THE IMPACT OF ROMAN ARMY ON TRADE AND PRODUCTION IN LOWER MOESIA (MOESIA INFERIOR)

Abstract
The paper presents the Roman army as the factor of change and economic transformation in the province of Lower Moesia. It addresses such issues as construction activities of the Roman army, development of the logistical base in order to meet the provisioning needs of the Roman troops. The main issue is the process of development of the local market of trade and production, as well as role of the Roman army in establishing and developing the fundamental branches of economy.

Key words
Lower Moesia, Roman army, economy, demography, monetization, construction, agriculture, manufacturing of ceramics, viniculture
The aim of this paper is to demonstrate the Roman army in Lower Moesia as the principal driving force of the local production. The attention will focus only on selected issues, such as demography, monetization, construction, agriculture, manufacturing of ceramics, viniculture.

DEMOGRAPHY

One of the decisive factors of the army’s economic power was its numbers. A critical review of the available sources and the extensive literature of the subject permits one to determine that in 92-158 an average of 19 600 to 21 700 soldiers were stationed in the province (Tab. 1). From the late 2nd century to the mid-3rd century, excluding the periods of intense military activities, the strength of the Lower Moesian garrison fluctuated between 16 400 and 18 500 soldiers (without classiarii). The numbers provided here include minimum and maximum values. This is dictated by two factors: the first is the fact that units of the Roman army never reached full complement in peacetime, the second factor is the operational deployment of Lower

1 The project was financed by the National Science Center in Kraków granted based on the decision number DEC-2011/03/N/HS3/00873. This text is based on doctoral dissertation defended in May 2013 at the Kazimierz Wielki University in Bydgoszcz. The dissertation is now pending publication.


3 In order to obtain such a proposal I confronted narrative sources with archaeological and epigraphical, more importantly, see: Publius Flavius Vegetius Renatus, Epitoma Rei Militaris; Scriptores Historiae Augustae, Alex. Sev. 50.5; Pseudo Hyginus, De Munitionibus Castrorum; Maurus Servius Honoratus, In Vergilii Aeneidos Commentarius VII. 274.1-2; Isidorus Hispalensis, Etymologiae XIX.33.2; Flavius Arrianus, Ars Tactica 18.2.; CIL III 6178; CIL III 14507; CIL III 6581; CIL III 6627; CIL III 14147; RMR 63-64; ChLA XI 501; A.K. Bowman, J.D. Thomas, Vindo-
Moesian troops outside the province (from 2,3% to 6,9% of the Lower Moesian forces were stationed in the Crimea).  

Tab. 1. Garrison in Lower Moesia based on the diplomas of auxiliary forces with addition of legions

<table>
<thead>
<tr>
<th>Year</th>
<th>Nominal-model strength</th>
<th>Number after subtraction of 10%</th>
<th>Presumed strength incorporating ca (-10%)</th>
<th>Nominal strength of auxiliary cavalry</th>
<th>classis</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>alas</td>
<td>cohortes</td>
</tr>
<tr>
<td>92</td>
<td>21 936</td>
<td>19 742</td>
<td>19 700-21 900</td>
<td>3584</td>
<td>1152</td>
</tr>
<tr>
<td>97</td>
<td>25 136</td>
<td>22 622</td>
<td>22 600-25 100</td>
<td>4608</td>
<td>1408</td>
</tr>
<tr>
<td>99</td>
<td>19 984</td>
<td>17 985</td>
<td>18 000-19 900</td>
<td>3072</td>
<td>1152</td>
</tr>
<tr>
<td>107</td>
<td>20 536</td>
<td>18 482</td>
<td>19 500-20 500</td>
<td>1536</td>
<td>640</td>
</tr>
<tr>
<td>111</td>
<td>20 536</td>
<td>18 482</td>
<td>19 500-20 500</td>
<td>1536</td>
<td>640</td>
</tr>
<tr>
<td>116</td>
<td>18 872</td>
<td>16 984</td>
<td>17 000-18 800</td>
<td>1024</td>
<td>128</td>
</tr>
<tr>
<td>119-120</td>
<td>22 296</td>
<td>20 066</td>
<td>20 000-22 200</td>
<td>2560</td>
<td>896</td>
</tr>
<tr>
<td>121</td>
<td>21 624</td>
<td>19 461</td>
<td>19 500-21 600</td>
<td>1536</td>
<td>768</td>
</tr>
<tr>
<td>125</td>
<td>18 936</td>
<td>17 042</td>
<td>17 000-18 900</td>
<td>1024</td>
<td>512</td>
</tr>
<tr>
<td>127</td>
<td>23 256</td>
<td>20 930</td>
<td>20 900-23 200</td>
<td>2560</td>
<td>896</td>
</tr>
<tr>
<td>134</td>
<td>19 224</td>
<td>17 301</td>
<td>17 300-19 200</td>
<td>1024</td>
<td>624</td>
</tr>
<tr>
<td>145-146</td>
<td>24 696</td>
<td>22 226</td>
<td>22 200-24 600</td>
<td>2560</td>
<td>1248</td>
</tr>
<tr>
<td>154</td>
<td>24 152</td>
<td>21 736</td>
<td>21 700-24 100</td>
<td>2560</td>
<td>1008</td>
</tr>
<tr>
<td>156/158</td>
<td>24 152</td>
<td>21 736</td>
<td>21 700-24 100</td>
<td>2560</td>
<td>1008</td>
</tr>
<tr>
<td>Total: arithmetic average</td>
<td>21 809</td>
<td>19 628</td>
<td>19 600-21 800</td>
<td>2267</td>
<td>862 (780)</td>
</tr>
</tbody>
</table>

Source: author’s calculations.


5 Arithmetic average is provided in round figures.

6 The result is also represented as a round figure. After addition the difference between the lowest and the highest number is 9,7% (9,67411…).

7 After subtraction of approx. 10%.

8 After subtraction of approx. 10%.
The role of the army in increasing demographic indicators is not limited to the fact that it was stationed in the province. Another significant factor was that its presence there was associated with the policy of population resettlement, from Barbaricum to the Roman side of the Danube. The policy aimed to settle the areas depopulated as a result of the events which had taken place on lower Danube area in the 1st century BC. According to Strabo’s account, in the beginnings of the new era, Roman governor by the name of Aelius Catus resettled 50,000 Gets to Moesia. Several decades later, during the reign of Nero, Tiberius Plautius Silvanus Aelianus, the then legate of Moesia, permitted over 100,000 people from beyond the Danube (Transdanuviani) to settle in his province. Also, population numbers in the discussed region grew due to the resettlements of tribes from the territories south of the Stara Planina mountain range, such as the Bessi or the Lai.

Apart from resettlement the demography of the province was considerably influenced by:

- veteran settlement (using R. Duncan-Jones’s method it is possible to determine that annually no more than 110 veterans left a legion);
- civilian population following the troops to the location of their stationing, tempted by the opportunity of getting rich off trade and provision of services. As a result, they would settle in the vicinity of the legionary canabae and vici adjoining the forts of auxiliary forces;
- non-military personnel, chiefly including slaves. J. Roth estimates that there might have been 1200 of those to one legion. Analogically, in the period where the legionary contingent in Lower Moesia was 15,000 soldiers,
they were accompanied by 3600 slaves (*coloni*). Other researchers estimate the number of slaves in one legionary camp at 2000 people.

Lower Moesia was severely depopulated due to the political events which preceded its creation. In this case, settlement of the deserted areas brought positive economic results. The growing numbers of inhabitants compelled the farmers to make their farming more efficient by sowing new species of plants and introducing changes in technology. A higher demographic factor also meant a greater number of consumers, which fostered economic upturn, even in a pre-industrial economy based on agriculture which, according to universally recognised macro-estimates, employed 80-90% of the entire population of the Roman Empire. The percentage was definitely higher in the case of Lower Moesia. Given the low degree of urbanization in the province (especially prior to Hadrian’s reign) and lack of large production centres, large-scale mining was developed only in the western Lower Moesia (Montana). Meanwhile, most Greek towns of the western coast of the Black Sea derived their chief profit from agriculture.

The higher level of economic development becomes evident when the percentage of urban population uninvolved in farming increases. Therefore the presence of Roman soldiers in Lower Moesia, a homogeneous group of consumers which, depending on the period, constituted 3-8% of the population, had a substantial impact on the economic development of Lower Moesia (Tab. 2).

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17 E. Boserup, The Conditions of Agricultural Growth: The Economics of Agrarian Change under Population Pressure, New York 1965, pp. 63-64, 73: “concentration of population, accompanied by the change to intensive systems of cultivation, will take place only under the pressure of increasing populations” or “necessity is the mother of invention”.
19 Ibidem, p. 246.
Tab. 2. Estimated population of Lower Moesia and army’s percentage share

<table>
<thead>
<tr>
<th>Hypothetical period</th>
<th>Minimal population density per km²</th>
<th>Total population</th>
<th>Estimated number of troops</th>
<th>Army’s percentage share in population</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st cent.</td>
<td>5 persons</td>
<td>ca 300 000</td>
<td>21 600-23 800</td>
<td>7-8%</td>
</tr>
<tr>
<td>2nd cent.</td>
<td>9 persons</td>
<td>ca 550 000</td>
<td>21 600-23 800</td>
<td>4-4,5%</td>
</tr>
<tr>
<td>3rd cent.</td>
<td>12 persons</td>
<td>ca 750 000</td>
<td>ca 20 000</td>
<td>3-3,5%</td>
</tr>
</tbody>
</table>

Source: author’s calculations.

It would be a mistake to assess the scale of economic role of the Roman army with respect to the entire population. One should be guided by the specificity of pre-industrial economies, in particular the low degree of employment outside agriculture. In such an approach, the Roman army becomes a major economic force, which has a substantial impact on the economy of the occupied frontier territories (Tab. 3).

Tab. 3. Growth of employment in industries other than agriculture thanks to the presence of troops in the province

<table>
<thead>
<tr>
<th>Total population</th>
<th>Estimated number of people employed outside agriculture (5% for the 1st cent., 10% for the 2nd-3rd cent.)</th>
<th>Size of garrison</th>
<th>Non-agricultural employment growth in Lower Moesia</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1st cent.) 300 000</td>
<td>15 000</td>
<td>21 600-23 800</td>
<td>130-140%</td>
</tr>
<tr>
<td>(2nd cent.) 550 000</td>
<td>55 000</td>
<td>21 600-23 800</td>
<td>ca 40%</td>
</tr>
<tr>
<td>(3rd cent.) 750 000</td>
<td>75 000</td>
<td>ca 20 000</td>
<td>ca 18%</td>
</tr>
</tbody>
</table>

Source: author’s calculations.

In the 1st century, when the population of Lower Moesia was approximately 300 000 the coming of the troops caused a 130-140% increase in the number of persons employed outside agriculture. Such a high percentage is due to the situation in Lower Moesia: low population, no urban centres apart from a few cities on the Black Sea coast, lack of large centres of craft production. In the 2nd century, due to advancing urbanization and Roman colonisation, the army constituted around 40% of the population which was not involved in farming (18% in the 3rd century).
MONETIZATION

The high degree of militarization of Lower Moesia had an influence on the economic processes in the province, which included monetization as the soldiers received money in respect of pay, discretionary bonuses and veteran gratuities. Those were the elements which underlay the development of cash & commodity economy. The impact of the army on monetization is also borne out by the geographical and chronological distribution of coin hoards dated to the 1st century, with the earliest concentrated in western Moesia, which was the first to be occupied by legions and auxiliary units. The second such area was Dobrudja, whose Greek towns were soon within the range of economic power of Rome, shortly after establishment of autocratic rule of Augustus (map 1). The penetration of Roman coins into the territory between Lower Moesia and Dobrudja was a result of deploying Roman troops east of Novae during the reign of Vespasian. Civilians would follow the army to their new locations, to act as intermediaries in commercial exchange between the indigenous population and the soldiers, thus contributing to the broader circulation of coins. A greater number and wider geographical distribution of coin hoards dated to the 2nd century confirm that Roman currency was used throughout the province (map 2).

Hoards containing coins as well as minor finds of minted material testify to the role of Roman army in monetization of the rural regions, especially those which were important for economic reasons. One of such areas was the region of Montana, where mines of valuable ores were to be found. Such facilities were secured by numerous auxiliary units and veteran settlement. In the vicinity of military settlement there were villas whose inhabitants engaged in trade and production.
in commercial contacts with the troops stationed nearby\textsuperscript{28}. The phenomenon is evidenced by the coins discovered within ancient villages, such as vicus Vorvorum, vicus Tautiosiceus or vicus Novus. The same applies to the area of Popovo and Shumen, a region of decidedly agricultural character\textsuperscript{29}. Most money went to the urban and rural elite as well as veterans, who were

\textsuperscript{28} On Villas see V.H. Baumann, Ferma Romană din Dobrogea, Tulcea 1983; V. Dinchev, Rimskite villi v dneshnata bŭlgarska teritoriya, Sofia 1997; L. Mulvin, Late Roman Villas in the Danube-Balkan Region, Oxford 2002.

\textsuperscript{29} B. Gerov, Landownership, p. 121.
the owners of medium and large holdings\textsuperscript{30}. The army also had its part in the monetization of cities, e.g. Nicopolis ad Istrum, located ca. 50 km in a straight line from the legionary camp in Novae, which was founded after Trajan’s Dacian wars\textsuperscript{31}. Initially, the coins used in the city originated from the central mints and were put in circulation thanks to Roman army. As the urbanization progressed, this dependency decreased while the significance of civilian element in the economic life of the province grew. Local coinage in Nicopolis ad Istrum, Marcionopolis and growing issue from Greek centres in eastern Lower Moesia enabled those cities to achieve greater self-sufficiency, which lasted until the reign of Gordian III\textsuperscript{32}.

Army was the largest beneficiary of the state’s financial resources. The minimum amount that the Roman army stationed in Lower Moesia (excluding river fleet) in the 1\textsuperscript{st} and in the early 2\textsuperscript{nd} century was able to spend outside garrison from pay itself was approximately 3 000 000 denarii. After the abolishment of deductions from military pay the sum increased to 7 000 000 denarii. The amounts grew correspondingly with the increases in military wages\textsuperscript{33}: 11 800 000 under Septimius Severus, 17 700 000 under Caracalla, reaching eventually 35 500 000 denarii during the reign of Maximinus Thrax (Tab. 4). Those numbers should be approached with great caution as Rome sought to reduce to cost of maintaining the army. One of the employed


practices was shifting the expenditure on the local population, especially in the periods of intensified military activities, when the treasury failed to cover the army's demand for silver coin\textsuperscript{34}.

### Tab. 4. Costs of maintaining army in Lower Moesia

<table>
<thead>
<tr>
<th>Year</th>
<th>Composition of the army</th>
<th>Amount prior to deductions (in millions)</th>
<th>Amount after deductions (in millions)</th>
<th>Pre-deduction amount –10%\textsuperscript{35} (in millions)</th>
<th>Post-deduction amount –10% (in millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>92</td>
<td>2 leg., 7 alae, 9 coh. eq., 6 coh. ped.</td>
<td>7 889 800</td>
<td>3 428 000</td>
<td>7 100 820</td>
<td>3 085 200</td>
</tr>
<tr>
<td>97</td>
<td>2 leg., 11 coh. eq., 8 coh. ped., 9 alae</td>
<td>8 968 900</td>
<td>3 868 610</td>
<td>8 072 010</td>
<td>3 481 749</td>
</tr>
<tr>
<td>99</td>
<td>2 leg., 9 coh. eq., 3 coh. ped., 6 alae</td>
<td>7 258 100</td>
<td>3 174 770</td>
<td>6 532 290</td>
<td>2 857 293</td>
</tr>
<tr>
<td>107</td>
<td>3 leg., 5 coh. eq., 2 coh. ped., 3 alae</td>
<td>7 678 100</td>
<td>3 646 575</td>
<td>6 910 290</td>
<td>3 281 917</td>
</tr>
<tr>
<td>111</td>
<td>3 leg., 5 coh. eq., 2 coh. ped., 3 alae</td>
<td>7 678 100</td>
<td>3 646 575</td>
<td>6 910 290</td>
<td>3 281 917</td>
</tr>
<tr>
<td>116</td>
<td>3 leg., 1 coh. eq., 1 coh. m. ped., 3 coh., ped., 2 alae</td>
<td>7 097 750</td>
<td>3 205 245</td>
<td>6 387 975</td>
<td>2 884 720</td>
</tr>
<tr>
<td>119-120</td>
<td>3 leg., 7 coh. eq., 1 coh. ped., 3 alae</td>
<td>7 898 050</td>
<td>3 736 785</td>
<td>7 108 245</td>
<td>3 363 106</td>
</tr>
<tr>
<td>121</td>
<td>3 leg., 6 coh. eq., 1 coh. ped., 3 alae</td>
<td>7 720 700</td>
<td>3 464 550</td>
<td>6 948 630</td>
<td>3 118 095</td>
</tr>
<tr>
<td>125</td>
<td>3 leg., 4 coh. eq., 1 coh. ped., 2 alae</td>
<td>7 138 550</td>
<td>3 226 845</td>
<td>6 424 695</td>
<td>2 904 160</td>
</tr>
<tr>
<td>127</td>
<td>3 leg., 7 coh. eq., 3 coh. ped., 5 alae,</td>
<td>8 622 450</td>
<td>3 837 435</td>
<td>7 760 205</td>
<td>3 453 691</td>
</tr>
<tr>
<td>134</td>
<td>3 leg., 2 coh. eq., 2 coh. ped., 1 coh. m. eq., 2 alae</td>
<td>6 956 050</td>
<td>3 257 445</td>
<td>6 260 445</td>
<td>2 931 700</td>
</tr>
<tr>
<td>145-146</td>
<td>3 leg., 6 coh. eq., 3 coh. ped., 2 coh. m. eq., 5 alae</td>
<td>9 059 000</td>
<td>4 001 160</td>
<td>8 153 100</td>
<td>3 601 044</td>
</tr>
<tr>
<td>154</td>
<td>3 leg., 6 coh. eq., 4 coh. ped., 2 coh. m. eq., 5 alae</td>
<td>9 193 750</td>
<td>4 051 485</td>
<td>8 274 375</td>
<td>3 646 336</td>
</tr>
<tr>
<td>156/158</td>
<td>3 leg., 6 coh. eq., 4 coh. ped., 1 coh. m. eq., 5 alae</td>
<td>8 886 800</td>
<td>3 935 760</td>
<td>7 998 120</td>
<td>3 542 184</td>
</tr>
</tbody>
</table>

Together, the arithmetic average 8 003 282 3 521 388\# 7 202 963 3 169 249

Source: author's calculations.


\textsuperscript{35}10% is a variable adopted following studies on the strength of the army in Lower Moesia.
CONSTRUCTIONS

The appearance of the military in Lower Moesia resulted in range of economic innovations occasioned by the necessity to develop infrastructure that the army required. The first Roman undertaking was development of a network of fortifications, including legionary camps, forts (castellae), watchtowers and guard posts. The line of fortifications in Lower Moesia, comprising around 46 installations, was approximately 670 km long. Further 68 installations and facilities extended into the province, at a distance of 30-70 km from the limes (map 3). Besides fortifications, the army traced out new roads and built bridges on the routes leading to the camps, connecting cities at the same time. Harbours were found in the vicinity of fortifications located on the Danube. Engineering detachments build aqueducts and underground water supply network.

Although the roads were built to be able to redeploy troops in a short time, the network was used by the administration, traders, and inhabitants of the province. Moreover, road infrastructure enabled Rome to profit from commerce by imposing portorium on the merchants who passed through customs stations. The roads built by the army had an impact on economic activity associated directly with any communication routes, such as the roadside taverns or inns. Lower Moesian villae rusticae were built not only near ports but also near major roads, which enabled their owners to sell their

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36 About Roman fortifications: N. Gudea, Der untermoesischen Donaulimes und die Verteidigung der moesischen Nord- und Westküste des Schwarzen Meeres. Limes et litus moesiae inferioris (86-275 n. Chr.), JRGZM 52, 2005. Currently, the most up-to-date study is: M. Lemke, Geografia wojskowa Mezji Dolnej. Czynniki naturalne, kulturowe i logistyczne w organizacji limesu prowincji Moesia Inferior w okresie pryncypatu (I-III w.), Typescript of PhD’s thesis defended in 2012, available from the University of Warsaw Library.

37 M. Lemke, Geografia wojskowa, map at the end of typescript.


products directly to the travellers. One of the largest of such centres of ceramic production was in Butovo, near the road connecting Nicopolis ad Istrum and Novae. Much the same applied to imperial estate, which is attested to in the inscription from Kolarci, mentioning a soldier in the rank of strator consularis, the antique road station of Palmatis was found nearby. The areas adjoining the roads was also a place where emporia were built. One of those, bearing the name of Emporium Piretensium was located near Butovo, on the route from Nicopolis ad Istrum to Melta.

The construction undertakings of the Roman army positively affected urbanization of the province, which in turn boosted the pace of economic development, as the local market grew along with the increasing numbers of producers and consumers.

The safety ensured by the army and the opportunity of gain from trade and services provided for the army promoted wealth of settlements situated in the vicinity of legionary fortresses. With time, the former developed their own internal market, and began to rely increasingly on mutual exchange, thus becoming less dependent on the troops stationed nearby. Urbanization

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of the province was not associated exclusively with military strongholds. The roads built by the army attracted settlement, be it larger or smaller, just as the sites where natural resources were mined under army supervision.

**AGRICULTURE**

In the 1st century, the army occupying the then territory of Moesia (later the area of the western Lower Moesia), obtained their grain supplies from the northern regions of the Black Sea coast, from Bithynia and Pontus. The 2nd century marked a shift in that respect, as there had appeared farms which in all likelihood supplied grain to local garrisons. The largest holding was the imperial domain in Madara\(^{44}\) as well as smaller villas, e.g. the three villas in Montana\(^{45}\); the one marked with no. 1 specialised in agricultural production\(^{46}\).

A major agricultural centre, whose output was capable of providing for the military needs, was located in today’s district of Shumen. Stamped building ceramics from Madara demonstrates that apart from imperials estates the land was held by leaseholders and independent producers\(^{47}\). The site is known for the largest concentration of farming tools discovered in northern Bulgaria\(^{48}\). Numerous veteran villas have been discovered in Dobrudja\(^{49}\), which vividly illustrates their economic potential. After *honestia missio*, veterans would often take up a business activity.

Furthermore, one should not forget that Roman army exploited the areas surrounding the strongholds (*territorium/prata legionis*)\(^{50}\) and contributed to their economic development. This might have been the source of a considerable volume of goods, obtained by requisition, taxation or acquisition of

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\(^{44}\) B. Gerov, Landownership, pp. 74-77; V. Dinchev, Rimskite vili, p. 77; T. Sarnowski, Wojsko rzymskie, p. 65.

\(^{45}\) V. Dinchev, Rimskite vili, p. 146.


\(^{47}\) D. Detchev, Tukhli s latinski pechati ot Madara, [w:] Madara. Razakopki i prouchvaniya, Sofiya 1936, Anticena vila no. 1, pp. 11-21; B. Gerov, Landownership, p. 123.

\(^{48}\) I. Cholakov, Ancient Economy South of the Lower Danube Limes (The Territory of Present-Day North Bulgaria) Based on Finds of Tools from the Period of the 1st—the Beginning of the 7th C. AD, [in:] I.F. Vagalinski, N. Sharankov, S. Torbatov (eds.), The Lower Danube Roman Limes (1st-6th C. AD), Sofía 2012, p. 64, Fig. 1.

\(^{49}\) P. Dyczek, Amfory rzymskie z obszaru dolnego Dunaju. Dystrybucja amfor i transportowanych w nich produktów w I-III w. po Chr., Warszawa 1999, p. 266.

merchandise by means of trade\textsuperscript{51}. Those areas also provided the army with land for cultivation\textsuperscript{52} or pastures.

**VINICULTURE**

In the 1\textsuperscript{st} century, the wine available in Lower Moesia was mainly Greek or originated from the western provinces of the Empire, Italy in particular\textsuperscript{53}. In the 2\textsuperscript{nd} century, the import of wine from the western provinces dropped perceptibly. Greek wines predominated among the imported spirits, especially wines from Rhodes, which proved extremely popular in Lower Moesia, being supplied to such localities as Aegyssus, Callatis, Dimum, Dinogetia, Histria, Kaliarka, Novae, Noviodunum, Odessos, Tomi, Troesmis or Tropeum Traiani\textsuperscript{54}.

In the 2\textsuperscript{nd} and the 3\textsuperscript{rd} century, local wines had a considerable share in the spirits supplied to the army. The significance of vine growing in Lower Moesia is reflected in a special law issued between 138-169, which protected the industry in the region\textsuperscript{55}. The army’s contribution to the development of viniculture in Lower Moesia is confirmed by the distribution of vine grower’s tools discovered by archaeologists, which are most often found across the Danubian Lowland near the military sites on the limes\textsuperscript{56}.

One of the pieces of evidence of wine trade with the legionary camp in Novae is the tomb stele erected between 70 and 120 to commemorate Iulius Iero, a negotiator\textsuperscript{57}. The barrels represented on his sarcophagus gave rise to


\textsuperscript{52} Scene CX on Trajan’s column shows a legionary doing field work near a fortification, see R. Vulpe, Trajan’s Column, București 2002, p. 184.

\textsuperscript{53} P. Dyczek, Amfory rzymskie, pp. 260-261.


\textsuperscript{55} B. Gerov, Kam za voprosa za lozarstvo v Dolna Miziya prez rimskoto vreme, [in:] Sbornik Gavril Kacarov, Sofia 1955, pp. 187-193, the author analysed a fragment from Dig. XLVIII, 19, 16, and consequently concluded that the name Mysia mentioned in the text should not be identified with cultivation in Asia Minor but with Moesia, and that the excerpt is concerned with provinces on the lower Danube.

\textsuperscript{56} I. Cholakov, Ancient Economy, p. 65.

a widely accepted presumption that he was a wine merchant, storing and selling wine brought from the eastern part of the Empire or Greece to the legionaries. His eastern Roman name may indicate that this was so, although the possibility that he sold local wine cannot be ruled out[^58].

The parents of Marcus Antonius Valens, for whom their son erected a tomb embellished with a bunch of grapes, a hoe and harvest ears, were either local producers or worked at a vineyard[^59]. The discovery of the tomb of Valens’s parents near Novae proves that the wine they produced was intended for the soldiers of legio I Italica.

There were also villas in Lower Moesia which specialised in wine production (map 4). One of those was located in the aforementioned imperial estate in Madara[^60]. The others were found in Vardim, a few kilometres away from Novae[^61], Varna, Niculitel and Troesmis[^62]. Tomb reliefs indicate that wine was also produced in Vicus Trullensium, Kamenno Pole and Dolna Kremena[^63]. Local wines would be transported in Dyczek 30 type amphorae, which are found in Butovo, Hotnica, Pavlikeni, Capclia and Horia, as well as at the sites of military encampments in Novae and Troemis[^64].

[^58]: P. Dyczek, Wine in Lower Moesia, Historia Antiqua 15, 2007, p. 239.
[^59]: IlatNovae 53; J. Kolendo, Insckrypcje wyzwoleniców i niewolników z Novae, Novensia 6, 1993, p. 136.
[^60]: V. Dinchev, Rimskite villi, p. 132.
[^61]: Ibidem, p. 26; J. Reclaw, Wykorzystanie olowiu w Novae, Novensia 16, 2005, p. 47, the author claims that the lead sheets discovered at the villa were elements of a wine-making press.
[^64]: P. Dyczek, Wine, p. 243.
POTTERY PRODUCTION

The *terra sigillata* items which were supplied in the 1st century to the garrisons in Lower Moesia came from Asia Minor (Tralles), Italy (Arretium) and Gaul (Millau-La Graufesenque)\(^65\). Once the Roman army had arrived, the local production of ceramics began to develop much faster, especially near the strongholds. Initially, apart from imported tableware, 1st-century artefacts included hand-made ceramics discovered in Oescus\(^66\) and Novae\(^67\). Those items attest that already at that time there was contact between the soldiers and the civilian population. Gradually, the quality of local ceramics improved under the influence of superior Roman imports\(^68\), which is evident in Oescus, where the products manufactured in the 1st century by the local producers were good enough to be purchased by the soldiers of *legio V Macedonica*\(^69\). Emulation of the Roman patterns and designs led to the development of local production, which reached its peak in the first decades of the 2nd century. At that time, *terra sigillata* ware began to be produced in Melta (Lovec), where a richly ornamented form was discovered; Montana represents a similar case\(^70\). Also, a number of supra-regional pottery production centres have emerged, for instance the workshops located near Nicopolis ad Istrum in the vicinity of today’s Butovo and Pavlikeni. In each of those locations there were several workshops\(^71\) which specialised in manufacturing particular types of ceramics. Pavlikeni craftsmen produced high-quality articles with red and grey-black coating\(^72\), chiefly bowls, vessels, cups, censers, lids, pots and pans as well as minor numbers of olive lamps\(^73\). Butovo workshops turned out high-quality, richly ornamented tableware\(^74\) as well as olive lamps, especially

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\(^{66}\) G. Kabakchieva, Oescus: Castra Oescensia: rannorimski voenen lager pri ustieto na Iskŭr, Sofia 2000, p. 119.


\(^{69}\) G. Kabakchieva, Oescus, p. 119.

\(^{70}\) A. Dimitrova-Milcheva, Produktion, p. 519.

\(^{71}\) B. Sultov, Ceramic Production on the Territory of Nicopolis ad Istrum (IInd.-IVth Century), Terra Antiqua Balcanica 1, GSUFF 76/2, 1983 (1985), p. 11.

\(^{72}\) Ibidem, p. 25.

\(^{73}\) P. Vladkova, Antichen proizvodstven tsentŭr pri Pavlikeni. Plan na kompleksa, periodizatsiya i vidove keramichni izdeliya, Veliko Tŭrnovo 2011, pp. 145, 147.

\(^{74}\) B. Sultov, Proizvodstvo na relefna keramika v Dolna Misiya, IIIIMVT 5, 1972, pp. 21-29.
in the early 3rd century. Those production centres were found not far away from the road connecting Novae, Nicopolis ad Istrum and Melita. Another site of mass ceramic production was Marcianopolis, which produced amphorae, kitchen- and tableware and, from the 3rd century onwards, an increased volume of olive lamps. It is no accident that pottery production centres were also to be found near the Novae camp (Peti Mogili), Noviodunum and Durostorum. One should not fail to mention the sites in the Dobrudja area, where major centres of production, i.e. Hoga and Mamia, were found near Telita. On top of that, a lamp production centre existed in Halmyris.

Ceramic workshops in the vicinity of Durostorum supplied tableware and olive lamps to both legionsaries of legio XI Claudia and inhabitants of the canabae. We know a number of names of workshops producing olive lamps in Lower Moesia: those found in Oescus produced by Atimeti, Favor, Ianuari, Luci; in Novae: Armeni, Atimeti, Ianuari, Sexti, Restutus, Retutu, Communis, Cresces, Festi, Lupati, Procili, Prude, Strobili, Flavi. In Durostorum: Armeni, Campili, Cassi, Lupati, Prude, Restuto, Sexti, Strobili, Flavi; in Troesmis: Strobili, Cassius, Armeni. However, one should note that local production in Lower Moesia did not replace imported ceramics until the late 2nd century.

In the latter half of the 2nd century, products which enjoyed considerable popularity in Lower Moesia included ceramics from Reinzabern (Gaul) and Westerndorf (Germania); this is evident in Noviodunum, where numerous fragments of such artefacts were discovered. In Novae and Durostorum,
archaeologists discovered lamps dating to the 2nd century, produced in northern Italy and bearing stamps of Fortis, Octavi, Strobi, Vetti, Decimi, Favor, Lucius. It should be emphasized that western Roman imports are encountered much more seldom in the Dobrudja area where, due to geographical location, goods were traded predominantly with the eastern provinces of the Empire. Lamps discovered in Noviodunum are a particular example of that exchange, where local types were in the majority (22 of 27 types). Northern Italian lamps did reach Noviodunum, as demonstrated by the presence of Fortis lamps, yet in much smaller numbers.

Legionaries also produced ceramic items on their own, as the discovery of terra sigillata mould in Novae suggests. Military production was widespread in the Dobrudja area, with a number of military workshops in Axiopolis, Sacidava and Troesmis, where legionaries of legio V Macedonica and XI Claudia produced the so-called LDKW (Lower Danube Kaolin Ware). The items were chiefly intended for use in the kitchens, and may be found in all military installations of the Lower Moesian limes. Interestingly enough, it was also used by civilians, although on a much smaller scale.

CONCLUSIONS

When the Roman army came to Lower Moesia, it inevitably triggered transformations throughout that territory. Population numbers, albeit initially small, grew rapidly, numerous villages have appeared; there was no shortage of urban centres, which gained considerable economic significance during the reign of the Severan dynasty. There were villas supplying produce or craft commodities. However, there is no doubt that every aspect of the

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economic life of Lower Moesia was related in one way or another to the military. The province evolved economically in order to meet the provisioning needs of the army, which consequently led to the development of the civilian market.

Michał Duch

**Wpływ armii rzymskiej na handel i produkcję w Mezji Dolnej (Moesia Inferior)**

**Streszczenie**

Pojawienie się żołnierzy rzymskich na obszarze prowincji Mezja Dolna nieuchronnie spowodowało transformację tych obszarów. Jej zaludnienie, początkowo słabe, uległo radykalnemu zwiększeniu, pojawiły się liczne wsie, nie brakowało ośrodków życia miejskiego, które w dobie panowania Sewerów zyskały na znaczeniu gospodarczym. Powstały wille zajmujące się produkcją rolną i rzemieślniczą. Nie ma jednak wątpliwości, że każdy aspekt życiologicznego Mezji Dolnej powiązany był z wojskiem. Prowincja gospodarczo ewaluowała, żeby zaspokoić potrzeby aprowizacyjne armii, co w efekcie doprowadziło do wykształcenia się rynku cywilnego.

**List of abbreviations**

- **AB** – Archaeologia Bulgarica, Sofia
- **AncSoc** – Ancient Society Leuven
- **ANRW** – Aufstieg und Niedergang der römischen Welt, Berlin-New York
- **Archeologia** – Rocznik Państwowego Muzeum Archeologicznego w Warszawie i Polskiego Towarzystwa Archeologicznego we Wrocławiu
- **Archeologiya** – Archeologiya. Académie de Sciences, Institut et Musées archéologiques, Sofia
- **Balcanica Posnaniensia** – Balcanica Posnaniensia. Acta et studia, Poznań
- **Britannia** – Britannia. A journal of Romano-British and kindred studies, London
- **Cercetări Arheologice** – Cercetări Arheologice. Muzeul national – București
- **Chiron** – Chiron. Mitteilungen der Kommission für Alte Geschichte und Epigraphik des Deutschen Archäologischen Instituts, München
- **Dacia** – Revue d’Archéologie et d’Histoire ancienne, București
- **EOS** – Eos. Commentarii Societatis Philologae Polonorum, Bratislava-Varsovia
- **Germania** – Germania. Anzeiger der römisch-germanischen Kommission des deutschen archäologischen Instituts, Berlin
GSUFF – Godishnik na Sofiyskiya Universitet “Klement Ohridski” Istoricheski Fakultet 197
Historia Antiqua – Historia Antiqua, 10, Journal of the International Research Centre for Archaeology, Pula
Historia – Historia. Zeitschrift für Alte Geschichte, Stuttgart
IAI – Izvestiya na Arheologicheskiya Institut
JRS – The Journal of Roman Studies
JRGZM – Jahrbuch der Römisch-Germanischen Zentralmuseums Mainz
KHKM – Kwartalnik Historii Kultury Materialnej, Warszawa
Latomus – Latomus. Revue d’études latines, Bruselas
PBSR – Papers of the British School at Rome
Peuce – Peuce, Studii si cercetari de istorie si arheologie, București
RCRF – Rei Cretariae Romanae Favtorum
SFMA – Studien zu Fundmünzen der Antike, Berlin
ZPE – Zeitschrift für Papyrologie und Epigraphik, Köln

**Inscriptions, diplomas, papyri**

AE – L’Année Épigraphique. Revue des publications épigraphiques relatives à l’Antiquité romaine, Paris
CIL – Corpus Inscriptionum Latinarum, Berolini-Paris 1863-2006
ILatNovae – Inscriptions latines de Novae, eds.: V. Božilova, J. Kolendo, L. Mrozewicz
ChLA – Chartae Latinae Antiquiores
RMR – Fink R. O., Roman military records on papyrus, London 1971
RMD – Roman Military Diplomas I-V, eds.: M. Roxan, P. Holder

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