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Byzantine Army: The Concise 10th-11th century AD Imperial Infantry and Cavalry Soldier

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INTRODUCTION

One of the main reasons why Byzantium[1] has always attracted that much of attention, both in popular culture and in academia, is probably the fact that it is inadvertently seen in comparison and contrast to its immediate predecessors: ancient Rome and ancient Greece. With good reason, in terms of such attention, the high era of the Byzantine power, the era of the Macedonian dynasty from 9th to 11th century AD, bears the honors of both amateur enthusiast and academic popularity. While however, this is the most illuminated era of the Byzantine period, in terms of archeological, literature, artistic, and architectural remains and monuments, there is one area of study that is left, unusually and uncomfortably, empty of decisive evidence; the arms and armour of the imperial army of the period. This lack of evidence becomes even more intense and uncomfortable when – inadvertently – put in contrast with the ancient Greek and Roman period in the same wider geographical area: we

[1] Fully aware of how "hot" a topic the Byzantine vs Eastern Roman controversy can be, and even though this is intended to be an academic publication, I have opted to use the less academic/more novelistic term "Byzantium", which in one word and at the same time reflects upon the whole spectrum of ethnic/cultural/political/religious complex of an entity that it was.

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have abundant evidence for the arms and armour of all previous periods, from the classical Greek and the Hellenistic up to the later Roman and even parts of the early Byzantine period (4th century AD).

There are various factors to account as for the reasons of this archeological gap, however it will not be the topic of this article. Suffice it here to mention that, as far as the cause of historical re-construction and re-enactment is concerned, the thesis of this article is that notwithstanding the lack or scarcity of findings, we do have enough evidence at our disposal, to adequately and successfully re-enact this period, without resorting to bold and risky conjectures or assumptions. In fact, we are going to show how the level of educated guesses to fill in the gaps, can be limited to the minimum. Having said that, this article is not going to argue or claim to have the answer to every question. The period from the 10th to the 11th century AD in Byzantium is one that offers, by far, the most literature and artistic evidence for the imperial army. In the 10th century, alone, were written three of the most important Byzantine military treatises, two of them being actually attributed to some of the most well-known and celebrated Roman emperors (Leo VI the Wise and Nikephoros Phokas) and one of Basil II's strategos, Nikephoros Ouranos. In those texts, a plethora of information and various terms about arms and armour have been provided.

Meanwhile, this is also the period of the so-called Macedonian renaissance in byzantine art (religious and secular). A large amount of highly sophisticated iconographical and sculptural art survives from this era, containing among a variety of themes, a plethora of displays of soldiers, military saints or whole infantry and cavalry battalions in battle formation. In light of the extensive scarcity of hard archeological evidence from this period, the texts of the military treatises and all the imagery sources when put together, present us with a variety of Medieval Greek terms (some of them not repeated anywhere else) and imagery shapes of objects that cause more confusion than clarification and create a true deciphering puzzle.

Yet, it is admittedly hard to decipher this, otherwise, vast pool of information. The answer to the reason for this hardship will be provided in the next chapter, which deals with the sources of Byzantine re-enactment and their management. However, the thesis of this article is that it is impossible, and it should be avoided, to answer every question that stems out of the plethora of information provided by the sources of this period. Over the recent decades, this resurgent interest in Byzantium and in the Macedonian dynasty era in particular, has caused researchers to seek and answer every single one of those - smaller or bigger - questions of the sophisticated terminology or the intriguing shapes of armour seen on imagery sources from this period. Of course, this did not appear to raise any concerns as

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long as most of the academic debate remained academic, that is, on paper and in printed editions. Concerns began to be raised and expressed when, and most notably over the last ten years, these debates were inevitably taken onto the actual field of historical re-construction and re-enactment. There it became inevitably evident that there is a difference between, proposing a hypothesis for the interpretation of (i.e.) the *pteryges* or the *klinavion* on paper or on illustration, and actually going about re-constructing an exact historical replica of that piece of armour. The difference lies in the fact that a serious historical re-enactor will have to get involved with experimental archeology, whereby a project as such raises the research criteria to a different level.

Thereby, in absence of archeological evidence the prospects of historical re-construction are significantly limited. Because, it would not be enough for the research criteria of a historical re-construction, for an object to *look like* the imagery sources of the period. In the process of producing a historical illustration the researcher has the luxury to avoid any lack of evidence or uncomfortable question. Yet, when it comes to a historical reconstruction which is intended to be simply displayed at a medieval festival demonstration, a piece of armour for example, would have to be constructed in such manner that it would be suitable for use in real battle by a soldier and give him real survival chances. Hence, it becomes evident that in the absence of archeological evidence, the research criteria[2] of historical re-enactment are sometimes very challenging to meet, since there are questions that are virtually impossible to be answered. In such cases, re-construction and even historical illustration propositions as towards the possible interpretation of such objects, becomes highly conjectural and can be misleading to further research.

Undoubtedly, human curiosity cannot and should not be restrained, and in this day and age every qualified academic or amateur researcher is free and able to seek and answer every possible question of Byzantine historical re-enactment. However, historical re-enactment and re-construction – if it is intended to be conducted properly – requires a certified method and adherence to a set of rules that inevitably limit it. It is true that, textual and imagery sources present plenty of fragmented information for various objects from every historical period. However, not everything can be re-constructed unless a set of certain criteria are met. Hence, it is warranted to declare that a) caution is required when

[2] Lakatos, 1976; 1978; 1978; Coles, 1973; Outram, 2008; Stone & Planel, 1999

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making claims and unnecessary risks should be avoided, and b) answers to questions should not be rushed and not all problems need to be solved at once.

This article attempts a revision of the so far stated claims and academic opinions, as well as a presentation of our own newest research and its results, on the subject of Byzantine arms and armour of the 10th-11th century (900 – 1081 AD). The aim is to present an updated proposal for a concise image of the Byzantine infantry and cavalry soldier of this period, based on archeological evidence and most recent historical re-enactment experience, while limiting the amount of conjectural interpretation of the sources to the minimum. In line with this goal, our proposed image for the Byzantine soldier has deliberately omitted pieces of armour, which are mentioned in textual or appear in imagery sources, but are deemed impossible to be re-constructed with adequate or satisfactory certainty.

STATE OF THE ART

Ian Heath & Angus McBride, (1979), *"Byzantine Armies 886-1118"*, (Osprey Publishing Ltd.)

Ian Heath and Angus McBride's work was the first major attempt at the question of the byzantine army of the Macedonian era. In many ways it was the work that opened the field of research on byzantine warfare and historical re-enactment and has shaped academic research over the last forty years, as well as the depiction of byzantine army in modern popular culture (i.e., strategy video games, historical re-enactment, etc).

In its strengths, the work of Heath & McBride provides illustration plates that follow a sensible approach to historical re-construction and make a very sound case for the chainmaille and torso lamellar. In its weaknesses however, it is exclusively based on textual iconographical sources, which are taken collectively at face value, with a rather haste and surficial research and analysis. Terminology found in the military treatises is not deciphered convincingly, while the iconographical sources of the period (manuscript illumination and ivory carvings) are generally and effortlessly assumed to be realistic and non-anachronistic. There is an absence of archeological evidence, while the Greek-kettle helmet that is cited[3], belongs to a much later period (13th-14th century). Moreover, it includes the problematic proposition that the Roman centurion of the Crucifixion is a

[3] Heath & McBride, 1979, p. 37

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soldier of the Varangian Guard, without providing secondary source reference or a convincing reasoning or analysis of their own. This proposition has since then been blindly repeated as an embedded fact.

Furthermore, as far as the illustration plates are concerned, a set of problems can be noted. While Heath & McBride make a very sound case for it, most of the lamellar torso armour is depicted in a superficial manner. The artwork on helmets and swords is superficial. The scale aventails and leather aventails are unconvincing, as they appear to be based on a loose interpretation of iconographical sources alone. There are leather *pterygai* on the shoulders and the hips as well as scale armour on two of the cavalry kataphrakti; all of these being anachronistic elements of armour for the period at hand and quite unfounded by archeological evidence. Splinted greaves and armbraces sported on some of the heavier-armed soldiers are also unconvincing and not referenced by archeological evidence of the period.

Overall, Heath and McBride's work presents a good study of the textual and iconographical sources, which however remains surficial and stands as a pivotal early study on the subject, one that paved the way for further research in the decades that followed.

Raffaele D' Amato (illustrated by G. Rava), 2010, *"The Varangian Guard 988-1453"*, (Osprey Publishing Ltd.)

In this short edition, D' Amato deals with the ever-popular theme of the Varangian Guard and the question about its arms and armour. The fact that it purports to cover such an extensive and diverse period, such as the 988-1453 AD period, makes it problematic to begin with.

In its strengths, D' Amato's thesis makes the courtesy to present solid archeological evidence, on axes and swords from the period, as well as some very interesting and valuable input with the Vatra Moldovitei helmet (late 12th- early 13th century) – although it should be noted that the latter has also been claimed as of Cuman or Tatar origin. However, on the aspect of sources nonetheless, D' Amato's thesis presents notable weaknesses. It generally appears to put way more faith than is warranted on byzantine religious iconography. In particular, the tendency to identify any bearded or red-haired figure of byzantine iconography, wielding a long axe or a long mace, as a Varangian, without providing any reference to relevant bibliography or original analysis, is bordering the lines of bias. In overall, D' Amato's reliance on byzantine religious iconography of this period completely disregards the possibility of anachronism and, it becomes heavy and

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almost blind, as no back-up secondary Referencesare provided or at least an original analysis of his own to support the whole thesis.

Hence, while the archeological evidence on weapons and helmets of the period is welcome and valuable, it is hardly convincing how and why this evidence is exclusively linked to the Varangian Guard, in particular, and not the Byzantine army of the period in general. Besides, the Varangian Guard was always a mercenary unit, and if anything is certain about mercenaries, is the fact that they were hired trained and with their own equipment, which would correspond with the geographical area and culture they came from at any given period in question. Even if those mercenaries stayed in byzantine service for a prolonged period of time, Byzantine authorities provided with them with a regular payroll with which they were expected (and responsible for) to maintain or renew their equipment, as they saw best. It seems highly unlikely that the imperial coffers would be spending extra money to equip those men, even more so at a time when spending money for its indigenous troops (from mid-11th century onwards) was already a huge challenge in itself.

Furthermore, in the iconographical art so extensively cited by D' Amato, the centurion in the scenes of Crucifixion and soldiers in the scenes of the Passion of Christ are by default Romans; not "barbarian" mercenaries. Besides, as far as textual sources of the period are concerned, axes and maces of all kinds are prescribed to any and all types of Byzantine soldiers.

On the illustration plates, the problem of the purported time-span of research becomes more visible. Elements of equipment belonging to different eras and periods are mixed up together, while the photographical interpretation of iconography creates an uncomfortable outcome, most notably in the "Last Guardsmen, 15th century) plate. Finally, artistic license and researcher's unfiltered reliance on iconographical sources are widely abused when it comes to leather pteryges and kremasmata.

-Raffaele D' Amato (illustrated by G. Rava), 2012, *"Byzantine Imperial Guardsmen 925-1025 – The Thagmata and Imperial Guard",* (Osprey Publishing Ltd.)

D' Amato attempts to revisit this popular topic, following the work of other scholars before him. Limiting the time-frame of the research down to one century is a significant improvement. Moreover, despite the fact that the same, as above-mentioned, heavy reliance on iconography is maintained, this newer work by D' Amato, has indeed to offer a more robust and wider set of archeological evidence. In fact, the presentation of archeological findings on Byzantine sword hilts and chainmaille armour from the period is quite valuable.

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However, a most peculiar claim is placed for the Uzana helmet, a most evidently 14th century bascinet[4], which is argued to belong to 11th century, simply because it vaguely resembles the shape of some helmets in manuscript illustrations. Nevertheless, this is not how historical dating functions. Besides, any other archeological evidence presented in this issue, is unexplainably neglected, when it comes to historical illustrations. Instead of seeing those illustrations reflecting upon the chainmaille armour found at Sofia (9th-10th c AD) and the Iveron Monastery (10th c AD) or a klivanion bound properly, according to the lamellae discovered at Veliki Preslav (10th c AD), wild conjectures are once again noted.

Superficial lamellar armour on emperors John Tzimiskis and Emperor Basil II, completely conjectural armour on the two Boukoleon harbor guards, and once again scale armour, that belongs to at least eight centuries before the period in question. All this is the result of obscure iconographical evidence being simply copied out, unfiltered through any kind of secondary analysis, and opted as the sole source of historical illustrations and, henceforth, suggested as such for modern historical re-construction and re-enactment.

R. D'Amato 2015, Old and new evidence on the East-Roman helmets from the 9th to the 12th centuries, AMM XI: 27-157

This journal article is a clear attempt to compose a concise catalogue of all the available information on the excruciating question of Byzantine helmets in the period 9th-12th centuries. However, the time-frame attempted to cover is a vast one and the result is a mixed one at best. Archeological findings ranging from over five centuries are superficially grouped together in one list, and while some cases are convincingly presented, others are provided with unclear provenance, while the Uzana bascinet is again claimed to belong to 10th century. Besides, there is, once again, heavy reliance on illustrations and imagery sources, which are confusingly mixed up with archeological findings, with poor connection and provenance between them. Finally, D' Amato's comments on the Byzantine Greek terminology of helmets, are simply restating already known facts.

Raffaele D'Amato, Dragana Lj. Spasić-Đurić, (2018), *"The Phrygian helmet in Byzantium: archaeology and iconography in the light of recent finds from Braničevo"*, AMM XIV: 29-67

A close study of the Branicevo helmet is attempted. The argument by D' Amato and Spasić-Đurić is that the Branicevo (and its "twin" from Pernik castle) helmet dated in 12th century is not a stand-alone type isolated in its period, and hypothetically an import from

[4] As Robyanov (2017) notes, found at the uninhabited mountain region of Uzana, in Bulgaria not in "Ozana castle".

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western European influence (Normans), but it appears to present an advanced stage of the evolution of a type of helmet indigenous and unique in the medieval byzantine world. The characteristic pointy-hat shape, in many variations but with a common pattern, is indeed met in illustration sources throughout the 10th-12th century period.

Timothy Dawson (illustrated by Angus McBride), 2007, *"Byzantine Infantryman – Eastern Roman Empire, c. 900-1204"*, (Osprey Publishing Ltd.)

Timothy Dawson was the first to take on the challenge of interpreting the famous 10th century Byzantine military treatises through historical re-construction. While his propositions haven't provided all the answers to the questions arising from the sources of the period, his input has been critical in the development of the field of Byzantine historical re-enactment in the early 21st century. In this work, Dawson presents for the first time, a proposal for the re-construction of the kavadion/nevrikon. Moreover, it displays a critical research and re-construction on the *solenarion*, archeological evidence for weapons and armour parts of the period, an original an innovative study of ivory casket figurines of the period, as well as a study on byzantine military encampment, organization and structure based on the military treatises.

While being overwhelmingly based on the study and interpretation of the military treatises, the weaknesses of Dawson's work in this issue amount to a significant lack of archeological evidence to support the thesis. Most notably, on one of the historical illustrations a scale armour appears, while his proposal for the construction of the lamellar klivanion is based on iconographical evidence, that is however inherently dubious. Moreover, while exhibiting a thorough study of the military treatises of the period, Dawson's interpretation of the Byzantine body-armour appears to be grounded exclusively on Nikephoros Phokas' *Strategiki Ekthesis/Praecepta Militaria*, while neglecting textual Referencesin Leo VI Wise's *Taktika*. This is a selection that is not explained for, even more so when Leo VI Wise's treatise is evidently more extensive and detailed on body-armour description. Henceforth, Dawson's Byzantine infantryman appears restricted on the proposal for the kavadion, as the main body-armour (when, instead, the military treatises speak very clearly about chainmaille shirts).

Timothy Dawson (illustrated by G. Rava), 2009, *"Byzantine Cavalryman c. 900-1204"*, (Osprey Publishing Ltd.)

Following upon his earlier defining work, T. Dawson deals with the Byzantine cavalry in particular. The work maintains the main strengths of the previous publication on the infantry of the period, with a thorough study of the military treatise texts providing valuable interpretation on military structure and ranking system, military training,

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campaign organization and camp defense, as well as a brief but robust sociological analysis for the army of the period. Also, his research on the lamellar thorax construction is, in this work, evidently more advanced and developed.

On weaknesses of this edition, one can note the fact that again very scarce relevant archeological evidence is provided. The heavy reliance, for the historical illustrations, on *Strategiki Ekthesis/Praecepta Militaria* and the neglect of *Taktika* is once again noted. Moreover, the *epilorikon* is erroneously interpreted as a padded garment worn above the lorikion and/or the klivanion, identified therefore as simply another *kavadion*. However, the *Strategiki Ekthesis/Praecepta Militaria* text makes no such nuance, simply prescribing it as made of cotton and silk. Nevertheless, even if interpretation was doubtful, the confusion can easily be dissolved when reading Leo's *Taktika,* where the *epilorikon* is explicitly described as a simple *imation* (clothe).

In general, Dawson's work follows one of the basic trends of modern historical re-enactment that this paper aims to challenge; the hastiness to provide answers and visual interpretations to absolutely every single detail. Because, unfortunately, for parts of the byzantine armour described in the textual sources of the period, there is absolutely no archeological evidence available today. Equipment such as the *podopsella, cheiropsella* (also called *manikelia* by Phokas) or the *peristethidion*, are only known through a sketchy description in those texts. And last but not least, helmets in this edition exist once more as a topic of conjecture and superficial arguments.

Eric McGeer, (1995), *"Sowing the Dragon's Teeth - Byzantine Warfare in the Tenth Century"*, (Dumbarton Oaks Research Library and Collection)

McGeer's key-note work provides the most comprehensive English translation to Nikephoros Phokas' and Ouranos' treatises up to date. It's glossary of terms has in many ways defined the study of byzantine warfare over the last decades, as it is the most widely accepted in the field and has been the point of reference for researchers such as Dawson and Grotowski. The volume also includes a robust analysis of the byzantine military strategy, campaign and battlefield tactics, organization and army discipline of the Macedonian era imperial army. In many ways, the work belongs in the "pre-reenacment era", if such a term can be accepted, as denoting the difference between theoretically focused academic research (developed in the 20th century), and the extensive expansion of interest in historical re-construction that has arisen in the first two decades of 21st century. However, while some of his interpretations on byzantine arms and armour of the period remain a fundamental reference point, McGeer has very elegantly avoided making any

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strong statements about ambiguous terminology and parts where not adequate information is available for.

Piotr Grotowski (trnsl by Richard Brzezinski), (2010), *"Arms and Armour of the Warrior Saints: Tradition and Innovation in Byzantine Iconography (843-1261),* (Lieden Brill)

This work tackles a different research task than the above-mentioned bibliography. In this monumental volume, Grotowski takes on the challenging attempt to identify artistic elements appearing on byzantine orthodox iconography of the period in question, with historically accurate arms and armour. The researcher follows a very simple and sensible method, which can be divided into two parts. The first part deals with an extensive list of all the historical equipment from the period (weapons, armour, shields, military clothing etc), which is certified through archeological and textual sources. The second part looks at what elements appear on iconography of the period and how these can correspond to historical arms and armour or simply amount to artistic anachronism and symbolism. While doing so, Grotowski also offers a concise review of all the research on the subject so far, by researchers such as Kollias, Nicolle, Haldon and McGeer.

Weaknesses, in this otherwise encyclopedic volume, can be noted in some scarce and isolated cases of problematic interpretations and erratic use of Medieval Greek terminology. Other than that, Grotowski's work presents a watershed in the debate about the use of byzantine iconography as a historical source and one for historical re-construction. His study and analysis on the anachronism and symbolism of weaponry, clothing and armour of Orthodox Christian military saints is exemplary and a most notable point of reference.

Deyan Rabovyanov, *"Early Medieval Sword Guards from Bulgaria",* Archeologia Bulgarica, XV, 2 (2011), 73-86

This academic paper fills the gap on the subject of archeological evidence for byzantine swords. It provides valuable information on the question of the byzantine swords and covers a time-period from 7th up to 12th century. Raboyanov displays a thorough research of the characteristic features of the sword guards and explores the development in technology and fighting styles, in the wider Mediterranean and Eurasian region. In this respect a close and long-lasting relationship between Byzantium, Iranian, Arabic and steppe cultures is identified, on sword design and fighting techniques. Worth noting for Byzantine arms, is the study on the Galovo sword and its measurements, which as will be presented in this paper, match the description found in the 10th *Sylloge Tacticorum* treatise.

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Mamuka Tsurtsumia, *The Evolution of Splint Armour in Georgia and Byzantium – Lamellar and Scale Armour in the 10th – 12th Centuries*, Byzantina Symmikta, 21 (2011), 65-99

A journal article that presents significant new evidence on the subject, dealing directly with our period of interest. Tsurtsumia demonstrates rigorous research on new archeological evidence emanating from the region of Georgia, as well as rare carved icons. The relationship between Georgian and Byzantine iconographical art is striking, while Tsurtsumia does well to establish the close cultural exchanges. Most of the material presented is akin in fashion, style and quality to Byzantine artefacts of the same period, bearing therefore the same problems of inconclusive evidence for the purpose of re-construction. However, it provides a very rarely detailed depiction of tassets (kremasmata/pteryges), which brings valuable new light into this particular area of Byzantine armour and one that remains, as yet unexploited, by modern historical re-constructors.

METHODOLOGY AND SOURCES

The Method

Historical re-construction is in fact a widely ranged activity, expanding from architecture and the re-construction of historical buildings to sewing and textiling of historical costumes. Re-construction of historical arms and armour is a rather demanding specialisation, which is by definition based upon solid archeological findings and it amounts to the use of experimental archeology as the ultimate method to produce results and convey convincing answers to questions. According to Coles:

"[…] experimental archaeology is a convenient way of describing the collection of facts, theories and fictions that has been assembled through a century of interest in the reconstruction and function of ancient remains. By definition the words suggest a trial, a test, a means of judging a theory or an idea and this is exactly so. Experimental archaeology provides a way, one way, of examining archaeological thoughts about human behaviour in the past".[5]

Therefore, while ideas and theories are warranted within the framework of historical re-construction, testing and trial is the only method to approve or disprove them. In fact,

[5] Coles, 1973, p. 13

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according to Alan K. Outram, experimental archeology follows the basic methodological principles of positivism as outlined by Karl Popper: *"[…] then experimentation is part of a 'hypothetico-deductive' process. A hypothesis is formulated and then tested to see if it can be 'falsified'. If falsified then that hypothesis must be discarded and replaced with a new, hopefully better one, which will, itself, then be tested. If a hypothesis resists falsification, and is supported by experimentation, it can be regarded as valid. 'Valid', in this sense, does not mean 'true', but merely that the principles behind the hypothesis can continue to be used until falsified and replaced by a better set of principles. An experimental, positivist approach can escape the shackles of simple historicism and empiricism, because it allows one to move beyond the limited range of options made available by records of the currently known world. It allows investigation of the counter- intuitive and for the possibility of deductive leaps, rather than simply relying upon probabilistic and inductive extrapolations of existing knowledge."*[6]

Fig. 1: Imre Lakatos' research programme (1978), *"The Methodology of Scientific Research Programmes"*

[6] Outram, 2008, p. 1

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Imre Lakatos[7] visualised Karl Popper's theory of science and falsification[8] into a schematic model for a research programme. A research programme is the catalyst to separate science from amateurism, and every theory needs a research programme in order to become scientific. The *hard core* is the intellectual center where theories and hypotheses are formulated. The *protective belt* is the laboratory, where experiments have to take place. Between the two spheres there is a back-and-forth relationship, whereby theories and hypotheses emanating from the *hard core* are tested through experimentation in the *protective belt*. If a hypothesis is validated through experimentation, it is then qualified to be publicly presented as a thesis. If it is disproved, the whole theory is sent back to the *hard core* for re-analysis and re-evaluation before renewed experimentation can be conducted, thereby protecting the wider research programme from failure.

The reason why following such a method, in the study of the Byzantine past in particular, is that researchers have so far got accustomed to producing answers to any kind of questions. Yet, up to date, there is little, if any, effort to provide proof and test the validity of those answers. Poor validity (or lack thereof) of any given answers, sooner or later leads to their re-questioning, which in turn brings a researcher back to square one. Nonetheless, adhering to a research method, allows the researcher to save both time and effort: the research programme creates a clear set of checks and balances, which prevent the researcher from formulating answers to questions, where the historical sources are fragmented or inconclusive and therefore any claims cannot be corroborated and trustworthy enough. Instead, the researcher is able to focus their time and effort into validating as best as possible the answers to questions where sources and evidence are adequate enough.

Concomitantly, since the subject of the project at hand is of archeological nature, it all comes down to availability of archeological evidence and historical sources, as well as their reliability. On the perennial problem of scarcity of findings, Peter G. Stone and Philippe G. Planel have noted that: *"as archaeologists, we do not believe that there is one past, knowable and acceptable to everyone, […]. For archaeologists, how valid any particular interpretation is, obviously depends on how it fits the ever-increasing body of archaeological (and other Western science-based) knowledge. As interpreters, we also believe we have an obligation to base our work on the most up-to-date information and*

[7] Lakatos, 1976; 1978; 1978

[8] Popper, 1962; 1972

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data available. To do anything else would be to allow oneself intentionally to 'create' a past that has little bearing on what is most likely to be true […]"[9].

Furthermore, Stone and Planel provide the very reason why adherence to the checks and balances of a research method is of crucial importance, *"we can never know with certainty what the past was like: instead, we reconstruct images of what we think it may have been like using the fragmentary remains we have, but influenced to a degree by our cultural perceptions and norms. Those who present the past to others have the responsibility to ensure that they represent the most likely reality of the past and that the representations are not conscious manipulations of the past created for particular contemporary causes"*[10].

The Sources

The sources of historical re-construction, particularly in the case of arms and armour, are generally divided into three categories: archeological findings, literary sources and art, both iconographical as well as sculptural. The handling of the sources is toughest and also the most crucial part of the research, as each one of those categories presents its own challenges. Archeological findings are often hard to date with certainty, while literary sources need deciphering as their language requires translation which is, more often than not, ambiguous and unclear. Particularly, with regards to the Byzantine military manuals of the 10th century, the linguistic rules and the context of the terminology used is a constant theme of research and debate. Finally, art is in general the most tenuous of sources for historical re-construction, even more so when one deals with byzantine art.

Byzantine Art

Art is generally an abstract, non-fixed, medium of human expression, one where the messages intended to be conveyed are not always obvious or clear. This holds true for every period of human history; from cave paintings and Bronze Age statuettes to the time of Michelangelo and through to Picasso, art has always been one of the most sophisticated and also perplexing aspects of human civilisation and culture. Even more so, when it comes to byzantine iconography, which is a type of art heavily laden with religious and theological symbolisms. Yet, byzantine secular art does not constitute an exception. Due to its unique power, art has also been utilised for the purposes of propaganda by the various elites of each historical time and period. This holds most true for the medieval times, when access to literacy,

[9] Stone & Planel, 1999, p. 1

[10] ibid., p. i

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education and information in general was practically limited or purposefully restricted. It should be noted that, for Byzantium in particular, one of its greater periods of crisis was centered on the iconoclastic dispute, a tough and vicious theological disagreement upon the use of icons and art in general, in Orthodox Christian worship. The way this crisis and theological dispute ended in late 8th century, informs quite a great deal about how byzantine iconography and art was developed in the immediate aftermath of this iconoclastic period and in the cultural rise of 10th-11th centuries in particular. One the strongest arguments for the use of art and icons in orthodox Christian worship was formulated by John the Damascene who, famously, expressed that "the icons are the books of the illiterate". Apart from its obvious importance to Orthodox Christian theology, this phrase, also, stands by itself as a worldwide historical testament and acknowledgement to the cultural power and utilisation of art as a medium of conveying messages and information that go far beyond the limits of what can be depicted or perceived by the naked eye. With this statement, John the Damascene was, in fact, unwittingly alluding to modern impressionism and abstract art movements, but also to the power of propaganda – for all causes and purposes – through art and culture, which is most emphatically experienced in the modern world.

Therefore, when approaching the byzantine art of this period, one should not forget that, much like in ancient Greek and Roman times, byzantine iconography was not created so as to become a lasting and valuable source for the modern re-enactor or historical researcher. Instead, it was created by the ruling elites of the time for their own ends and purposed. Therefore, it is heavily symbolic, laden with rhetoric language and largely unrealistic, exactly because it was used to convey political and religious authority.

The Macedonian dynasty is the peak of the byzantine civilisation and, for the field of byzantine iconography it has been characterised as a Macedonian Renaissance. Following the dry years of the iconoclastic crisis, Byzantium in this period is essentially rediscovering its Greco-Roman heritage in art and culture, while redefining at the same time, creating a unique and unparalleled result. Byzantine art of this period can be divided into religious and secular, and into illustrational and sculptural. Illustrational art is further subdivided into mural and manuscript art, while the sculptural art that survives refers, by overwhelming majority, to caskets or small-scale reliefs made out of ivory or soapstone. In all kinds and types of art both religious and non-religious motifs and themes are met, as well as most famously, depictions of historical events and personalities (in historical

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manuscripts). In fact, the artistic sources from this period are quite numerous, indicating a period of an explosive production. For the re-enactor and researcher, these sources present a vast pool of information, as they contain depictions of almost every aspect of human life. However, a researcher of Byzantine arms and armour of this period should remain cautious in their enthusiasm.

With regard to research in arms and armour within the artistic sources (whether they be religious or non-religious, illustrational or sculptural) there is one characteristic to be noted as most evident in the art of this period. It is the fact that it resembles most strikingly ancient Greek and Roman armour, rather than the armour evident in any other contemporary European, Middle Eastern or Eurasian culture. Furthermore, this art is strikingly different than any of the equipment mentioned (and in some cased with astonishing detail) in the military treatises of the 10th century. In fact, researchers have for decades, struggled in vain to identify in this art the famous *klivanion*, the *kavadion* or the *lorikion*, so impressively described in the byzantine strategic manuals. Of course, with the historic validity of contemporary written accounts impossible to be doubted on any grounds, the realistic validity of byzantine iconographical art is rendered unequivocally questionable.

Yet, to call byzantine art anachronistic is not a simple answer, as the exact reasons and causes of this anachronism are left unclear, all the while it is equally evident that a) each sample of art from this period is unique and differs from others, while b) it is undeniable that, quite often, anachronistic elements are intermixed with realistic ones, turning the deciphering and interpretation of the images into quite a challenge. Moreover, byzantine art of the period varies significantly in style and quality. A primary purpose of this thesis was to research closely the root causes of anachronism in byzantine art, in order to better understand it, and begin to attempt to identify anachronistic from, the possible presence of, realistic elements. The following are some characteristic examples of the results of our study.

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Fig. 2: A) Galerius attacks Narseh at the Battle of Satala, relief detail from the Arch of Galerius in Thessalonike, built at the end of 3rd century AD. Constantinople and all the major cities of the Empire were filled with Roman monuments such as this, throughout the millennium.

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Fig. 3: B) Depiction of the Three Magi in the scene of the Nativity, at the Basilica of Saint Apollinaire in Classed, in Ravenna (built in 6th century AD).

These are artistic depictions from two of the most well-known monuments from their respective periods. While these works are placed over three centuries apart, the resemblance in style, clothing fashion and even movement of the figures is striking. This comparison proves that the anachronistic tendency of byzantine art was already well established since the early period.

This tendency can also be attested in the Macedonian era. Following is presented a comparison between early byzantine (4th-6th century) art specimens and the Joshua roll (10th century AD).

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Fig. 4: Ivory diptych of consul Anicius Petronius Probus (right) with emperor Honorius (left), dated 406 AD. Many more artefacts such as this survived in Constantinople throughout the Byzantine millennium and certainly up to 1204.

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Fig. 5: Byzantine imperial weighting plumb dated in 4th-5th century AD from Kastritsa, Ioannina, Greece. Shows Roman Emperors. (Copyright of the Greek Ministry of Culture, Ioannina Ephorate of Antiquities)

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Fig. 6: Icon presenting a military saint at the Coptic Museum of Cairo (5th-6th century AD)

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Fig. 7: Scene from the Joshua roll (10th century AD) depicting soldiers

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Fig. 8: Scene from the Joshua roll (10th century AD) depicting soldiers.

Striking similarities in the linear shapes of armour on the Joshua roll Israelite soldiers, is also noted on ivory carvings depicting another biblical story; the David versus Goliath fight.

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Fig. 9: Scenes from the duel between David and Goliath on the Rome or David Casket, Byzantine (898 or 900 AD)

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Fig. 10: Detail from the Rome or David Casket, Byzantine (898 or 900 AD)

On both the Joshua roll and the Rome or David casket, the armour of the Israelite soldiers bears a strong resemblance, in the linear shapes, with the Roman armour in images 4 and 5. Taking in account the fact that both artworks depict an army that existed in a long distant past, this resemblance confirms the conservative tendency of byzantine art, to follow and maintain faith to pre-existing Greco-Roman traditions. Moreover, it establishes and bears witness to the anachronistic fashion of byzantine iconography – most definitely as far as religious art is concerned. Nonetheless, the observation that these artworks (figures 7, 8, 9 and 10) present completely anachronistic depictions of the armour of the period, is further corroborated when compared to other artworks from the same period, where the attempt to incorporate contemporary armour elements is evident.

Therefore, a tendency to incorporate realistic accuracy within pre-existing artistic tradition can also be identified in this period. The images presented below, constitute examples where a perceived combination of anachronistic together with realistic contemporary elements can be noted. While the figures follow the same basic linear shape of the anachronistic prototypes, decorative details within the outer shapes of the armour betray an attempt to portray realistic elements of armour, contemporary to the period.

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Fig. 11: The well-known Joshua fresco at Hosios Loukas Monastery in Fokis, Greece (2nd half of 10th century).

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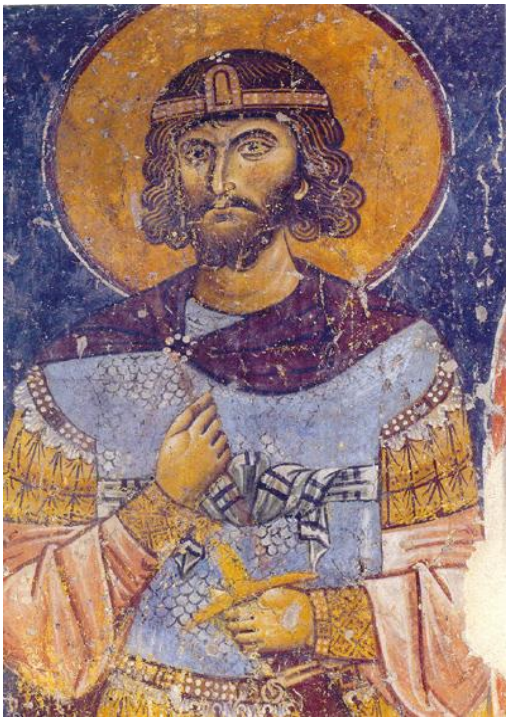

Fig. 12: Saint Mercurios from the church of Panagia Kosmosoteira, in Thrace, Greece (dated post-1152 AD).

The above frescoes are two very representative examples of byzantine iconography in the period. In figures 11 and 12, the mix of contemporary with anachronistic elements speaks for itself, for the utter indifference of Greek orthodox iconography towards material reality. While, the torso armour in figure 11 is clearly a lamellar *klivanion* (yet again one that remains a riddle on its technical details, since this depiction is the only source available, providing insufficient information, hence any accurate reconstruction is basically impossible) the rest of the soldier's attire is completely unidentifiable. The material and texture of the *kremasmata/pteryges* on the upper arms and the hips are impossible to be identified. They, certainly do not abide by the description provided in the military treatises (*kremasmata* and *pteryges* are alluded as either consisting of padded fabric or metallic constructions). Moreover, given the fact that these parts refer to late roman armour (the resemblance with the *kremasmata* in figures 4, 5 and 6 is self-evident) the only rational explanation remaining is that of blatant and flagrant anachronism. In other details on the

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Joshua fresco, the sword is a reliable depiction and a rare source for this period, providing valuable information for the handle, guard and scabbard. However, the helmet is a depiction that can provide no definite or useful information, as it is impossible to define whether it is fabric or metallic. The possibility that it is not a helmet at all, but rather it depicts a *kamelaukion* bound around by a *fakiolion* is one that should be explored. In the possibility of a *fakiolion*, the Joshua head-piece provides that any interpretation of it, would be far from any so far given representations (such as by Timothy Dawson).

Figure 12 belongs in the Komnenian period, which is outside the time-frame of this research; however it demonstrates a perfect example of heavy archaism in byzantine iconography. This archaism already pre-existed in the Macedonian period, only to be exacerbated in the crisis following the Seljuk invasions and the deepening divide with western Catholicism following the Great Schism (1054) and the Crusades. The armour of Saint Mercurios in Kosmosoteira is amazingly completely anachronistic and archaic in style. The torso armour is a late roman lorica squamata, where notable is the fact that the scale armour, unnaturally, extends over the shoulders. This is a clear artistic reference to late roman art (figure 4), where leather subarmalis was fashionably depicted to resemble the effect of muscled cuirass. The scale armour of Saint Mercurios in Kosmosoteira, together with the officer's shash[11] upon the chest, the strong allure of leather texture applied on the *pteryges* and *kremasmata*, creates an unequivocally anachronistic style of art.

Furthermore, two other monumental artworks that have been used as a source for historical information and have provided inspiration for modern Byzantine re-enactors are the Menologion and the Psalter of Emperor Basil II, dated in around 1000 AD. The Psalter and Menologion manuscripts contain a rich collection of the highest quality of illustrations from the 10th-11th centuries period. They have been widely used as a source for clothing and swords; however they bring little new insight on the subject of armour, compared to the rest of the sources of this period. In fact, they repeat the same *klivanion* and upper arm

[11] The officer's shash on the chest of byzantine military saints is another anachronism that has baffled modern researchers. Modern Greek Orthodox hagiographers have suggested that it may have born symbolic relations to the ancient Greek Hercules' knot; however this is irrelevant to the question of whether it was used in Byzantium, while there is no other evidence that it actually was. The fact that it is depicted in the context of an otherwise heavily anachronistic armour, points to the fact that it is simply that; a stylistic detail modelled after late roman art such the consul diptychs (figure 4).

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pteryges, lamellar construction fashion, that is met in the Joshua fresco (figure 11) and most of the other manuscript illustrations or carved icons from 10th century (figures 18, 19 and 21). Finally, anachronistic fashion in torso armour can also be identified, as becomes evident by the depiction of armoured figures dressed in a late roman leather subarmalis (figure 14, 15).

Fig. 13: Emperor Basil II, as depicted in the Psalter of Basil, dated in 11th century. Marcian Library in Venice (Cod. Marc. gr. Z. 17. f.IIIr)

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Fig. 14: David and Goliath, in The Psalter of Basil II, 11th century

Marcian Library, Venice, Italy, (Cod. Marciana Gr. Z. 17. (=421) panel 4, Guardia anteriore: IVv). The "shoulder cops" effect betrays the attempt to copy the linear artistic fashion of later roman subarmalis (figures 2, 4, 5 and 6).

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Fig. 15: Detail from the Joshua and the Angel page. Menologion of Basil II, c.1000 AD, Vaticano Griego 1613. The angel on the right is dressed in a lamellar *klivanion*; however the two armoured figures on the left are dressed in what appears to follow the fashion of late roman/early byzantine art (figures 2, 4, 5 and 6).

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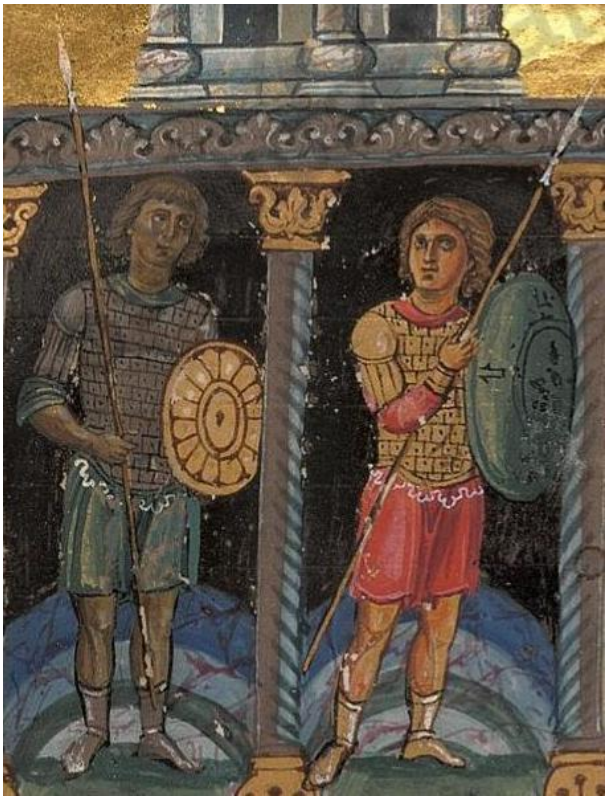

Fig. 16: Detail from the Martyrdom of Irais of Alexandria page. Menologion of Basil II, c.1000 AD, Vaticano Griego 1613. The “shoulder cops” effect should be attributed to artistic copy pf late roman art, where leather subarmalis is fashionably depicted. The lamellar construction of the *klivanion* is completely incomprehensible and betrays that was actually drawn in random. Suggestions that this lamellar may match with the Jazirah armour, found in the Middle Eastern region, are not convincing, since this archeological find outdates the Menologion by over a century, while the Jazirah armour is not a byzantine item, as it belongs to an Islamic culture.

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Fig. 17: Saint Theodore Stratelates, Menologion of Basil II, c.1000 AD, Vaticano Griego 1613. The saint is again dressed in the typical depiction of a lamellar *klivanion*.

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Fig. 18: St Procopius, Manuscript A648, p. 60r, National Centre of Manuscripts of Georgia.

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Fig. 19: St. Theodore Stratelates, 12th cent. Steatite

In figures 17 and 18, two different torso lamellar constructions are displayed. While details in figure 18 are certainly of higher quality, both depictions provide inadequate facts and information for an accurate and battle-ready re-construction. At the same time, of course, upper arm and hips protection is presented in notable detail. These can indeed be perceived as made of metal; however, in lack of any concrete archeological evidence, this is a hypothesis that depends on the interpretation of terminology provided in the military treatises. On this question, the information provided in these artworks is again inconclusive. While it is quite sensible that these are in fact the *kremasmata* and *pteryges*, it is rather improbable, based on these particular depictions, to decipher whether they are

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made out of metal or padded fabric. In other details, the sword handle and guard in figure 18 matches archeological evidence from the period[12].

Further similarly inconclusive evidence is provided by the Joshua ivory panel, dated in the middle of the 10th century (figure 20). None of the information presented here can be corroborated by archeological evidence, and even comparison with the military treatises' terminology is problematic. Surprisingly enough, the torso armour is not presented as lamellar but rather as a unitary piece, making it impossible to safely identify, based on any source from the period. Archeological evidence includes only chainmail and lamellae findings, while terminology in the *Taktika* and *Strategiki Ekthesis*, speaking generically about *lorikia, zavai* and *klivania,* can bring no definite corroboration on this issue either.

The quite distinctive on this particular artwork, piece of equipment worn below the main torso armour, remains another enigma too. It certainly bears a strong resemblance to the armour parts depicted in figures 18, 19, 21 and 22, yet it still is fundamentally differentiated. The closest hypothesis on this issue has been presented by Timothy Dawson and it amounts to a padded tunic. This is an interpretation that can match the fact that it is presented as worn below the main torso armour (of whatever material that may be). Nevertheless, it is again an answer that depends on the interpretation of the treatises' terminology.

Fig. 20: The Joshua ivory panel. Mid-10th century (Metropolitan M, New York)

[12] Rabovyanov, 2011

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Finally, in the same period there exist specimens of the highest artistic quality with a very respectable attention to realistic details. In figures 21 and 22, apart from the lamellar armour on torso and upper arms, the tassets are conveyed in unique and unmatched detail. The lacing is identifiable on both carvings, while in figure 22 a padded undergarment between the armour and the tunic is clearly visible. Nevertheless, it all remains in stark contrast to the details provided in the military treatises about this part of armour protection (see below about the *zava*). Hence, the question about realistic authenticity versus artistic synthesis stands unresolved.

Fig. 21: St. George. 11th cent. Steatite Icon. Vatopedi monastery, Athos, Greece

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Fig. 22: St George, Mravaldzali icon, 10th century, Georgia (photo by Ermakov)

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Fig. 23: St. Demetrius. 11th cent. Steatite. Researchers agree that the tiny scales represent a broad artistic interpretation of chainmail. In this particular case a short-sleeved hauberk is depicted.

The issues raised above demonstrate the fact that every single Byzantine artwork, mural, illustrational or sculptural, is unique and different in context, purpose and intention. Moreover, even when an armour element appears to be realistically identifiable (i.e., the tassets/*kremasmata* in figures 21 & 22), the torturous discrepancy between iconographical and archeological sources stands as a perennial obstacle to re-construction. The study and processed analysis of all those parameters is necessary, before a piece of evidence can be utilised for the re-construction and re-enactment of Byzantine arms and armour.

The result is of course puzzling and the researcher is left to wonder whether those notable imperfections are a proof of frivolity and poor craftsmanship or they were actually created on purpose, as an early form of abstract art. While it is not the aim

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of this paper to provide an answer to this latter question, it is noted and stressed upon in order to demonstrate, how dangerous it is to generalise in the use of artworks of this period, as sources for the study of Byzantine arms and armour. The general conclusion is that art is a highly unreliable source for the purposes of historical re-construction; it is certainly one that can in no way substitute archeological findings.

ARCHEOLOGICAL EVIDENCE

When compared to the elaborately detailed (yet to a significant degree undeciphered) description of armour parts in the 10th century military treatises, the archeological evidence from the period of interest for this research is comparatively rather scarce. Nonetheless, it is sufficient and robust enough for the purposes of re-construction and re-enactment, so much so that one needs not to resort to highly risky speculations and unverifiable conjectures; and this is the thesis that this article supports. Below, a selection of the most important archeological findings of Byzantine arms and armour in this period is presented, offering one specimen as proof for each part of the body armour, aiming to provide a most concise and straightforward guide to modern re-constructors and re-enactors.

Helmets:

In answer to the intriguing question of byzantine helmets, any attempt to draw realistic conclusions out of illustrational or iconographical evidence is bound to lead to confusion and failure. Archeology is the only safe solution. While many specimens have been proposed as byzantine helmets for the 10th-11th century period, researchers agree that the most representative type for this period is the doomed helmet[13]. Corresponding to the interpretation of the *kassidion* terminology[14], the doomed helmet type appears to explain the heavily stylised one-piece helmets depicted in art of the period. while the Pernik/Branicevo helmets are definitely dated in the Komnenian era of 12th century and argued by researchers to be of Western European origin, and *"modified according to Byzantine traditions"*[15], the theory that they belong to a genuine Byzantine helmet type is not unwarranted[16]. In fact, the basic "phrygian" shape of these helmets is in line with

[13] Grotowski, 2010; Dawson, 2007 & 2009; D' Amato, 2015; D' Amato & Spasić-Đurić, 2018

[14] Kollias 1988

[15] Rabovyanov & Dimitrov, 2017, p. 2

[16] D' Amato & Spasić-Đurić, 2018

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depictions of helmets in Byzantine art of the period, which – albeit heavily stylised and artistically unreliable – are certainly not based on ancient Roman styles (Figures 9, 15, 20, 34, 36). Therefore, it can be argued that, developing upon the earlier doomed type helmets – a technology that provenly existed in Europe at that period – a wider family of Byzantine helmets existed, with fluctuating variations within a wider period from 9th to 12th century, of which the Pernik/Branicevo helmets constitute later specimens.

Torso armour (lamellar and chainmaille):

It is well established that the chainmaille is a type of body armour which, since its introduction and wider expansion in Eurasia during the republican roman era, never seized to be in use up to the age of the Renaissance, while requiring very minor (virtually none) technological improvements. In Byzantium, there exist two major chainmaille specimens from the period of 10th-11th century. One is an exceptionally well preserved hauberk dated in 9th-10th century and located at the Sofia Archeological Museum, the other is the well-known Iveron Monastery chainmaille of general Leon Tornikios (10th century).

As far as lamellar archeological findings are concerned, the best preserved and most convincing case of a byzantine armour for the period in question are the lamellae from Veliki Preslav (dated in 10th-11th century) as well as type F lamellae from the wider 9th-11th century period, found in various sites in the Balkans. What is most noteworthy about these lamellae, is the fact that their tailoring and overlapping (see Figure 24) is a) the most effective construction in the history of lamellar technology in both Europe and Asia, (suggesting therefore that byzantine military technology in this period had reached the top limit in lamellar armour technology) and b) it completely contradicts the tailoring and overlapping construction depicted in - overwhelmingly - every artistic source from the same period (frescos, manuscript illustrations, ivory and steatite carvings). Modern re-enactor's experiments suggest that this tailoring and binding method (Figures 24, 25) is the strongest and most durable of lamellar constructions.

This striking discrepancy between archeological evidence and artistic sources for Byzantine armour speaks for itself. Moreover, as Grotowski (2010) has suggested, the apparent dominance of archeological evidence for chainmaille (overwhelming majority in field findings that is further supported by explicit textual Referencesfrom the period) and against lamellar armour (which on the contrary dominates religious and secular art of the same period), further corroborates the argument that byzantine art is heavily symbolic and serves a purpose different to historical realism.

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Fig. 24: Lamellar torso armour made by plain lamellae found at Veliki Preslav (re-construction and photo courtesy of “Helgi’s True History shop”)

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Fig. 25: Lamellar torso armour made by type F lamellae with an elongated boss at the center (re-construction and photo courtesy of "Helgi's True History shop").

Fig. 26: Detail from an ivory icon (left) and fragment of steatite icon (right) from Traianoupolis, Greece, 12th cent, with apparent depictions of lamellae with an elongated

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boss, bound upside-down.

BYZANTINE ARMS AND ARMOUR – 900-1100 AD

- PADDED FABRIC OR THICK WOOL FELT ARMOUR

Kavadion (καβάδιον): A term that is only found in the Nikephoros Phokas and Nikephoros Ouranos texts.

Original text:

i) "[…] *καβάδια κοντά μέχρι των γονάτων διήκοντα, έχοντα δε βαμβάκιν και κουκούλιν*"[17].

ii) "*ίνα δε ποιώσι καβάδια κοντά μέχρι γονάτων φθάνοντα, έχοντα βαμβάκιον και κουκούλιον*[18]"

Translation:

i) *"[…] short tunics reaching to the knees, made of cotton and coarse silk".*

ii) *"Have them prepare short tunics extending to the knees, of cotton or coarse silk".*

Nevrikon (νευρικόν): In Leo VI the Wise's *Taktika*, the term *nevrikon* is used to refer to protective soft armour, described as made out of thick wool felt.

Original text:

i) "*Νευρικά τα από κενδούκλων γινόμενα και αυτά αντί λωρικίων τοις μη έχουσι σιδηρά*"[19].

ii) "*Τους δε ίππους και μάλιστα των αρχόντων, και των λοιπόν εκλεκτών, προμετώπια έχειν, και στηθάρια, ή σιδηρά, ή από κενδούκλων, οίον νευρικά*"[20].

Translation:

i) *"Nevrika, those that are made by thick wool felt, and these [should be used] instead of lorikia by those who do not have iron ones".*

ii) *"As for the horses, and especially those of lords and the rest of the elites, should have chancrous and brassieres, either made by iron or by thick wool felt, as in the nevrika".*

[17] Phokas, I, 15-16.
[18] Ouranos, I, 20-12.
[19] Leo, V, 4
[20] ibid., V, 8

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Therefore, the Byzantine military treatises of 10th century, describe two main types of supportive underarmour. Leo VI Wise's text refers to a garment made out of thick wool felt, while Nikephoros Phokas', later work, describes a much more elaborate and expensive construction made out of cotton and coarse silk. More importantly, in Leo VI Wise's "*Taktika*" it is clearly defined that underarmour protection could be worn, either together with a *lorikion sideron* (iron chainmaille) or – in the absence of it - the *nevrikon* could serve as the next best protection. In case of the former, however, when the *lorikion* and the *nevrikon* were worn at the same time, contextual research, the knowledge of general practice in medieval times and modern re-enactment experience, indicate that the non-metallic protection, was supposed to and should be worn *below* (and not above) the main iron armour (whether this was *lorikion* or *klivanion* or both). This is a basic principle that the two later Nikephori treatises do not contradict. In fact, they are silent as to the relation between underarmour protection and iron armour. This would serve both as an extra layer of protection and as a shock absorber. This is further corroborated by modern-day re-enactment experiments which have demonstrated that any type of padded armour, worn *above* the metallic armour, loses its protective function against heavy penetration attacks (i.e., a flying arrow or a heavy spear), while it has significantly higher chances to absorb some part of the penetration force, when worn below metallic armour parts. Moreover, primary written accounts from the byzantine era allude to the fact that the *lorikion* was worn *above* any other protective gear and proved astonishingly effective, even against arrow fire.

- MAIN BODY ARMOUR MADE OF IRON

Lorikion alysideton or Lorikion sideron (λωρίκιον αλυσίδετον/λωρίκιον σιδηρόν): The byzantine chainmaille

In Leo's *Taktika*:

i) *"Λωρίκια μέχρις αστραγάλων, ανασυρόμενα διά λωρίων και κρικελλίων, μετά των θηκαρίων αυτών δερματίων και εί δυνατόν πάντα αλυσίδετα*[21]*"*.

ii) "*Νευρικά τα από κενδούκλων γινόμενα και αυτά αντί λωρικίων τοις μη έχουσι σιδηρά*"[22].

Translation:

i) "*Lorikia* down to the ankles, retractable by straps and rings, together with their leather cases and if possible, always chainmail.

[21] Leo, V, 4

[22] ibid.

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ii) *"Nevrika, those that are made by thick wool felt, and these [should be used] instead of lorikia by those who do not have iron ones"*.

Lorikion was the Medieval Greek version of the Latin word for body armour: lorica. Leo VI Wise mentions that the *lorikion* could also be made out of hardened leather or ivory. Other than this general description, however, no such examples of armour survive from this period, therefore there is not enough information to attempt a reconstruction. Besides, Leo VI lists those materials as rare exceptions, while at the same time stressing that *lorikia* should be made by chainmaille (αλυσίδετα), and soldiers should use those substitutes only in its absence. The written evidence from both *Taktika* and *Strategiki Ekthesis* (where it is called exclusively *zava*) about chainmaille is corroborated by archeological findings, attesting this type of armour as the most basic heavy metallic protection for the imperial and thematic troops. Finally, based again on these textual sources and general practice in medieval warfare, the chainmaille was apparently worn *over* the *nevrikon* or *kavadion*.

Zava (ζάβα): Simply another word for chainmaille.

In Leo's *Taktika*:

i) *"Ζάβας τελείας μέχρι του αστραγάλου, ανασυρομένας διά δε λωρίων και κρικελλίων, μετά των θηκαρίων αυτών*[23]*"*.

In Phokas' Strategiki Ekthesis:

ii) *"από δε των αγκώνων φορείν τα μανικέλια, έχοντα και αυτά και τα κρεμάσματα των κλιβανίων ζάβας, και από κουκουλίου και βαμβακίου παχέα είναι όσον ενδέχεται καραρραφήναι αυτά*[24]*"*

iii) *"Ώστε καλύπτεσθαι τα πρόσωπα αυτών υπό των διπλών και τριπλών και παχέων ζαβών και μονούς τους οφθαλμούς αυτών φαίνεσθαι*[25]*"*.

Translation:

i) *"Perfect zavas down to the ankle, retractable by straps and rings, together with their cases"*.

ii) *"Down from the elbows they should wear arm-guards which - both these and the skirts hanging from the klivania – have zavai and are made of coarse silk and cotton as thick as can be stitched together"*.

[23] ibid., VI, 2

[24] Phokas, III, 27-29

[25] ibid., III, 35-36

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iii) *"[…] so as to cover their faces with zavai two or three layers thick so that only their eyes appear"*.

Leo VI describes the ***zava*** (pl. *zavai*) in the exact same terminology as the *lorikion*. Furthermore, McGeer has very correctly interpreted the *kremasmata* as skirts hanging from the *klivania*. Therefore, *zava/zavai* in both Leo's and Phokas' treatises, appears to be a term used to refer to chainmail armour. In fact, Phokas more elaborately and most interestingly, describes both arm-guards and *kremasmata* to be made out of chainmaille, which is attached (perhaps sewn) upon fabric padded armour made of cotton and silk, as thick as it can become. Remarkably enough, this is a completely different (and contradictory) impression of *kremasmata*, compared to Byzantine iconography and other art of the same period.

Peritrachelion alysideton (περιτραχήλιον αλισύδετον)

In Leo's *Taktika*:

"περιτραχήλια αλυσίδετα, σιδηρά, ενδεδυμένα έσωθεν από ερίου και έξωθεν από λινού"[26]

Translation:

"aventails of chainmaille, made by iron, padded on the inside by wool felt and on the outside by linen"

The term *peritrachelion* is translated exactly as "around the neck". It appears only once in Leo's *Taktika,* yet, it also matches the abovementioned Phokas reference about an aventail around the helmet, made out of two or three layers of chainmail (*zava*).

Manikelia, cheiropsella, podopsella (μανικέλια, χειρόψελλα, ποδόψελλα)

As already mentioned above, Phokas refers very clearly to *manikelia* (arm-guards) made out of chainmaille sewn upon padded fabric. Leo VI also makes repeated Referencesto iron (σιδηρά), cheiromanika and cheiropsella (arm-guards) and podopsella (leg greaves).

Klivanion (κλιβάνιον)

In Leo's *Taktika*:

i) "Κλιβάνια σιδηρά"[27]

ii) "και θώρακας έχειν, οίτινες καλούνται νυν κλιβάνια, και αυτά στιλπνά και λαμπρά"[28]

[26] Leo, V, 4

[27] Leo, V, 4

[28] ibid., VI, 4

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In Phokas' Strategiki Ekthesis:

iii) in describing heavy infantry armour "φορώντας τα κλιβάνια αυτών"[29]

iv) in describing the kataphrakti cavalry "έκαστον άνδρα μαχητήν φορείν κλιβάνιον, το δε κλιβάνιον μέχρι των αγκώνων εχέτω τα μανίκια".[30]

Translation:

i) "klivania made of iron"

ii) "And they should have thoraxes, which are today called klivania, and these should be shiny and bright"

iii) "wearing their klivania

iv) "Each warrior must have a *klivanion*. The *klivanion* should have sleeves down to the elbows".

As already argued above, the lamellar constructions presented in Byzantine art are highly doubtful, especially since archeological findings contradict them. The artistic reconstruction presented here (fig. 32) is based on the lamellar armour found at Veliki Preslav and other byzantine sites dating from 10th up to 12th centuries. This particular binding of the lamellar torso is deemed to be the most historically accurate conjecture about the high byzantine period lamellar armour; for two main reasons.

a) The word *klivanion* in Greek derives from the word *klivanos* (κλίβανος) which means an oven, or generally a closed space that is air-tightly sealed. Using the Greek word for oven to refer to torso armour conveys certain characteristic features to this type of armour. Besides the fact that metallic armour heats up under the Mediterranean and Middle Eastern sun, a torso armour called *klivanion* implies that it also confers a distinctive feeling to its wearer. As modern re-enacting experience has demonstrated, a feeling of air-tightness and perceived best possible protection against external threats helps soldiers boost their morale in battle. The lamellar construction implied by iconographical sources (which is not supported by existing archeological evidence but it has been very widely re-constructed in later years) does not match with the air-tightness alluded to by its name. On the contrary, the lamellae found at Veliki Preslav show a binding method which can actually create a *klivanion* with a true air-tight oven effect (figures 24 & 25).

b) It is, practically and realistically, the most viable possibility for this type of armour to allow its wearer to survive a fight, as modern experience from private experiments and the practice of re-enactment sparring has proven. According to Leo VI Wise's "Taktika"

[29] Phokas, II, 19

[30] ibid., III, 26-27

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the *klivanion* was worn *on top* of both the *kavadion* and the *lorikion*, as an extra and ultimate protection. Meaning it was not a necessary or mandatory part of the imperial or thematic soldier's defensive gear, but it could be worn by the heaviest or elite troops and of course by higher officers.

Fig. 27: Leo VI mentions the klivania without any further details, however Phokas elaborates that they had "sleeves" down to the elbow. Lamellar upper arm-guards (spaulders) re-constructed by Helgi's True History Shop, based on longer lamellae found at the site of Veliki Preslav.

Kassidia sidera (κασσίδια σιδηρά): iron helmets

The archeological evidence is virtually non-existent, while the iconographical sources are simply untrustworthy. The term kassidia sidera (κασσίδια σιδηρά) is met quite often both in Leo's and the two Nikephori treatises, and for what it is worth, it reinforces the image of a simple iron one-piece helmet. We believe that during the 10th-11th centuries period, an earlier type of the Pernik/Branicevo helmet existed (figures 31 & 32), a specimen of which does not survive or has not yet been found.

- OVERCOATS

Epilorikon imation (επιλωρικόν ιμάτιον)

Original text:

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"και έξωθεν των κλιβανίων φορείν επιλώρικα μετά κουκουλίου και βαμβακίου και από των μασχαλών εξέρχεσθαι τας χείρας αυτών, τα δε μανίκια αυτών όπισθεν εις τους ώμους αυτών κρεμάσθαι".[31]

Translation:

"Over their klivania they should wear epilorika of coarse silk and cotton. Their hands should go out through the shoulder slits".

The phrase *epilorikon imation* translates exactly as "over-the-lorikion cloth". The form of the word employed by both Leo and Phokas is the same: *epilorikon*. The only difference is in the accent. Leo uses *epilorikon* as an adjective, because it is used to describe the *imation* (a noun). However, by Phokas' time, in *Strategiki Ekthesis* the adjective *epilorikon* has become a noun, with the accent going up from the final to the antepenult syllable. The word *epilorikion* (a noun in itself) is correct but this is not the term appearing in the military treatises. In *Taktika* it is simply listed among the other elements of armour. In *Strategiki Ekthesis* the *epilorikon* is again worn over the *klivanion*, while further details are provided for it being made out of cotton and silk, and described in the same fashion as the *kavadion*, with open slit sleeves that are tied at the back of the shoulders. Interestingly enough this is the same shape and style as the *kendouklon* of the *Taktika*. However, it is nowhere specified as being padded. Hence, it is plausibly concluded that the *epilorikon* of the *Taktika* is a plain fabric overcoat, while the *epilorikon* of *Strategiki Ekthesis* is another version of the *kendouklon* of the *Taktika*, made by different materials.

Kendouklon (κένδουκλον)

In Leo's *Taktika*:

i) "*Νευρικά τα από κενδούκλων γινόμενα και αυτά αντί λωρικίων τοις μη έχουσι σιδηρά*"[32].

ii) *"Χρη δε και κένδουκλα έχειν πλατέα πάνυ έχοντα μανίκια πλατέα, ίνα εν τω οπλισθήναι αυτούς και φορείν τας ζώνας και τα τοξάρια, εάν, ως εικός, συμβή, βροχήν γενέσθαι, ή υγρότερον τον αέρα εκ της δρόσου, φορούντες αυτά επάνω των ζαβών και των τοξαρίων φυλάττωσι το άρμα αυτών, και ουκ εμποδίζονται είτε τοις τοξαρίοις, είτε τοις σκουταρίοις αυτών βουληθώσι χρήσασθαι. Έστιν δε και άλλως πώς αναγκαία τα κένδουκλα εν ταις σκούλκαις*

[31] Phokas, III, 31-34

[32] Leo, V, 4

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ήγουν ταις βίγλαις. Ου διαφαίνονται γαρ μήκοθεν τοις πολεμίοις αι ζάβαι, υπ' αυτών σκεπόμεναι, αντέχουσι δε και προς τα βολάς των σαγιττών"[33].

Translation:

i) *"Nevrika, those that are made by thick wool felt, and these [should be used] instead of lorikia by those who do not have iron ones"*.

ii) *"They should also have kendoukla (wide overcoats made out of thick wool felt) with wide sleeves, so that while they are armed kai bear belts and bows, if it happens that it rains or the air is dampened by humidity, they should be wearing those over their panoply to protect their arms and armour, as they are not impeded if they want to use their bows or their shields. But the kendoukla are also useful at the watchtowers, which are the viglai. Because the zavai, covered by them, are not visible by the enemy from distance, and they can also withstand arrow fire"*.

Here, Leo VI Wise describes, very elaborately, a thick cloak made by raw wool, which was worn over the whole armour as an overcoat during watch duty but - it can also be safely assumed - during campaign marches, since it could protect armour from rain and humidity. Moreover, the *kendouklon* is described as being from the same material as the *nevrikon*, which in turn is prescribed as made out of *kendoukla* (thick wool felt). This description matches with the typical shepherd's cloak that was widespread in the Balkans from medieval up to later modern times (figures 28, 29 and 30).

[33] ibid., VI, 13

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Fig. 28: Miniature of the Nativity of Christ from the Menologion of Basil II, Vat. gr. 1613 (c. 1000 AD)

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Source gallica.bnf.fr / Bibliothèque nationale de France. Département des manuscrits. Grec 135

Fig. 29: Grec 135 manuscript, made in Despotate of Moreas (14th c AD)

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Fig. 30: Modern Greek Sarakatsani wearing the traditional Sarakatsani cloak made of wool felt (Latin: centuculus). Note the slit open sleeves.

- WEAPONS AND SHIELDS

Spathion (σπαθίον) (figures 31, 32)

The standard and most common byzantine sword, developed from the late roman spatha, with a typical globe-shaped pommel and short cross-guard. The design follows pictorial evidence from ivory carvings and iconography as well as archeological evidence, which confirm the former. Sylloge Tacticorum (diataxis XXXVIII) prescribes the length of

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the spathion at four *spithamai*. With one *spithami* being literally the span of an extended human hand from the thumb to the little finger, one *spithami* equals approx. 21-22cm. For reference, the Galovo sword is exactly 89cm long (89/4 = 22,25), hence the Sylloge text is also backed up by archeological evidence.

Skoutarion (σκουτάριον) (figures 19, 21, 33-35)

The design is based on manuscript miniatures and ivory carvings from the period. Therefore, the ratio of the shield's size to the soldier's body is not attempted to be realistic, due to the fact that the debate on the size of the byzantine teardrop shield has not been possible to settle. More specifically, Sylloge Tacticorum (diataxis XXXVIII) talks about "rectangular" or "triangular" shields, that have a "narrow corner" end at the bottom. It is assumed that this is an imprecise but close enough description of a kite or teardrop shield, which appears in imagery sources from the period. The anonymous author provides the length of those shields at 6 spithamai (= approx. 1,33 meters). Considering that 1,33 meters would essentially cover up 2/3 of an average adult male person's body, this measurement is in fact double the size of shields that are found on ivory carvings and manuscript miniatures, where shields have a ratio of no more than 1/3 of the person's body. Finally, Sylloge provides no measurements for the width of those shields, but one can safely assume that it had to - at least - cover the width of a soldier's torso.

Spear and spear-head (figures 31, 32)

"Winged" type of spear-heads were found at the Serce Limani site dated in 11th century. Sylloge Tacticorum (diataxis XXXVIII) gives the length of the spear between eight and ten pechai (πήχαι) with one peches (πήχης) counting 46cm, meaning that a spear could be up to four-and-a-half meters long.

- FOOTWEAR

Pedila/ypodemata (Leather boots) (figures 21, 22, 23, 35)

In Leo's Taktika:

"πέδιλα σιδηρά μετά καρφίων αυτών"

Translation:

"iron footwear with their hobnails"

In Phokas' Strategiki Ekthesis:

"εχέτωσαν δε, ει μεν δυνατόν, και υποδήματα κοντά, διπλά μέχρι των γονάτων είτε, και μονοπλά μέχρι των μηρών"

Translation:

"they should also have, if possible, short footwear, double up to the knees or single up to the thighs"

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The terms *pedila* (Leo) and *ypodemata* (Phokas) are synonymic and generally refer to footwear without any other detail, as to their shape or style. Phokas' further elaboration implies the existence of leather boots tall up to the knee, or medium up the thigh. Other terms employed in *Strategiki Ekthesis* (*mouzakia* or *tzervoulia*) are listed as sandals.

- ARTISTIC RE-CONSTRUCTIONS

The illustrations below attempt to provide a concise image of the heavier soldier of the period (both infantry and cavalry), collecting elements of armour, which are common in all the military treatises (even with different terminology) and prescribed as most standard and common in use, by the Byzantine army of the time. More precisely, Illustration 1 can plausibly refer to heavier infantry and medium cavalry, while illustration 2 is understood to apply mainly to a dismounted *kataphraktos* and – perhaps – to some elite front-line heavy infantry.

Illustration 1:

Stategiki Ekthesis' description of an infantry soldier equipped with only a *kavadion* and a *fakiolion* (Dawson's impression), in fact refers to the light infantry, which Leo VI explicitly describes being deliberately armed as such[34]. In chapter II, where the *menavlati* are also mentioned, Phokas actually includes a description about heavier footmen wearing klivania. This front-line infantry were meant to be heavier than the average light footmen, but at the same time lighter than the kataphrakti cavalry. Moreover, comparing the descriptions provided by both *Taktika* and *Strategiki Ekthesis,* about heavier infantry and light-to-medium cavalry, the impression between the two is very close and similar.

Fig. 31:

1. Chiton (χιτών), a simple medieval tunic
2. Kavadion or nevrikon (padded fabric or wool felt)
3. Pedila/Ypodemata, (leather boots)
4. Lorikion/zava (chainmaille hauberk)
5. Epilorikon imation (a simple non-padded fabric surcoat)

[34] Leo, VI, 36

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6. Kassidion. A helmet of the phrygian style. In this case it is implied to be an earlier 10^{th}-11^{th} c version of the Pernik/Branicevo helmet.
7. Peritrachelion sideron. A chainmaille aventail with a padded with inner base liner.
8. Spathion. The typical straight-bladed byzantine sword of the period.
9. Skoutarion. A kite-shaped shield (a shape described in the *Sylloge Tacticorum*) illustrated based on iconographical evidence (figures 19, 21, 33, 34, 35).
10. Spearhead found at the Serce Limani.

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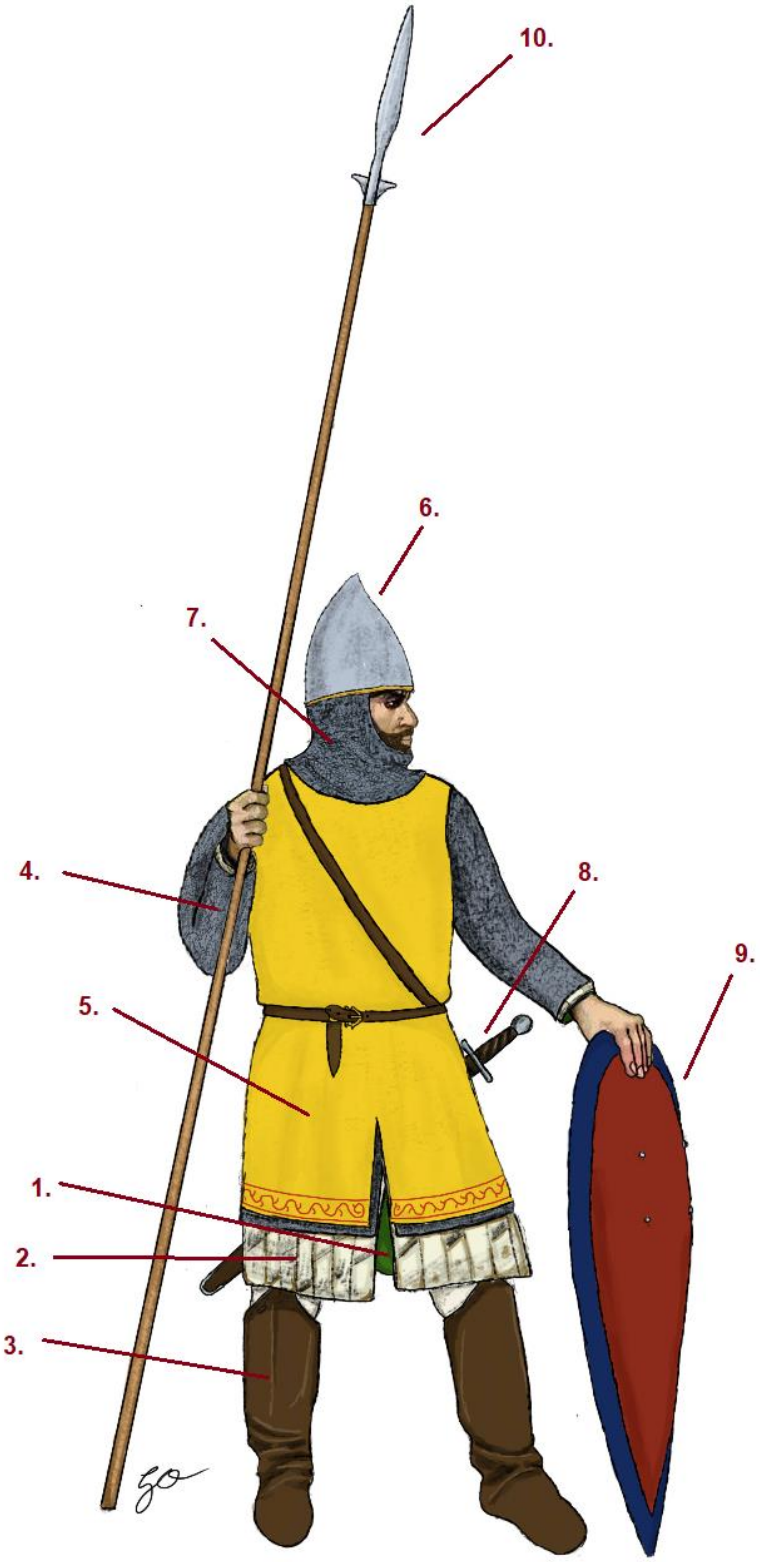

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Illustration 2:

Illustration 2 attempts to convey the impression of the heaviest Byzantine infantry and cavalry of the period. The most obvious difference is the addition of the *klivanion*, which as all the military treatises imply was the highest and heaviest level of armour protection. Notable is also the detail of the chainmail protecting the area below the waist, which is the closer interpretation of Phokas' reference to *kremasmata* with *zavai*.

Fig. 32:

1. *Klivanion* according to the lamellae found at Veliki Preslav
2. *Kremasmata* made up of *zava* attached (probable sewn) upon a padded fabric base made of cotton and coarse silk.
3. *Manikelia* (arm-guards) are also described as *zavai* attached on padded armour.

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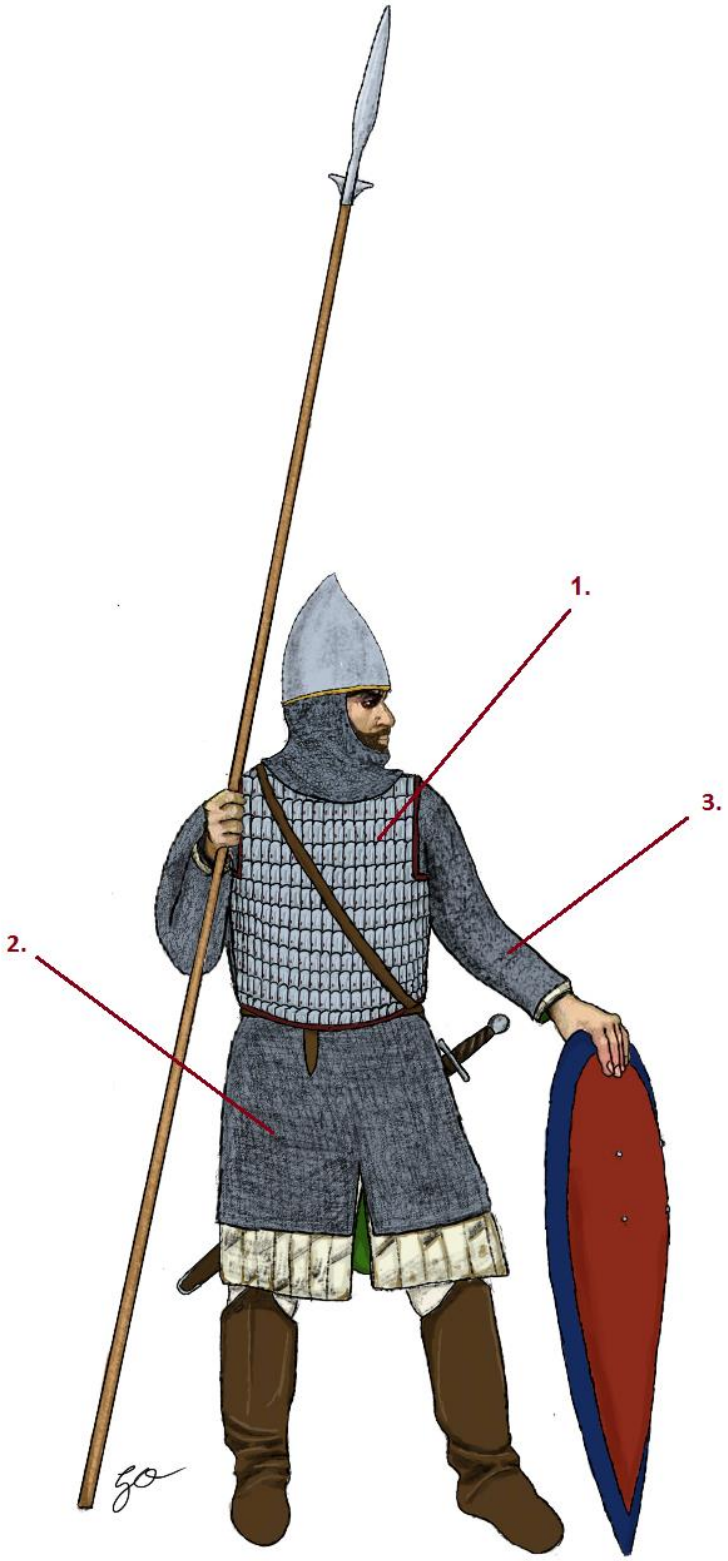

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Fig. 33: Skylitzes manuscript (12th c) - Arabs besieging a Byzantine/Roman fortified city

Fig. 34: Skylitzes manuscript (12th c) - Leo the Elder's army surrenders to Romanos Lekapenos

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Fig. 35: Skylitzes manuscript (12th c) - Byzantine troops under Nikephoros Phokas capture Amantia in Italy.

Fig. 36: Byzantine Bible (11th – 12th c), a helmet of the apparent Pernik/Branicevo phrygian style.

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