it was bred for decorative or sporting purposes. The osteometric characteristics of this breed will be subject to further specialist research. It is also possible that a third breed of domestic fowl existed. Numerous bones of a medium sized specimen were recovered, quite distinct from the bones of the other two breeds. The ratio of the large and medium to small is 1312:31, ie, 42:1. The ratio between male and females is 39:47 (Table 13.3). This indicates an unusually large number of roosters compared to hens. The sex ratio is approximately 1 cock: 1.2 hens. This suggests that males were not selectively culled; males were reared with females until attaining sexual maturity. The fact that the numbers of roosters and hens were overall quite similar provides no grounds for believing that any of the breeds of domestic fowl were treated in a different way.

The preliminary results of Boev (1991 c) are analogous. It is interesting to note that the small domestic fowl (bantam fowl size), appear in the city at the same time as the larger and medium sized breeds, in the period 175–250. Two very large roosters, one dated 250–450, the other 450–600, and two large hens from contexts dated 250–450 were also found. The bony base of one cock’s spur, dated 250–450, was no less than 26.5mm in length, probably because it belonged to a fighting breed.

Long bones of the lower limb, the tibiotarsus, tarsometatarsus and femur, are the best represented in the bird bone material (Table 13.3). These three types of bones amount to 36% of all the bones identified as domestic fowl. Examination of the material for fragmentation of the bones indicates that vertebrae and phalanges are best preserved (without breakage), followed by the coracoid, tarsometatarsus and carpometacarpus. Around 63% of all of these bone types were preserved intact.

**WILDFOWL**

The species composition of wildfowl was rich and varied. The inhabitants of the city hunted at least 33 species, which today are considered as wildfowl. Four orders of wildfowl were represented; waterfowl (Anseriformes), gamefowl (Galliformes), Gruidae and Columbiformes. Waterfowl were the most abundant species.

The discovery of pheasant, a species which has not previously been considered as a native species in the Balkans, is of great interest. It indicates that, if the species had been brought into Europe, it was already established there by the 2nd century. Recently, pheasant bones have also been identified from the Eneolithic site near Dolnoslav in central southern Bulgaria, dating to c 6000 B.P. (Boev 1996a).

Grey partridges and quails were the most common species of wild fowl. Both species are mainly attested during the earliest period of occupation, c 100–175. If it is accepted that the mute swan (Cygnus olor) was a game bird (a single find from the post-medieval period), then the great bustard and mute swan were the largest game birds identified in the bone material. The great bustard is also found in the Roman to late Roman period (250–450). As nesting species, both European bustards have
Table 13.3 Anatomical representation of the domestic chicken (Gallus gallus domesticus) (NISP values)

<table>
<thead>
<tr>
<th>Anatomical unit</th>
<th>Small size</th>
<th>Small size</th>
<th>Large to medium size</th>
<th>Large to medium size</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>juvenile</td>
<td>adult</td>
<td>juvenile</td>
<td></td>
</tr>
<tr>
<td>Tibiotarsus</td>
<td>-</td>
<td>3</td>
<td>19</td>
<td>165</td>
<td>187</td>
</tr>
<tr>
<td>Tarsometatarsus (total)</td>
<td>1</td>
<td>5</td>
<td>25</td>
<td>124</td>
<td>155</td>
</tr>
<tr>
<td>Tarsometatarsus (male)</td>
<td>(1)</td>
<td></td>
<td>(1)</td>
<td>(30)</td>
<td>(30)</td>
</tr>
<tr>
<td>Tarsometatarsus (female)</td>
<td>(2)</td>
<td></td>
<td>(2)</td>
<td>(49)</td>
<td>(49)</td>
</tr>
<tr>
<td>Tarsometatarsus (unsexed)</td>
<td>(3)</td>
<td>(39)</td>
<td>(41)</td>
<td>(69)</td>
<td>(69)</td>
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<td>-</td>
<td>1</td>
<td>10</td>
<td>116</td>
<td>135</td>
</tr>
<tr>
<td>Radius</td>
<td>-</td>
<td>1</td>
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<td>126</td>
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<tr>
<td>Coracoid</td>
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<td>Phalanges dig. pedis</td>
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<tr>
<td>Carpometacarpus</td>
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<td>Costae</td>
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<td>Fibula</td>
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<tr>
<td>Phalanx 1 dig. III alae</td>
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<td>-</td>
<td>8</td>
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<tr>
<td>Synsacrum (corpora verteb.)</td>
<td>-</td>
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<td>6</td>
<td>6</td>
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<tr>
<td>Mandibula</td>
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<td>-</td>
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<td>3</td>
<td></td>
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<tr>
<td>Notarium</td>
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<td>1</td>
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</tr>
<tr>
<td>Cranium</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Pygostyl</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>3</td>
<td>28</td>
<td>110</td>
<td>1202</td>
<td>1343</td>
</tr>
</tbody>
</table>

now disappeared from the Bulgarian avifauna. The solely specimen of little bustard identified comes from a post-medieval context.

The most diverse range of wildfowl game is found in the Roman to late Roman period (250-450), when at least ten species were hunted: the great crested grebe, geese (type unknown), white-fronted goose, shelduck, (?)mallard, wigeon, teal, garganey, wood pigeon, stock dove, (?)rock dove, rock partridge, pheasant, pochard and turtle dove. It was at this time that the city was most threatened by external enemies, first the Goths and then the Huns. It may be that the population of Nicopolis became more dependant upon hunting wildfowl and the breeding of poultry during these difficult years. Certainly, the numbers of domestic fowl bones recorded for this period are many more than during other periods which suggests that the citizens depended heavily upon chickens as a source of food.

ORNAMENTAL BIRDS

According to Sossinka (1982), the Indian (Blue) peacock (Pavo cristatus) was one of the first birds to be domesticated, along with the greylag goose (Anser anser), the rock dove (Columba livia), the red jungle fowl (Gallus gallus) and the mallard (Anas platyrhynchos). He maintains that these species 'were bred with increasing success by the Greeks and, in particular, by the Romans, who developed a market for delicacies derived therefrom' (Sossinka 1982, 377). Bogdanov (1937) also asserts that the peacock is a product of an ancient domestication, but notes that there is an important difference between the peacock and other domesticated birds. The peacock remained practically unchanged in morphological terms and appears to be identical with its ancestor, the wild Indian peacock.
The first reports of peacocks in Europe occur in the Bible (1 Kings 10.22) where they are listed amongst the contents of the Phoenician ships of King Solomon (1020–980 BC). These spectacular birds are mentioned several times in the Bible, and they were brought to the town of Tharsis, between the rivers Guadiana and Guadalquivir in southern Spain. The first clear evidence for peacock breeding in Europe comes from Greece (Bogdanov 1937). They were brought there from Asia Minor, and, by the 5th century BC, peacocks were a common domestic bird in Athens. Peacocks were probably also reintroduced by Alexander the Great (330–323 BC). In the early 1st century AD the Romans took an interest in peacocks and began breeding them for their meat (Bogoljubskyi 1959). The Romans also offered peacocks as a sacrifice to Juno, the goddess of matrimony and motherhood.

The oldest archaeological find of peacock from Europe which has so far been found is a proximal fragment of a right tibiotarsus, which was discovered in a deposit described as being of simply ‘Holocene’ date from a site in Poland (Bochenks 1974). The discovery of the peacock bone from Nicopolis is therefore of some interest. The bone (NMNH Sofia, catalogue number 4295) came from an early Byzantine context (450–600) but is most probably residual. A date in the 2nd or 3rd centuries AD would seem most likely, given the prosperity of the city at that time. It consists of half of a pelvis (synsacrum). Comparison of its bony sculpture and general size with modern peacock bones in the Sofia National Museum of Natural History collections suggests that it came from an adult male. The remains of peacock (Pavo cristatus) have not been identified before on any archaeological site in Bulgaria. It provides tantalising evidence which suggests that peacocks may have been bred in the larger Roman towns in the region. Numerous Roman bas-reliefs include depictions of peacocks but this is the first direct zooarchaeological evidence for its existence. Although peacocks may have been kept in Nicopolis for their aesthetic/ornamental value, it is quite possible that the inhabitants considered the meat a delicacy.

Butchery and cooking practices
Knife-cuts to the distal articulations of both humerus and tibiotarsus indicate that the trunks of birds were cut open to remove the distal parts of the body (apical end of the wings and feet), removing non-meat bearing parts. Only a few bones have traces of burning, suggesting that the birds were normally cooked by boiling/baking, rather than by cooking directly over a fire.

BIRDS OF UNCERTAIN SIGNIFICANCE TO MAN

The remaining 23 species of wild birds, which cannot be generally considered as game, are included in this category. Some of them would today be regarded as synanthropic species: the rock/feral pigeon (Columbia livia/Columba livia domestica), little owl (Athene noctua), tawny owl (Strix aluco), house sparrow (Passer domesticus), chaffinch (Fringilla coelebs), starling (Sturnus vulgaris), magpie (Pica pica), carrion crow (Corvus corone), and jackdaw (Corvus monedula). All these species are classified by Donchev and Jankov (1989) as initial, advanced or extreme synurbanists for whom human activity does not deter them from living in towns and villages. However, it should be remembered that some passerine species, such as starlings, thrushes and warblers, are still regarded in some parts of Europe as a valuable source of food, notably in France, Italy and Greece.

Some of the species found at Nicopolis cannot be regarded as synurban avifauna; namely the cormorant (Phalacrocorax carbo), mute swan (Cygnus olor), sparrowhawk (Accipiter nisus), goshawk (Accipiter gentilis), buzzard (Buteo buteo), nightjar (Caprimulgus europaeus), kestrel (Falco tinnunculus) and, particularly, the lammergeier (Gypaetus barbatus). Some of these birds, like the sparrowhawk and goshawk, may have been used for falconry, hunting small game such as partridges, doves, quails, and hares. Both species of hawks are often used for hunting today (Sternberg 1969). As a large and beautiful bird with spectacular plumage, the lammergeier may have been considered a hunting trophy. Its primary feathers may have been used as stabilizers in hunting arrows, a practice which still existed in the region during the 18th century (Georgiev, 1987). The presence of nutcracker
The Nicopolis bird bone assemblage: Comparison with other published sites

As mentioned earlier, there has been relatively little research carried out in Bulgaria on bird remains from archaeological sites. Boev (1991b) mentions, in a review of waterfowl found on fifteen archaeological sites of various dates, notes that they produced a modest total of only 257 bone fragments. Most of these sites only produced a very small number of bird bones, no doubt because no systematic recovery methodology had been employed during the excavations. Geese bones were the most common finds which suggests that the samples were biased in favour of the larger and better-preserved bones which could have been retrieved by hand. There are a few sites, contemporary with Nicopolis, which have produced fuller records and, generally, these assemblages are dominated by domestic fowl and include only very small quantities, usually just one or two bones, belonging to wild species.

The presence of domestic fowl, as well as fourteen bones of greylag/domestic geese (Anser anser cf, domestica), and other bones of goose (Anser sp.), gadwall (Anas strepera) and garganey (Anas querquedula) were noted in 2nd – 5th century levels at Cabyle in Central Bulgaria (Boev and Ribarov, 1993, Ribarov 1982).

A total of forty-nine bird bone fragments were recorded from 2nd-4th century levels at Ratiaria (Archar) on the Danube in north-west Bulgaria (Iliev et al 1993). The bone assemblage includes thirty-five from domestic fowl (Gallus gallus domestica), eight from domestic fowl/pheasant (Gallus/Phasianus), three pheasant (Phasianus colchicus), two mallard (Anas platyrhynchos cf, domestica) and one bone from a griffon vulture (Gyps fulvus).

Small quantities of domestic fowl (Gallus gallus domestica, n=42), two bones of mallard (Anas platyrhynchos cf, domestica), a partridge (Perdix perdix) and an unknown member of the Charadriiformes were recorded from 3rd-4th century deposits at the Roman villa of Bela Voda, just to the south-west of Sofia (Iliev et al 1992).

The discovery of domestic fowl bones is recorded for a number of other Roman sites in Bulgaria including Abritus, Armira, Ivailovgrad, Kostinbrod and Sofia (Boev 1996). Three Roman sites have produced comparatively large assemblages of bird bones. These are the late Roman fortresses of Iatrius (Krivina) and Novae (Svishtov), both on the Danube and the site of Dichtin, 15km to the west of Nicopolis, on the south bank of the river Rositsa (Fig 1.2). For Iatrius a small quantity of bird bones has been published from the 1970–72 excavations (Bartosiewicz and Choyke 1991). Domestic fowl (n=5), white pelican (Pelecanus onocrotalus, n=3), crane (Grus grus, n=3), white-tailed eagle (Haliaeetus albicilla, n=2), cormorant (Phalacrocorax carbo, n=1), white swan (Cygnus olor, n=1) and white stork (Ciconia ciconia, n=1) were all recorded. At the Roman fortress/town of Novae, a series of publications record small quantities of bird bones (Chrzanowska and Molenda 1983, Makowiecki 1999, Schramm 1975, 1979, Waluszewska-Bubien and Krupska 1983). Species noted include domestic fowl (Gallus gallus domestica), geese (Anser sp.), pochard (Aythya ferina), white pelican (Pelecanus onocrotalus), mute swan (Cygnus olor), goshawk (Accipiter gentilis) and rook (Corvus frugilegus). At Dichtin, more than 200 hundred bird bones have been recovered from the recent 1996–2001 excavations (see above, p. 14). The majority of these belong to domestic fowl (n=283), with small quantities of domestic geese (n=2) and possibly duck (n=1). Wild bird species include golden eagle (cf, Aquila chrysaetos, n=2), black grouse (Tetrao tetrix, n=8), crow/rook (Corvus coronel/fragilegus, n=3), great crested grebe (Podiceps cristatus, n=1), partridge (Perdix perdix, n=1), jay/nutcracker (Garrulus glandarius/Nucifraga caryocatactes, n=3) and pigeon/dove (Columbia sp., n=4). This assemblage, not surprisingly, is similar to that from Nicopolis since the sites are close together and the occupants of both the city and the fort no doubt exploited similar, if not the same habitats.

Overall, the available evidence points to the importance of poultry husbandry although, clearly, the exploitation of game fowl and wild birds was also important in certain parts of Bulgaria.
Conclusions

The bird bone assemblage from Nicopolis represents the richest and most diverse subfossil avifauna ever published from an archaeological site in Bulgaria. Nicopolis occupied a favoured location, with rich local fauna and flora and with freshwater, woodland, open land and rocky lands providing suitable habitats for different kinds of birds. The subfossil avifauna is notable for its diversity, in terms of its species composition, as well as for the quantity of material recovered. The bird remains analysed represent 42 species, 5 genera, 4 families and 3 orders, a total of 55 taxa.

Poultry farming was already underway during the very earliest period after the establishment of the city. It was based chiefly on raising domestic fowl which accounts for 96% of all domestic bird remains. To judge from their relative size, there were two, possibly three, distinct breeds. The rooster/ hen ratio was about 1:1.2. The keeping of domestic goose seems to have been only of limited importance in the Roman to early Byzantine period.

There was a diverse range of wildfowl, including at least 22 species, of which the most popular game birds would seem to have been partridge and quail. The inhabitants of Nicopolis probably hunted most often across open farmland and grassland. Fowling was no doubt carried out throughout the year, not just during the summer, and would seem to have been most important between c 250 and 450: the bones of at least 10 wildfowl species have been found in deposits dating to this period. The cooking of bird meat, both wildfowl and domestic fowl, was probably done mainly by boiling or roasting over a temperate fire, since traces of burning on the bones are extremely rare. The presence of twelve species has been recognized in the archaeological record for the first time in Bulgaria; the lammergeier, little bustard, stock dove, wood pigeon, rock partridge, nightjar, (?).linnet, starling, chaffinch, wigeon, teal and garganey.

It is to be hoped that further efforts will be made to recover bird bones from archaeological sites in Bulgaria. The avifauna from Nicopolis demonstrates how valuable such remains can be for our understanding of the environmental setting, as well as economic aspects of settlements in the region. Only if archaeologists ensure that appropriate retrieval methods are used on excavations, such as the systematic use of sieving, will progress be made and useful assemblages of bird bones retrieved for future research.

Acknowledgements

The Palaeontological Institute of the Russian Academy of Sciences in Moscow kindly allowed access to its bird reference collections. Andy Hammon (Department of Archaeology, University of Sheffield) generously provided details of his work on the bird bones from Dichin in advance of publication. Dr. Andrew Poulter encouraged our study of the interesting bird bone assemblage from Nicopolis, and provided us with important background information as well as details on the character of archaeological deposits and their dates. Dr. Daniel Makowiecki (University of Poznan) provided us with copies of the zooarchaeological reports published by the Polish expedition to Novae.
ABBREVIATIONS


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

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


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INDEX

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
  roundels, 94–95, 97
    see also loomweights
  sawn pieces, 94
  symmetrical pieces, 97–98
  ules, 99
  tobacco pipes, 100–102
  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
dividers, 36
double-spiked loops, 37, 39
drill bit, 36
earrings, 22–23
edging (copper alloy), 50
ferrule, 36
finger rings, 20, 22, 49
fittings and fastenings,
clap, 37
ring-headed pin, 37
rivet, 37
harnesses (horse), 33
hasp, 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
stylus, 28
toilet/surgical instruments, 25, 27–28

NICOPOLIS AD ISTRUM: THE FINDS AND BIOLOGICAL REMAINS

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
Nicaea, 9
Nicomedia, 9
Novae, 59, 187, 189, 236
Radingrad, 150
shale, 84
Sintana-de-Mureë/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

Thrace, 9
Transition to Late Antiquity programme, 12, 14
Tropaeum Traiani, 11
Tzaravets, 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.