

Wolińskie Spotkania Mediewistyczne II

**ECONOMIES, MONETISATION AND
SOCIETY IN THE WEST SLAVIC LANDS
800–1200 AD**

edited by Mateusz Bogucki and Marian Rębkowski

Szczecin 2013

Institute of Archaeology and Ethnology Polish Academy of Sciences, Centre for Medieval
Archeology of the Baltic Region in Szczecin
Chair of Archaeology, Szczecin University

© All papers are copyright to their authors and the Institute of Archaeology and Ethnology
Polish Academy of Sciences

Editors: Mateusz Bogucki, Marian Rębkowski

Rewievers: Prof. Dr. Sebastian Brather and Prof. dr hab. **Borys Paszkiewicz**

This volume has been reviewed by the Editorial Board of the Institute of Archaeology
and Ethnology of the Polish Academy of Sciences. Members of the Board:
prof. Andrzej Janeczek, prof. Mirosława Drozd-Piasecka, prof. Dariusz Główka,
Tomasz Herbich M.A., prof. Andrzej Klonder, prof. Jolanta Kowalska, dr Małgorzata
Mogielnicka, prof. Piotr Taracha

Linguistic proof-reading: Leszek Gardela (English), Andreas Kieseler (Deutsch)

Cover design: Wojciech Filipowiak
Foto: coin of Jaxa of Köpenick, after Ryszard Kiersnowski

Printed by: MD-PRINT Dariusz Skalski

ISBN: 978-83-63760-16-8 (Wydawnictwo IAE PAN)
ISBN: 978-83-64277-11-5 (Wydawnictwo WH US)

Szczecin 2013

Contents

<i>Mateusz Bogucki, Marian Rębkowski</i> Preface	7
THE MOUTH OF THE ODR A RIVER IN THE MIDDLE AGES	11
<i>Przemysław Krajewski</i> Notes on the archaeology of Wolin Island in the light of changeable features of geographic environment	13
<i>Hauke Jöns, Sebastian Messal</i> Neue Forschungen zur Struktur mittelalterlicher Hafenanlagen an der südwestlichen Ostseeküste	25
<i>Andrzej Janowski</i> Harbours of early medieval Wolin in the light of recent research	45
<i>Przemysław Urbańczyk</i> Political and economic status of the Odra estuary area at the turn of the 1st and the 2nd millennia AD	59
ECONOMIES, MONETISATION AND SOCIETY: GENERAL STUDIES	73
<i>Dagfinn Skre</i> Money and trade in Viking-Age Scandinavia	75
<i>Stanisław Suchodolski</i> Warum hat man im frühen Mittelalter Schätze deponiert?	89
<i>Leszek Ślupecki</i> Temple fiscality of pagan Slavs and Scandinavians	109
<i>Dariusz Adameczyk</i> Fernhandelsemporien, Herrschaftszentren, Regional- und Lokalmärkte: Die ökonomischen Funktionen von Silber oder: Wie lässt sich der Grad der Monetarisierung in den frühmittelalterlichen Gesellschaften des Ostseeraums „messen“?	115
<i>Marek Jankowiak</i> Two systems of trade in the Western Slavic lands in the 10th century	137

<i>Marcin Pauk</i> Money makes this world go round. Some remarks on ducal power, coinage and society in Central Europe (1050–1200)	149
<i>ECONOMIES, MONETISATION AND SOCIETY: COMMODITY MONEY</i>	157
<i>Jacek Adamczyk</i> Fur money – a by-product of the inflow of the Arabic silver	159
<i>Marcin Szydłowski</i> The use of stone artifacts as commodity money in the light of the finds from early medieval Wolin	169
<i>ECONOMIES, MONETISATION AND SOCIETY: REGIONAL STUDIES</i>	175
<i>Jiří Macháček, Jan Videman</i> Monetisation of early medieval Moravia in the light of new archaeological discoveries in the Lower Dyje region (Czech Republic)	177
<i>Barbara Butent-Stefaniak</i> The earliest Scandinavian coins in early medieval in Silesia hoards	201
<i>Piotr Boroń</i> Where did the Piasts take silver from? The research on metallurgy and mining centre on the border of Silesia and Lesser Poland in the early Middle Ages	209
<i>Felix Biermann</i> Neue völkerwanderungs- und slawenzeitliche Münzfunde aus Brandenburg und ihre wirtschaftsgeschichtliche Aussage	223
<i>Jens Schneeweiß</i> Münz- und Gewichtsgeldwirtschaft an der westlichen Peripherie der slawischen Welt	237
<i>Ralf Wiechmann</i> Kupfer und Messing statt Silber. Münzimitationen des 11. und 12. Jahrhunderts aus Nordostdeutschland	267
<i>Oliver Mecking</i> Oberflächenbehandlungen und Legierungszusammensetzungen der Münzen aus Usadel, Parchim und Flessenow	313

Preface

<i>Jerzy Piniński</i> Coins in Pomerania between the 8th and 10th century	323
<i>Peter Ilisch</i> Hoards Berlin I and II (Pomorze VII and VIII)	337
<i>Mateusz Bogucki</i> Coin finds from Wolin and its hinterland	345
<i>Jerzy Strzelczyk</i> Jaxa und seine Münzen	359
<i>Stanisław Rosik</i> Fünfzig Talente für die Lanze Cäsars und dreihundert für slawische „kontina“ – Zur symbolischen Valorisation der Preise im 12. Jh. in den Biografien Ottos von Bamberg	369
Authors	377

Preface

Mateusz Bogucki, Marian Rębkowski

It has now become a tradition that the annual Festival of Slavs and Vikings in Wolin is accompanied by academic sessions devoted to the studies of the Middle Ages. The idea for the sessions was initially put forward by the authorities from the Wolin commune and in 2010, at the initiative of the Major of Wolin, a new bi-annual conference series entitled *Wolin Medievalist Meetings* (Pol. *Wolińskie Spotkania Mediewistyczne*) were inaugurated. The conference series is hosted by the Szczecin branch of the Institute of Archaeology and Ethnology of the Polish Academy of Sciences (currently, Centre for the Medieval Archaeology of the Baltic Region in Szczecin) and the Chair of Archaeology of the Szczecin University. The major goal of the organizers was to create a platform for meetings and exchange of ideas for representatives of various academic disciplines whose research focuses on the history and culture of the Baltic region in the Middle Ages. It has been decided that the subsequent sessions would be devoted to one main theme, but due to the conference location in Wolin there would also be room for other contributions discussing the results of the latest discoveries concerning the medieval past of the Odra estuary and Wolin in particular. The papers from the first conference, which focused on elite culture in the Middle Ages, were published two years ago¹.

The second edition of *Wolin Medievalist Meetings* was organized between the 3rd – 5th August 2012 in the Municipal Office of Wolin and it was attended by over forty archaeologists, historians and numismatists from Poland, Germany, Great Britain and the Czech Republic. More than twenty papers were presented – five of them discussed the Odra estuary in the early Middle Ages, while the majority of other contributions concentrated on the main topic of the conference *Economies, Monetisation and Society in the West Slavic Lands 800–1200 AD*. The direct inspiration for focusing on the notion of medieval coinage was a conference organized in Aarhus in 2008, entitled *Silver Economies, Monetisation and Society in Scandinavia, 800–1100*. The publication including papers presented in Aarhus has demonstrated how rich, diverse and complicated was the notion of the functioning of coinage at the dawn of state formation in Europe². Since the Aarhus volume concentrated on Scandinavia we felt inspired to further expand this research and gather the experiences of scholars who worked on similar notions, but in the West Slavic cultural milieu.

¹ *Ekskluzywne życie – dostojny pochówek. W kręgu kultury elitarnej wieków średnich*, („Wolińskie Spotkania Mediewistyczne” 1), ed. M. Rębkowski, Wolin 2011.

² *Silver Economies, Monetisation and Society in Scandinavia AD 800–1100*, eds. J. Graham-Cambell, S. Sindbæk, G. Williams, Aarhus 2011.

In the introduction to a seminal publication entitled *Pieniądz kruszcowy w Polsce wczesnośredniowiecznej* Ryszard Kiersnowski emphasised that the notion of money circulation in the early Middle Ages is largely understudied, and that his work was only a humble attempt to highlight the major problems³. According to Kiersnowski the main reason for the absence of serious academic interest in these notions was a deficiency of well documented source material, the underdevelopment of research methods and theoretical approaches, but also insufficient collaboration between the various disciplines, which (usually to a very small extent) touch upon the problem of early medieval coinage. At that time historical and archaeological studies within the field of numismatics were usually undertaken separately and their results were rarely confronted and discussed. In his studies Professor Ryszard Kiersnowski skillfully combined the research traditions of history and numismatics, but only to a limited degree was he able to utilize the potential of archaeology. He should not be blamed, however, because archaeology at that time – apart from delivering material evidence – was unable to offer much information for the scholar of the history of money. In recent times this situation has changed significantly. Apart from the obvious fact that the number of source materials is constantly growing – and this includes not only coins – we have now gained extensive experience due to the serious developments within the field of archaeological methods and theory. The application of a plethora of methods stemming from history, cultural anthropology or exact sciences in the current research on early medieval coinage allows us to draw much more substantial information from our sources than it was deemed possible fifty years ago. Therefore, the goal of contemporary scholars of these notions is not to completely dismiss the achievements of past researchers, but to critically reevaluate some of their claims, supplement them and first and foremost to set them within a new and broader context which archaeology itself has to offer.

The selection of topics and authors who accepted our invitation to participate in the Wolin conference was subjected to the conviction that in modern studies on medieval coins it is absolutely vital to incorporate interdisciplinary and supplementary methodologies of disciplines such as history, archaeology, numismatics and even anthropology. Nearly all of the papers presented at the conference have been included in the present volume. Its structure precisely reflects all the goals that we originally set as the organizers. The first part comprises several articles that discuss the latest research on the lands situated at the lower Odra, while the three further parts of the volume are devoted to various aspects of the functioning of money in the West Slavic area in the early Middle Ages. After a range of general papers that focus on the functioning of money in particular cultural contexts, the later contributions concern money media. The volume ends with articles devoted to particular regions of the West Slavic area. We are fully aware of the fact that this publication is not an exhaustive monograph of the matters studied, but at the same time we sincerely hope that it will allow for the wider acknowledgement of the complexity of the problems explored within its pages, the richness of the various phenomena and the great diversity of the West Slavic area.

³ R. Kiersnowski, *Pieniądz kruszcowy w Polsce wczesnośredniowiecznej*, Warszawa 1960.

Preface

Finally we would like to cordially thank everyone who made the publication of this volume possible. We express our gratitude to the authorities of the Wolin commune and the director of the Wolin Museum for creating the perfect intellectual environment for organizing our conference in Wolin, at the Dziwna River. We also thank the authors for their contributions to this volume, including those scholars who could not come to Wolin, but who kindly submitted their articles afterwards. Special thanks to the reviewers for recommending this volume for publication.

Monetisation of early medieval Moravia in the light of new archaeological discoveries in the Lower Dyje region (Czech Republic)

Jiří Macháček, Jan Videman

When in the 1980s Čeněk Staňa summed up early medieval coin finds from excavations in Moravia he inevitably had to state that there were not many of them (Staňa 1986, 86). The majority came from the late hillfort row-grave cemeteries (from the period between 1020 to 1140, see Sejbal 1986, 174), in a settlement context they were extremely rare (e.g. Mikulčice, Staré Zámky near Brno-Líšeň, Palliardi Hillfort near Vysočany, Zelená Hora near Radslavice, Dolní Věstonice, Přerov, see Videman, Paukert 2009, 431–478). **As a result numismatists had to support their deliberations on society monetisation primarily by hoards uncovered largely randomly as early as the 19th century or at the beginning of the 20th century and frequently outside the Moravian territory proper (for an overview see Videman, Paukert 2009, 431–478). However, this knowledge has only limited worth. It is debatable whether mass finds of coins can be used as creditable evidence of the level of monetisation of a particular region, as the reasons for hoarding coins in the early Middle Ages remain unclear. We are unaware as to by whom and why they were intentionally hidden (more in e.g. Bogucki 2004; Urbańczyk 2009, 499–501) and whether the composition of such a hoard realistically reflects the usual level of coin penetration in society. Of much greater importance in the discussion of the monetisation of early medieval societies are single coins, termed as “coin loss” (Klápště 2005, 317). The variations in patterns of coin loss can be interpreted in terms of the coinage circulation. The single coins can be used as a broad measure of monetary activity at a particular site (Blackburn 1993, 39; Naylor 2007, 44).**

The rate of coin loss from Moravia was slow to grow until the last decade when it rose significantly due to the widespread use of metal detectors among archaeologists and amateurs (Videman, Paukert 2009, 8). Nevertheless, their quantity is still far from reaching the levels known from other countries, such as England, where detectors have been in use for a much longer period and where registration of detector finds is much more efficient (see the Corpus of Early Medieval Coin Finds: <http://www.fitzmuseum.cam.ac.uk/dept/coins/emc/index.html>).

Regardless of this handicap today we have records of several early medieval sites even in Moravia with more than 10 coin losses (this number is considered to be the required minimum if coin circulation at a site is to be reliably assessed (Naylor 2007, 45). In Central Moravia they include, for example, Olomouc, where in the 10th century a marketplace arose on an important long-distance communication trail

(Bláha 2000a), and recently Němčice nad Hanou (Videman, Paukert 2009, 454). However, most single finds are concentrated in the south of Moravia in the Lower Dyje region, in particular at two sites fairly close to each other (c. 7 km) – Kostice/Zadní hrúd site (129–145 coins) and Ladná near Břeclav (33 coins) (Fig.1).



Fig. 1. Map of principal places mentioned in the text

It was above all the former site which provided high quality data that can be used as hard evidence in a discussion of coin circulation in early medieval Moravia. Coins from the area of Kostice originate both from metal-detector users, and from standard excavations led by professionals using the latest methods during which the fill of half-sunk dwellings, pits and other archaeological features was consistently sieved and washed.

The Kostice settlement today exemplifies a new type of an archaeological site in Moravia, perhaps a market village, customs house or tollhouse, which flourished between the last third of the 10th and the turn of the 12th and 13th century (Biermann, Macháček 2012). By its nature it corresponds considerably with the “productive sites” (Pestell, Ulmschneider 2003) from East England or Germany and the Netherlands. By the number of coins known to us so far it bears comparison with such sites on the continent as Domburg (170 coins), Dorestad (48 coins), Schouwen Island (53 coins), Mainz/Hilton Hotel (at least 137 coins, possibly several hundred), Trier (48 coins) (Blackburn 1993, 40–42, 47–48), **in England as Hamwic (129 coins)**, Lincoln (47 coins), London (139 coins), Flixborough (69 coins), Torksey (27 coins) or in Scandinavia as Ribe (28 coins) (Ulmschneider 2000, 63–64; Blackburn 2011, 588) and Kaupang (101 coins) (Blackburn 2003, 1144).

The large numbers of coin losses from Kostice may be related to the fact that the recently unearthed settlement lay on an important European communication trail, which ran roughly in the direction of the ancient Amber Road and connected the south and centre of Europe with the northern areas of Poland and the Baltic. The confluence of the Morava and the Dyje, in the vicinity of which Kostice is situated, was one of the junctions on this route. In the 11th century a border triangle formed here where the Přemyslid Moravia, the Árpád Hungary and the Babenberg march (*marchia orientalis*) met.

In order to appreciate the historical developments in this area it is important to realize that the Kostice settlement was closely related with the nearby (c. 1 km) Pohansko near Břeclav, one of the principal centres of the so-called Great Moravian Empire in the 9th century (Macháček 2010). Initially, it was part of the agricultural hinterland of that vast agglomeration, but after Pohansko was destroyed and abandoned during the 10th century, it took over some of its central functions, mainly with regard to aspects such as long-distance trade and craft production.

Pohansko near Břeclav and Kostice – Zadní hrád

During the 9th century, Pohansko near Břeclav was undoubtedly a “central place” at the top of the settlement hierarchy in Great Moravia (Macháček 2010). The results of systematic archaeological excavations provide evidence for each of the functions commonly attributed to “central places”. The administrative and political function may be linked to the manor compound, which has been viewed as the imitation of a Carolingian *palatium*, and may well have been the residence of the Moravian ruler or of one of his deputies (Macháček 2008). The military-defensive function of the Pohansko stronghold is evident from the massive fortification (Dresler 2011) and the concentration of stand-by military troops in the outer ward (Dresler et al. 2008). Intensive industrial activity left clear traces in the form of remains of workshop facilities, tools, unfinished products and wastes, all of which cluster within the residential and production sector inside the fortification (Macháček 2010, 65–430). Evidence of trade or exchange comes in the form of several goods of clearly foreign origin (e.g. glass objects, see Galuška et al. 2012, 71–74). Finally, the cult function of the site under discussion is attested by Christian churches, which in Great Moravia were built almost exclusively in important centres. At Pohansko two churches were excavated while the second of these was uncovered only a few years ago (Dostál et al. 2008; Čáp et al. 2011; Macháček 2011).

Pohansko was laid to waste during the 10th century, after its fortification burnt down and most of its inhabitants left the flood plain, in the middle of which this Great Moravian central place had been erected. The causes for the fall of Pohansko, as well as the whole of Great Moravia, are the subject of a heated debate. Changes in the hydrological conditions in the floodplain and variations in the local climate could have been of considerable significance (Macháček et al. 2007), as could have also been the role of the Magyars settling at that time in the Carpathian Basin. Their raids meant an immediate threat to the Great Moravian centres (Kouřil 2003; 2008) and, simultaneously, led to a decline in the long-distance trade, which brought objects of prestige into the country, with which the rulers would buy the loyalty of

their supporters (Štefan 2011). An interruption of the trade routes was unavoidably accompanied by massive turbulence in the social system as a whole.

The collapse of Great Moravia was followed by the “dark age” in stark contrast to the dynamic constitution of the Přemyslid domain in the heart of Bohemia. Our cognition of this transitional period in Moravia suffers from a critical shortage of sources both of a historical and archaeological nature (Staňa 2000, 198; Procházka 2009, 97–98). **The missing sources are being replaced with more or less credible hypothetical models.** It is generally thought that the focal point of development was shifting to the local centres on the periphery with the dominant Olomouc situated towards the north, which became the main centre in the post-Great Moravian period and which was the first to be occupied by the Prague Přemyslids. It is also here that the continuity of ecclesiastical administration is taken into consideration. However, the original central area in the south of Moravia was never completely laid to waste and depopulated (Měřínský 1986, 34; 2008, 99; Procházka 2009, 97–98, 104).

A new wave of economic development of the original core of the Great Moravian Empire began in the last third of the 10th century. At that time the recently discovered settlement in Kostice took over some of the functions of the vanished Pohansko and something of a second-order economic and trade centre emerged there. Later, in the first half of the 11th century, the settlement hierarchy was made complete with a Přemyslid castle in Břeclav, which became the political, military and administration centre of the region (Měřínský 2001).

The early medieval settlement in Kostice spread over the sand dunes, outside the floodplain of the river Dyje. Today the area is used as arable land the surface layer of which has yielded, apart from great numbers of pottery shards, frequent finds of artefacts from non-ferrous and precious metals, in particular S-shaped temple rings and coins. So far the archaeological records register 43 S-shaped temple rings and up to 128 coins from the 10th to the 12th century. A truly exceptional find is three fragments of silver and an ingot of tin bronze. There is a huge occurrence of lead artefacts of various shapes; there are currently 835 items recorded with a total weight of 8530 g. Finds of metal artefacts (including coins and a piece of jewellery) as well as pottery are unevenly distributed in the environs of Kostice over an area of c. 32 ha. These figures are valid as of the autumn of 2012 but, given the continuing research on the site, it is hardly the final count.

Between 2009 and 2011 one of the dunes was subjected to a small-scale excavation that identified multi-cultural occupation from the Neolithic via the La Tène period to the early Middle Ages when the site was continually occupied from the 6th/7th to the 12th/13th century. The largest number of settlement features (87 pits) is dated to the post-Great Moravian and the Late Hillfort period (10th–12th century). They yielded a very rich assembly of pottery, although the most important finds are those of individual lost coins, unearthed both in the settlement layer and in the fill of the features, testifying to the intensive coin circulation on the site. **A total of 17 coins (Fig. 2–3) were uncovered over a relatively small investigated area (2405 m²).**

Hypothetically, the newly discovered settlement in Kostice could be in relation to the foundation of the Podivín castle and the market village (*villa cum foro*) of Slivnice that belongs to it. Although it was mentioned several times in Kosmas’

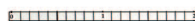


Fig. 2. Kostice – Zadní hrúd. Lost coins found in the excavation (2009–2011), unearthed both in the settlement layer and in the fill of the features. Photo J. Špaček
 1 – Henry II the Quarrelsome (Bavaria); 2 – imitation of Bavarian denarii (Moravia or Bohemia?); 3-4 – Stephen I (Hungary); 5-7 – Andrew I (Hungary); 8-10 – anonymous coin (Hungary, 12th century)

Chronica Boemorum the location of Slivnice remained unknown. M. Wihoda (2010, 102, 138) believes they could have originated from as early as the last quarter of the 10th century and considers them as key sites of paramount importance for grasping the complexities of the historical development of Moravia at that period.

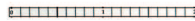


Fig. 3. Kostice – Zadní hrúd. Lost coins found in the excavation (2009–2011), unearthed both in the settlement layer and in the fill of the features. Photo J. Špaček
11 – Béla III (Hungary); 12-13 – Otto I of Olomouc (Moravia); 14 – Svatopluk of Olomouc (Moravia); 15 – anonymous coin (Moravia, second half of the 12th century); 16 – coin? (Moravia?); 17 – Leopold V (Austria)

Monetisation of the Lower Dyje region in the early Middle Ages

Archaeological and numismatic finds from the Lower Dyje region and other parts of Moravia constitute a solid foundation which can be used in further deliberations.

The main source of our knowledge is the data acquired in Pohansko, Kostice and Ladná based on which even now we can formulate a relatively credible model of the development of monetisation of early medieval Moravia.

Over more than fifty years of large-scale excavations at Pohansko near Břeclav not a single coin has been uncovered there. In this respect Pohansko is not much different from the other Great Moravian centres. We know of only five coinage items from the 9th century from two Moravian sites – one Byzantine solidus comes from Osvětimany and another of the same type from Mikulčice, the latter site also yielding three Lombardian deniers of King Berengar (Kučerovská 1989, 19–54; 1998, 151–170). **However, these coins were not used in commercial transactions in Moravia.** The solidus from Mikulčice served as Charon's obol and the coins from northern Italy were probably brought to Mikulčice by the old Magyars sewed onto their overcoats (Mazuch 2012, 150). This custom is well documented by a solitary old Magyar grave in Gnadendorf in Lower Austria (at a distance of 40 km as the crow flies from Pohansko), with a burial of a young man with an overcoat decorated with eleven coins of Berengar I and Ludwig III from 898–910 (Hahn 2006, 105).

Coins played absolutely no role in the economy of Great Moravia. In the 9th century it was too early for an internal market with clearly set rules governed by an objective value expressed in monetary terms to develop in Moravia (Urbańczyk 2009, 505; Štefan 2011, 343). The absence of coinage, which in the context of early medieval Europe served the needs of the long-distance and internal market as well as, and perhaps primarily, for the payment of various fees, such as taxes, fines and tolls (Yorke 2009, 73–86, 80), **testifies to the redistributive nature of the Great Moravian economy, which was not based on standard market relations (Macháček 2012, 12–18). War spoils and tributes played a more important role than tax collection and systematic exploitation of the internal economic resources of the country.**

It should be noted, though, that in the period from the second half of the 9th to the end of the 10th century coins were disappearing from monetary circulation even within the territory of the Frankish and Ottonian Empires (Blackburn 1993, 42; Kluge 1993, 4). An explanation to this phenomenon is rather complicated. It need not necessarily imply a lower intensity of commercial transactions or an economic recession. We cannot exclude an increase in barter trade or an introduction of non-monetary currency or commodity money which at the local level might have replaced the early medieval denier, the value of which was too high for small-scale transactions (Blackburn 1993, 43–44). However, the question remains why, in the earlier and later period, the monetisation of the society in Western Europe reached a considerably higher level.

According to a generally accepted idea, in Great Moravia coinage was substituted by other forms of currency. The most frequently mentioned are iron axe-shaped ingots (Kučerovská 1980, 211–229; 1989, 19–54). **They are also known to occur in great numbers (over 115 items) in Pohansko (Dostál 1983, 193).** Some researchers recently questioned the interpretation of the ingots as instruments of exchange (Curta 2011, 319; Štefan 2011, 343). We know that they did not serve for transactions in long-distance trade. Outside the Great Moravian sphere of influence they occur only rarely (e.g. Knific 2004, 191). Also, they are distributed very unevenly within the

territory of Great Moravia. Paradoxically, there are substantially fewer finds in the core of the empire where we locate the main market of the Moravians (Pošvár 1966, 47; Třeštík 1973; 2000, 49–40) **and where one would expect the greatest volume of trade** as compared to the peripheral areas (Slovakia, Lesser Poland – Bialeková 1990, 105). We cannot rule out that at the periphery they were gathered as a form of tribe tribute which may be suggested by some large hoards (e.g. Krakow – Curta 2011, 318). Axe-shaped ingots might have also served as merely a raw material form intended for further distribution and processing. This would correlate with the situation in Pohansko where we record their above-average occurrence in metal-working workshops (Macháček et al. 2007, 144; Macháček 2010, 284–294). The interpretation of ingots from Pohansko as non-monetary currency thus only seems to be supported by miniature examples (3.5–5.5 g), **the size of which is very impractical for iron distribution** (Dostál 1983, 197).

In the Lower Dyje region coins did not begin to be used as instruments of exchange until the second half of the 10th century. It is hardly surprising then that they are missing in Pohansko which at that time was more or less depopulated¹. On the contrary, in settlements that partly replaced the original Great-Moravian centre in the settlement structure, we recently registered a high quantity of coin finds.

The coins known so far originate from three qualitatively distinguished sources – most of them having been unearthed by amateur detector users (Fig. 4, Tab. 1). This is the least credible source and it is very likely that many coins failed to make it to our records. These finds also often lack more precise data on their location. More detailed data, including the establishment of the location using GPS, comes from systematic metal-detecting surveys carried out under the supervision of a professional archaeologist in the cadastre of Kostice. This was also a site of the excavation (see above), which yielded the smallest, but most valuable set of coins (17 coins) with an carefully described archaeological context.

All of the finds uncovered by excavation and a significant number of the coins found by the metal detector were buried in the ground after loss. However, we also have coins from the environs of Kostice which may have originally been parts of hoards, dispersed due to ploughing in the top layer of fields (Fig. 5, Tab. 2). This is suggested by the spatial relationships and temporal homogeneity of the find. They were very likely two hoards – one with Hungarian coins of Stephen I and Andrew I from the first half of the 11th century (c. 30 coins) and another with Moravian coins from the last two thirds of the 12th century (37–42 coins). **The latter site – Ladná in the Břeclav area – yielded, apart from the coin losses, an agglomerate of 15 Hungarian coins from the 12th century, tied up with a flat wire, which has the nature of a hoard.** Unfortunately, this site is known only thanks to finds by various non-professional metal detector users.

The chronological distribution of all the coins from Kostice and Ladná illustrates quite clearly the monetary circulation in the Lower Dyje region (Fig. 6–7, Tab. 3–4). **The earliest examples from the second half of the 10th century** are still rare there. They originate from Bavaria or Bohemia, or they might be imitations

¹ Reduced remains of settlement are found solely in the ruins of a church in the area of the so-called Magnate Court (Dostál 1973-74, 181–193).

modelled on western coins. The rate of coin loss rose dramatically in the first half of the 11th century, in connection with the emergence of deniers minted by king Stephen in neighbouring Hungary. Another change is noticed in the second half of the 11th century when the number of coins decreased and their structure was altered. Moravian coinage, in particular from the mint in Olomouc, began to take precedence. It was also at that time that the first coins appeared in Ladná, where finds earlier than that had been completely missing. The coin rate started to rise again from the second quarter of the 12th century. Throughout the 12th century the coin finds are typified by a relatively wide variety of composition. They include both Moravian coins as well as from Hungary and Austria, and very rarely from Bohemia (Tab. 5). The development of coinage at the sites under examination ends at the beginning of the 13th century, with the circulation of Austrian pfennigs. If we concentrate on provable coin loss the resulting picture will be slightly, but not significantly, modified. The specific pattern of coin movement in Kostice – Zadní hrúd exhibits two distinct peaks – the main peak in the first half of the 11th century related to the influx of Hungarian denarii, and a secondary one in the second half of the 12th century (Tab. 5), when coins circulated even in Ladná and the early medieval monetisation of the whole Lower Dyje region probably reached its highpoint.

Site	Source of finds	Amount
Sum of coins		
KOSTICE	excavation	16
	systematic metal-detecting survey	31
	detector users/amateur metal-detecting	97
KOSTICE Total		144
LADNÁ	detector users/amateur metal-detecting	33
LADNÁ Total		33
Grand Total		177

Tab. 1. Single finds of coins from Kostice and Ladná sites. Source of finds

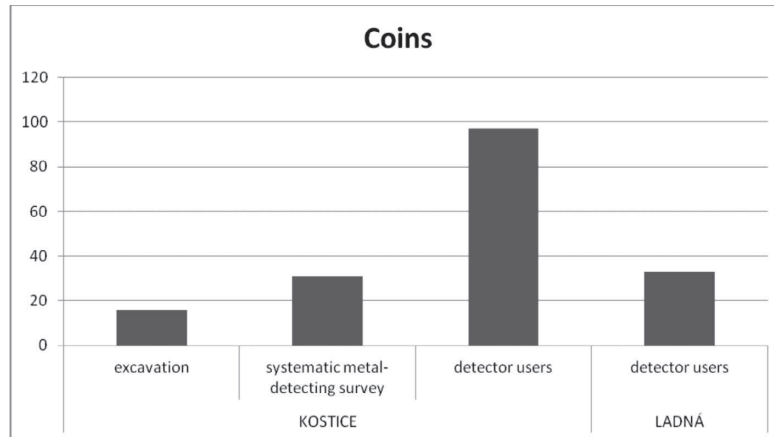


Fig. 4. Bar graph. Single finds of coins from Kostice and Ladná sites. Source of finds

Site	Type of find	Amount
KOSTICE	single-find/coin loss	72
	single-find/hoard1 ?	42
	single-find/hoard2 ?	30
KOSTICE Total		144
LADNÁ	single-find/coin loss	18
	single-find/hoard3	15
LADNÁ Total		33
Grand Total		177

Tab. 2. Single finds of coins from Kostice and Ladná sites. Type of find

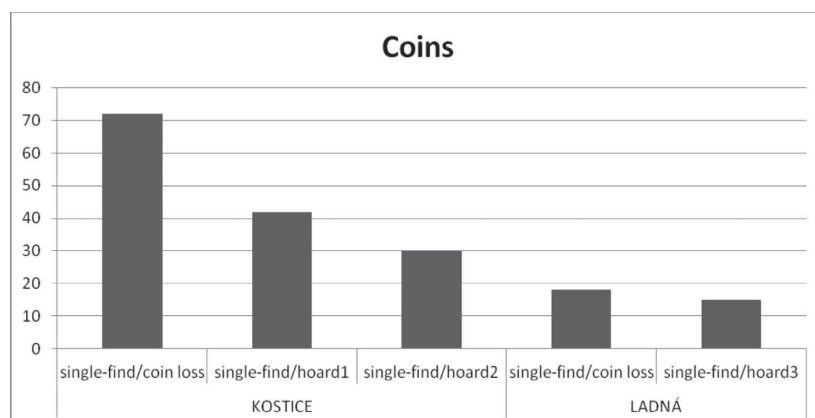


Fig. 5. Bar graph. Single finds of coins from Kostice and Ladná sites. Sorted by type of find

Monetisation of early medieval Moravia

Sum of coins		
Site	<i>Terminus post quem</i>	Amount
KOSTICE	950	3
	975	2
	1000	38
	1025	16
	1050	8
	1075	2
	1100	6
	1125	42
	1150	8
	1175	14
	1200	5
KOSTICE Total		144
LADNÁ	950	0
	975	0
	1000	0
	1025	0
	1050	2
	1075	1
	1100	15
	1125	5
	1150	5
	1175	5
	1200	0
LADNÁ Total		33
Grand Total		177

Tab. 3. Single finds of coins from Kostice and Ladná sites. The chronological distribution of the coins. Coin loss and hoards (?)

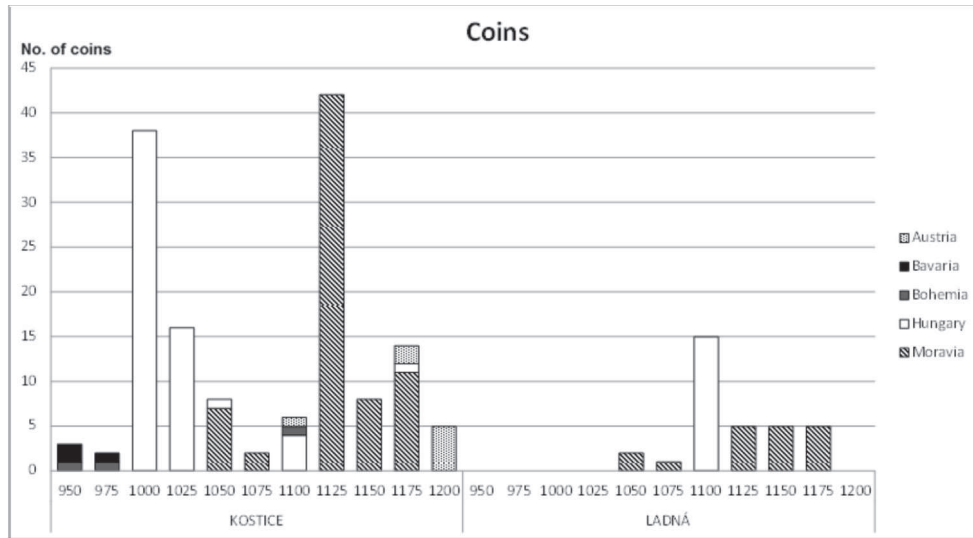


Fig. 6. Histogram reflecting specific pattern of coin movement at Kostice and Ladná sites. Single finds. Coin loss and hoards (?)

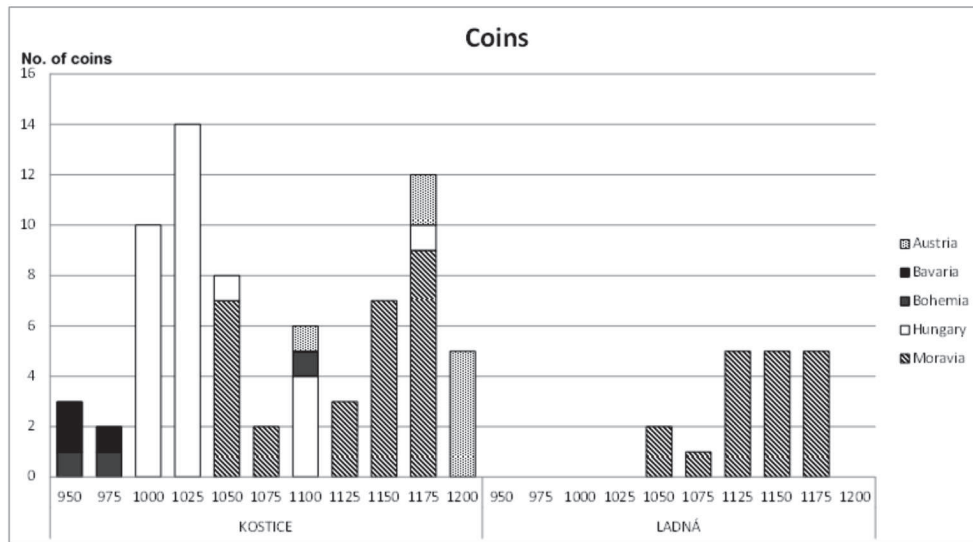


Fig. 7. Histogram reflecting specific pattern of coin movement on Kostice and Ladná sites. Single finds. Only coin loss

Sum of coins		
Site	<i>Terminus post quem</i>	Amount
KOSTICE	950	3
	975	2
	1000	10
	1025	14
	1050	8
	1075	2
	1100	6
	1125	3
	1150	7
	1175	12
	1200	5
	KOSTICE Total	
LADNÁ	950	0
	975	0
	1000	0
	1025	0
	1050	2
	1075	1
	1125	5
	1150	5
	1175	5
	1200	0
LADNÁ Total		18
Grand Total		90

Tab. 4. Single finds of coins from Kostice and Ladní sites. The chronological distribution of the coins. Only coin loss

	Single-find/coin loss
Mint/Tpq.	Sum of coins
Austria	
1100	1
1175	2
1200	5
Bavaria	
950	2
975	1
Bohemia	
950	1
975	1
1100	1
Hungary	
1000	10
1025	14
1050	1
1100	4
1175	1
Moravia	
1050	9
1075	3
1125	8
1150	12
1175	14
Grand Total	90

Tab. 5. Single finds of coins from Kostice and Ladná sites. Chronological and geographical distribution. Only coin loss

Numismatic/historical interpretation of the new finds from the Lower Dyje region

In terms of historical value the most important are five deniers coins of a large size, closely related to the long-distance trade in the 10th century. They are the denarii of Henry II the Quarrelsome minted in Regensburg and its local imitation found during excavations. From the immediate surroundings of the excavation we are aware of two additional Bavarian (one of them could be an imitation) and one Bohemian coin of the same age. The Bavarian denarii and their imitations are dated to the 970s, the Bohemian coin is dated slightly later. They are quite unique within

the Moravian territory and together they constitute one of the largest assemblies of lost coins from that particular period so far. There is substantial evidence that an important trading and craftsmen's settlement emerged on the site in the last third of the 10th century which in terms of the number of uncovered coins is on a par with the more widely recognised Olomouc (Bláha 2000b), from where 23 deniers from the settlement layer have been published but only four of them belong to the 10th century (Bláha 1992, 41–42; 2000a, 188; Bláha, Polanský 2005). The number of the 10th century coins from Olomouc unearthed during excavations at the site of today's department store in Pekařská St. between 1982–1984, was actually a little higher. In the, as yet, unprocessed assembly heavily damaged by corrosion it is possible to identify four or five other currencies from the 10th century.

Another site in Moravia where finds of single coins indicate its important position during that period is the Staré Zámky hillfort in Brno-Líšeň. The two published coins found directly at the hillfort, a denier of Boleslav II and an obolus or half-denier of unknown origin, can be associated with another denier of Boleslav II from nearby Velatice (Polanský, Sláma 2008, 112–113), **situated four kilometres, as the crow flies, from the hillfort.** A recent discovery made within the hillfort is a rare obolus or half-denier of Otto I, Duke of Swabia and Bavaria (976–982) **from the Regensburg mint (Vachůt et al. in print)**. The assembly of coins unearthed in Staré Zámky was lately substantially expanded by single finds originating from amateur metal-detecting. The new additions to the assembly consist of additional 12 coins dated to a period roughly delimited by the years 980–995.

The significance of the sites in the historical-geographic context of that period is supported by the fact that in the vast expanses to the east of the Morava (the Carpathian Basin, Slovakia) we register only 20 coins of western origin from the second half of the 10th century. Only in the case of six of them more detailed circumstances of their discovery are available (Ruttkay 2000, 239–241). **From a more southerly situated area in the east of Austria (*marchia orientalis*) only three coins from that period were known (until 1991), belonging to the Bohemian dukes Boleslav II and Boleslav III and found in Zwentendorf and Carnuntum (Hahn 1991, 53–59).**

The modest number of coins from the second half of the 10th century underpins the significance of the finds from Kostice – Zadní hrúd. Their position is made even more important by the fact that in part they are coinages which are the earliest of those mentioned above and the only ones from a period before 976 from the wider geographic area of the Lower Morava region, Austrian Danube region and the Carpathian Basin, providing evidence of the initial period of the rising trade and the related mass coinage in Bavarian and subsequently Bohemian mints after the Battle of Lechfeld in 955.

The opening of a long-distance trade route which passed through the central Danube region and turned northwards along the Morava river must have been connected with the reinstating of the Eastern March and the baptism of the Hungarian Grand Prince Géza and his son, later to become king Stephen in 972 (Brunner 2003, 82). These events were followed by an overall pacification in the political world through the whole region of Central Europe. As a result, sometime

in the last quarter of the 10th century the part of the ancient Amber Road which led from Carnuntum to the north and newly connected the territories of the Bavarian Eastern March (Ostarrîchi) and Hungary with Moravia, Poland and the Baltic regained importance. Merchants arriving along this road from Regensburg brought the first coins to Moravia which can be regarded as having been used in commercial transactions.

The Lower Dyje area continued to maintain its significance even after the turn of the millennium, as is proven by a fragment of a denier from a grave in Nová Ves in the Břeclav region from the beginning of the 11th century (Radoměský 1956, 1654), as well as a broken denier from Hrušky, identified as coinage of Henry IV from the Regensburg mint from the 1002–1009 period (Krejčík 1990, 222) and the most recent and as yet unpublished find of Bavarian coinage from the cadastre of the same village, dated to around 1009.

The role of the north-south connection grew immensely in the following period of the 11th century where the Hungarian denier is present in great quantities. Their influx is recorded throughout south-east Moravia (Videman, Paukert 2009, 431–478), with abundant occurrence both in graves (e.g. Sejbal 1986), and as coin loss. Most frequently they are coins of Stephen I of Hungary (997–1038) of the **Huszár 1** type with the inscription STEPHANVS REX / REGIA CIVITAS and denarii of Andrew I of Hungary (1046–1060). **Both types prevail in the coin loss from the Moravian territory before 1060.**

While in the first half of the 11th century the southeastern part of Moravia was in the sphere of Hungarian economic influence, the northern and central part of the country was controlled by the Poles who occupied it sometime around 1002 (Wihoda 2010, 107) and kept it until 1029 (or 1018 in some opinions). The Polish King Bolesław I Chrobry (the Brave) stationed his garrison in Přerov, where its presence is confirmed by Saxon cross-deniers, dated before 1000 (Procházka et al. 2005). It is thought that he left the administration of the southern part of the country in the hands of the local magnates, who, to a certain extent, became his allies (Wihoda 2010, 107–109).

Contacts of Moravia with the more northerly areas are well illustrated by hoards containing hacksilver, Arabic dirhams and other coins (Kelč, Komárov and Kojetín), which in their nature correlate with hoards from the area between the Oder and the Vistula (Novák 2010, 72–73). **The latest, as yet unpublished, hoard from Kojetín**, preliminarily dated to the middle of the 990s is of extraordinary significance. The find is, so far, the southernmost example of this type of hoard, probably related to the redistribution of Islamic silver from the Baltic to the south and in general with the trading activities originating from more northerly situated regions.

Merchant caravans which crossed Central Europe from the north to the south entered Moravia via a passage called the Moravian Gate and left it at the confluence of the Morava and the Dyje – the site of the Kostice settlement. There, the presence of merchants from an area where payment was made by weighed silver (Steuer 1987, 481) is not confirmed by coins but by other types of finds. Nine oblate spheroid weights (*Kugelzonengewichte*), a fragment of a merchant's balance scale uncovered during an excavation in a settlement pit from the 11th century and several fragments of silver are dated to the 11th or 12th century.

Kostice was located at the interface of two different economic systems – the *Gewichtsgeldwirtschaft* (weight-based currency system – Steuer 1987, 493–495) and *Münzgeldwirtschaft* (coin-based currency system). Payments were made both by coins and weighed metal, as might have been common at that time throughout the whole of Moravia (Kučerovská 1986, 28). However, beyond the Dyje it was the territory of the Babenberg *marchia orientalis* (Měřínský 2001), where at the end of the 10th and in the 11th century coin circulation was not intensive, but coins were used and they were indeed valued (Hahn 1991, 53). This territory belonged to the Holy Roman Empire, in the eastern part of which, including Bavaria, coins were minted extensively even during the 10th century (Kluge 2007, 95–98).

Sometime at the turn of the 1020s and 1030s the minting of their own currency was started by the Přemyslid duke Ulrich and his son Břetislav in Moravia. Initially it was not very extensive. The later domination of local coinage in Moravia is related to the beginning of the rule of the Přemyslid dukes Otto I of Olomouc (1061–1087) and Conrad I of Brno (1061–1092), **when Hungarian coinage was edged out. The Lower Dyje and the Morava river regions were traditionally administered from Olomouc, which corresponds with the prevalence of coins minted in that city, also appearing in Kostice.**

This stage is followed in Kostice by a striking caesura, extending over a period of about thirty years. More numerous examples do not appear until the 12th century. They are again Hungarian coins, mainly anonymous coinage without inscriptions, broadly dated to the 12th century minted in a number of types, usually with a depiction of the cross with various ornamental fills on both sides. Visually striking among the otherwise simple motifs is the denier of Béla III of Hungary (1172–1196) of the Huszár 72 type, imitating Byzantine motifs, depicting the Madonna with the inscription SCTA MARIA. However, Hungarian coinage is in a minority compared to frequent occurrences of the Moravian denarii from the second half of the 12th century, the existence of which was totally unknown until recently (Šmerda 1996, 18–20). **They are characterised by a very low content of precious metal and a rich range of types, with motifs often modelled on Bohemian examples. With a few exceptions, inscriptions on these coins have not been preserved making it difficult and mostly impossible to identify the issuer and the mint location (Videman, Paukert 2009, No. 248–269). The only ruler who can be securely attributed to some coins based on inscriptions is Otto III Dethleb of Olomouc (1140–1160). Judging from the frequent single finds from Kostice and Ladná it is obvious that in their time the coins circulated extensively in society, although they were only very rarely stored in hoards (Šmerda 1996, 18) nor were they placed in graves (Sejbal 1986, 170, 174).**

The whole series of coins from the Lower Dyje region ends with two Austrian coinages from the rule of Leopold V, Duke of Austria (1177–1194), **a rare pfennig** of some of the abbots of the Formbach monastery, originally from the mint in Neunkirchen, a period copper fake of the Austrian pfennig from the beginning of the 13th century and an otherwise unidentified Viennese pfennig from the same period. It seems that at that time local coinage was suppressed at the expense of high-quality pfennig coinages of Danubian provenance (Sejbal 1997, 93–96).

Conclusion

In recent years intensive research in the Lower Dyje region has yielded the largest assembly of medieval lost coins from the Czech lands so far. Originating from what can be regarded as a “productive site“, in terms of the number of coins and other metal finds it is on a par with well-known sites in Germany and England. The quantity of the coins amassed to this day is representative to such an extent that we can conceive, on this basis, a fairly clear idea of the monetisation of the south of Moravia in the period from the 10th to the beginning of the 13th century.

The first coins in monetary circulation appeared there as late as the last third of the 10th century. They came from Bavaria and Bohemia and were related to the reawakening of trade in the Danube region after the defeat of the old Magyars in the Battle of Lechfeld. In the preceding epoch, during the existence of the Great Moravian Empire and in the period immediately following its fall, coinage had not yet been introduced to commercial transactions in Moravia. In the first half of the 11th century we note a massive influx of coins from Hungary, where King Stephen began to mint his denarii in great quantities. This was followed by something of a slowdown in the second half of the 11th century when Hungarian coins were disappearing from circulation and were replaced by Moravian coinage of the Přemyslid dukes, mainly from Olomouc. The coin numbers started to increase again from the second quarter of the 12th century. The whole of the 12th century is marked by a relatively varied range of coin finds. They include Moravian as well as Hungarian and Austrian coins while the Bohemian ones appear very rarely. The coins of this period were made from lower quality silver or even solely from copper. The development of coinage at the examined sites ended at the beginning of the 13th century with the circulation of Austrian pfennigs of higher quality.

Looking aside from the 8th and the 9th century when coins in Moravia did not occur as a common form of currency, the development of the monetisation of the country runs to some extent in parallel with the situation within the Holy Roman Empire (Blackburn 1993, 41–43). **This is because at the turn of the 9th and the 10th century we register even there a considerable slump in the rate of coinage circulation in society.** The situation changed towards the end of the 10th century coinciding with the opening of new silver mines in the Harz mountains (Kluge 2007, 96). The whole of the 11th century is then typified by a relatively high rate of coin loss which testifies to the growing monetisation of society. Exceptions do appear though, for example in Mainz, where in the second half of the 11th century we notice, just as in the Lower Dyje region, a striking decline in the rate of coin loss. The question remains whether it is in both cases just a local phenomenon caused, for example, by moving the commercial activities elsewhere, or whether it was a manifestation of a more general trend (Blackburn 1993, 42). In Moravia, an answer to this question can only be provided by discoveries of other sites similar in nature to Kostice and Ladná. The 12th century, both in the Holy Roman Empire and Moravia, was characterised by an increase in the number of mints, coin types and the total volume of coinage in circulation. At the same time their production became highly regionalized (Kluge 2007, 98).

To sum up, it is possible to say that the Moravian-Austrian-Hungarian borderland

along the lower Dyje is today the crucial area for finding extensive evidence of the monetisation of early medieval Moravia and East-Central Europe as a whole.

This paper is published with financial assistance from Czech Science Foundation (Grantová agentura České republiky), Project Nr. P405/12/0111.

Bibliography

D. Bialeková

1990 *Sekerovité hrivny a ich väzba na ekonomické a sociálne prostredie Slovanov*, [in:] *Staroměstská výročí*, ed. L. Galuška, Uherské Hradiště, 99–119.

F. Biermann, J. Macháček

2012 *Pennigsberg und Pohansko – vergleichende Untersuchungen zu Landnutzungssystemen und Siedlungsstrukturen im frühmittelalterlichen Ostmitteleuropa*, [in:] *Transformationen und Umbrüche des 12./13. Jahrhunderts*, eds. F. Biermann, T. Kersting, A. Klammt, T. Westfalen, („Beiträge zur Ur- und Frühgeschichte Mitteleuropas“ 64), Langenweißbach, 181–190.

M. Blackburn

1993 *Coin circulation in Germany during the Early Middle Ages: the evidence of single-finds*, [in:] *Fernhandel und Geldwirtschaft, Beiträge zum Deutschen Münzwesen in sachsischer und salischer Zeit. Ergebnisse des Dannenberg-Kolloquiums*, ed. B. Kluge, Sigmaringen, 37–54.

2003 *Coin finds from Kaupang: a Viking emporium on the North Sea*, [in:] *XIII Congreso Internacional de Numismática 2*, eds. C. Alfaro, C. Marcos y Paloma Otero, Madrid, 1143–1149.

2011 *Coinage in its archaeological context*, [in:] *The Oxford Handbook of Anglo-Saxon Archaeology*, eds. H. Hamerow, D.A. Hinton, S. Crawford, Oxford, 580–599.

J. Bláha

1992 *Nálezy denárových ražeb v Pekařské ulici a otázka charakteru slovanského trhu v Olomouci 10.–11. Století*, [in:] *Památkový ústav v Olomouci. Výroční zpráva*, Olomouc, 41–45.

2000a *Topografie a otázka kontinuity raně středověkého ústředí v Olomouci*, [in:] *Přemyslovský stát kolem roku 1000. Na paměť knížete Boleslava II. (+ 7. února 999)*, eds. L. Polanský, J. Sláma, D. Třeštík Praha, 179–196.

2000b *Olmütz (Olomouc)*, [in:] *Europas Mitte um 1000. Beiträge zur Geschichte, Kunst und Archäologie 1*, ed. A. Wiczorek, H.-M. Hinz, Stuttgart, 389–392.

J. Bláha, L. Polanský

2005 *Nález nové varianty denáru Boleslava II. typu ruka/poprsí ve Wurmově ulici 3 v Olomouci*, „Numismatický sborník“ 20, 147–150.

M. Bogucki

2004 *Dlaczego we wczesnym średniowieczu powstawały skarby złomu srebrnego? Uwagi na marginesie prac Jacka Kowalewskiego i Przemysława Urbańczyka*, „Wiadomości Numizmatyczne“ 48, 49–76.

K. Brunner

2003 *Herzogtümer und Marken. Vom Ungarnsturm bis ins 12. Jahrhundert*, Wien.

F. Curta

2011 *New Remarks on Early Medieval Hoards of Iron Implements and Weapons*, [in:] *Frühgeschichtliche Zentralorte in Mitteleuropa, Studien zur Archäologie Europas*, eds. J. Macháček, Š. Ungerman, Bonn, 309–332.

- P. Čáp, P. Dresler, J. Macháček, R. Přichystalová
2011 *Grossmährische Kirchen in Pohansko bei Břeclav*, [in:] *Frühmittelalterliche Kirchen als archäologische und historische Quelle Internationale Tagungen in Mikulčice VIII*, eds. L. Poláček, J. Maříková-Kubková, Brno, 187–204.
- B. Dostál
1973-74 *Mladohradištní keramická skupina z Břeclavi-Pohanska*, „Sborník prací filozofické fakulty brněnské univerzity“ E 18-19, 181–193.
1983 *Železné sekerovité hřivny z Břeclavi – Pohanska*, „Sborník prací filozofické fakulty brněnské univerzity“ E 28, 171–199.
- B. Dostál, F. Kalousek, J. Macháček
2008 *Die Kirche von Pohansko bei Břeclav (Mähren)*, [in:] *Die frühmittelalterlichen Wandmalereien Mährens und der Slowakei. Archäologischer Kontext und herstellungstechnologische Analyse*, ed. M. Pippal, F. Daim, Innsbruck, 63–77.
- P. Dresler
2011 *Opevnění Pohanska u Břeclavi*, Brno.
- P. Dresler, J. Macháček, R. Přichystalová
2008 *Die Vorburgen des frühmittelalterlichen Zentralortes in Pohansko bei Břeclav*, [in:] *Burg – Vorburg – Suburbium. Zur Problematik der Nebenareale frühmittelalterlicher Zentren. Internationale Tagungen in Mikulčice, Internationale Tagungen in Mikulčice VII*, ed. L. Poláček, Brno, 229–270.
- L. Galuška, J. Macháček, K. Pieta, H. Sedláčková
2012 *The Glass of Great Moravia: Vessel and Window Glass, and Small Objects*, „Journal of Glass Studies“ 54/1, 61–92.
- W. Hahn
1991 *Fundmünzen des 10. und 11. Jahrhunderts aus Ostösterreich*, „Mitteilungen der Österreichischen Numismatischen Gesellschaft“ 31, 50–59.
2006 *Die Münzen*, [in:] *Das frühungarische Reitergrab von Gnadendorf (Niederösterreich)*, eds. F. Daim, E. Laueman, („Monographien des Römisch-Germanischen Zentralmuseums“), Mainz, 99–106.
- J. Klápště
2005 *Proměna českých zemí ve středověku*, Praha.
- B. Kluge
1993 *Umriss der deutschen Münzgeschichte in ottonischer und salischer Zeit*, [in:] *Fernhandel und Geldwirtschaft. Beiträge zum deutschen Münzwesen in sächsischer und salischer Zeit. Ergebnisse des Dannenberg-Kolloquiums 1990*, ed. B. Kluge, („Römisch-Germanisches Zentralmuseum. Monographien“ 31), Sigmaringen, 1–16.
2007 *Numismatik des Mittelalters. Handbuch und Thesaurus Nummorum Medii Aevi*, Berlin–Wien.
- T. Knific
2004 *Sekerovitá hřivna iz reke Ljubljanice (Slovenija)*, [in:] *Zbornik na počest Dariny Bialekovej*, ed. G. Fusek, („Archaeologica Slovaca Monographiae“ VII), Nitra, 191–195.
- P. Kouřil
2003 *Starí Maďari a Morava z pohledu archeologie*, [in:] *Dějiny ve věku nejistot. Sborník k příležitosti 70. narozenin Dušana Třeštika*, eds. J. Klápště, E. Plešková, J. Žemlička Praha, 110–146.
2008 *Archeologické doklady nomádského vlivu a zásahu na území Moravy v závěru 9. a v 10. století*, [in:] *Bitka pri Bratislave v roku 907 a jej význam pre vývoj stredného Podunajska*, ed. T. Štefanovičová, Bratislava, 113–135.

- T. Krejčík
1990 *Denáry moravských údělných knížat 11.-12.století*, Brno.
- T. Kučerovská
1980 *Die Zahlungsmittel in Mähren im 9. und 10. Jahrhundert*, [in:] *Rapports du IIIe Congrès international d'archéologie slave. Bratislava 7-14 septembre 1975*, 2, ed. B. Chropovský, Bratislava, 211-229.
1986 *Přeměna peněžně ekonomických vztahů v raně feudální společnosti a jejich vyústění v micovní hospodářství*, [in:] *Denárová měna na Moravě*, ed. J. Sejbal, Brno, 23-29.
1989 *Archeologické nálezy k vývoji peněžní směny ve velkomoravské říši*, „Numizmatický sborník“ 18, 19-54.
1998 *Münzfunde aus Mikulčice*, [in:] *Studien zum Burgwall von Mikulčice 3*, ed. L. Poláček, Brno, 151-170.
- J. Macháček
2008 *Palatium der mährischen Herrscher in Pohansko bei Břeclav*, „Quaestiones Medii Aevi Novae“ 13, 107-125.
2010 *The Rise of Medieval Towns and States in East Central Europe: Early Medieval Centres as Social and Economic Systems*, Leiden-Boston.
2011 *Fünfzig Jahre archäologische Ausgrabungen in Pohansko bei Břeclav*, [in:] *Frühgeschichtliche Zentralorte in Mitteleuropa, Studien zur Archäologie Europas*, eds. J. Macháček, Š. Ungerman, Bonn, 15-33.
2012 „Great Moravian State“ – a controversy in Central European medieval studies, „Studia Slavica et Balcanica Petropolitana“ 11/1, 5-26.
- J. Macháček, M. Gregerová, M. Hložek, J. Hošek
2007 *Raně středověká kovodělná výroba na Pohansku u Břeclavi*, „Památky archeologické“ 98, 129-184.
- J. Macháček, N. Doláková, P. Dresler, P. Havlíček, Š. Hladilová, A. Přichystal, A. Roszková, L. Smolíková
2007 *Raně středověké centrum na Pohansku u Břeclavi a jeho přírodní prostředí*, „Archeologické rozhledy“ 59, 278-314.
- M. Mazuch
2012 *Výzkumy severního podhradí hradiště Valy u Mikulčic: k otázce násilného zániku velkomoravských mocenských center na počátku 10. věku*, [in:] *Mezi raným a vrcholným středověkem : Pavlu Kouřilovi k šedesátým narozeninám přátel, kolegů a žáci*, eds. J. Doležel, M. Wihoda, Brno, 137-159.
- Z. Měřínský
1986 *Morava v 10. století ve světle archeologických nálezů*, „Památky archeologické“ 87, 18-80.
2001 *Hradisko Břeclav-Pohansko a počátky Břeclavského hradu*, [in:] *Konference Pohansko 1999*, ed. Z. Měřínský, („Archaeologia mediaevalis Moravica et Silesiana“ 1), Brno, 71-90.
2008 *Morava v 10. a na počátku 11. století*, [in:] *Bitka pri Bratislave v roku 907 a jej význam pre vývoj stredného Podunajska*, ed. T. Štefanovičová, Bratislava, 79-112.
- J. Naylor
2007 *The Circulation of Early-medieval European Coinage: A Case Study from Yorkshire, c. 650- c. 867*, „Medieval Archaeology“ 51/1, 41-61.
- V. Novák
2010 *The Kelč Hoard revised: Fragments of Islamic Silver Coins*, Prague.
- T. Pestell, K. Ulmschneider
2003 *Markets in early medieval Europe: trading and 'productive' sites, 650-850*, Macclesfield.

- L. Polanský, J. Sláma
2008 *Denárové ražby z hradiště Staré zámky v Brně-Lišni a nedalekých Velatic*, „Numismatické listy“ 63, 103–116.
- J. Pošváb
1966 *Platební prostředky ve Velkomoravské říši*, [in:] *Sborník I. numismatického symposia 1964*, Brno, 40–48.
- R. Procházka
2009 *Vývoj opevňovací techniky na Moravě a v českém Slezsku v raném středověku*, Brno.
- R. Procházka, T. Kučerová, M. Chumchal, J. Kohoutek
2005 *Raně středověké mince z hradu Přerov*, „Folia numismatica“ 20, 3–16.
- P. Radoměřský
1956 *Nálezy mincí v Čechách, na Moravě a ve Slezsku 2. České, moravské a slezské nálezy mincí údobí denárového (10.-12. st.)*, Praha.
- A. Ruttkay
2000 *O nálezech mincí českého knížete Boleslava II. východně od řeky Moravy*, [in:] *Přemyslovský stát kolem roku 1000. Na paměť knížete Boleslava II. (+ 7. února 999)*, eds. L. Polanský, J. Sláma, D. Třeštík, Praha, 239–246.
- J. Sejbal
1986 *Nálezy denárů z pohřebiště na sadské výšině velkomoravského Starého Města*, [in:] *Denárová měna na Moravě*, ed. J. Sejbal, Brno, 98–183.
1997 *Základy peněžního vývoje*, Brno.
- Č. Staňa
1986 *Mince jako historický pramen v archeologických nálezech 8.–12. Století*, [in:] *Denárová měna na Moravě*, ed. J. Sejbal, Brno, 86–90.
2000 *Pronikání Boleslava II. na Brněnsko ve světle archeologických objevů*, [in:] *Přemyslovský stát kolem roku 1000. Na paměť knížete Boleslava II. (+ 7. února 999)*, eds. L. Polanský, J. Sláma, D. Třeštík, Praha, 197–208.
- H. Steuer
1987 *Gewichtsgeldwirtschaften im frühgeschichtlichen Europa. Feinwaagen und Gewichte als Quellen zur Währungsgeschichte*, [in:] *Untersuchungen zu Handel und Verkehr der vor- und frühgeschichtlichen Zeit in Mittel- und Nordeuropa. Der Handel der Karolinger- und Wikingerzeit*, ed. K. Düwel, (Bericht über die Kolloquien der Kommission für die Altertumskunde Mittel- und Nordeuropas in den Jahren 1980 bis 1983), Göttingen, 405–527.
- J. Šmerda
1996 *Denáry české a moravské. Katalog mincí českého státu od X. do počátku XIII. století*, Brno.
- I. Štefan
2011 *Great Moravia, Statehood and Archaeology*, [in:] *Frühgeschichtliche Zentralorte in Mitteleuropa*, eds. J. Macháček, Š. Ungerman, Bonn, 333–354.
- D. Třeštík
1973 *„Trh Moravanů“ – ústřední trh Staré Moravy*, „Český časopis historický“ 21, 869–894.
2000 *Veliké město Slovanů Praha. Státy a otroci ve střední Evropě v 10. Století*, [in:] *Přemyslovský stát kolem roku 1000*, eds. L. Polanský, J. Sláma, D. Třeštík, Praha, 49–70.
- K. Ulmschneider
2000 *Settlement, Economy, and the ‘Productive’ Site: Middle Anglo-Saxon Lincolnshire A.D. 650-780*, „Medieval Archaeology“ 44/1, 53–79.

P. Urbańczyk

2009 *The Polish discussion on medieval deposits of hack-silver*, [in:] *Historia Archaeologica. Festschrift für Heiko Steuer zum 70. Geburtstag*, eds. S. Brather, D. Geuenich, Ch. Huth, („Reallexikon der Germanischen Altertumskunde – Ergänzungsbände“ 70), Berlin–New York, 499–521.

P. Váchut, J. Videman, A. Rajlichová

in print Řezenský obol Oty Švábského a další nové doklady obchodních a křivit z hradiště Staré Zámky v Brně-Lišni, „Numismatický sborník“ 27/2.

J. Videman, J. Paukert

2009 *Moravské denáry 11. a 12. století*, Kroměříž.

M. Wihoda

2010 *Morava v době knížecí 906-1197*, Praha.

B. Yorke

2009 *The Anglo-Saxon kingdoms 600-900 and the beginnings of the Old English state*, [in:] *Der frühmittelalterliche Staat: europäische Perspektiven*, eds. W. Pohl, V. Wiesner, („Forschungen zur Geschichte des Mittelalters“ 16), Wien, 73–86.