

SEMINARI DEL CENTRO INTERUNIVERSITARIO  
PER LA STORIA E L'ARCHEOLOGIA DELL'ALTO MEDIOEVO

3

FROM ONE SEA TO ANOTHER  
TRADING PLACES IN THE EUROPEAN  
AND MEDITERRANEAN EARLY MIDDLE AGES

PROCEEDINGS OF THE INTERNATIONAL CONFERENCE  
COMACCHIO 27TH-29TH MARCH 2009

EDITED BY SAURO GELICHI AND RICHARD HODGES



BREPOLS

ALESSIA ROVELLI

## Gold, silver and bronze: an analysis of monetary circulation along the Italian coasts\*

In recent years, a great deal of research<sup>1</sup> has focused on the salient aspects of monetary circulation relative to the problems and the geographical zones discussed during the Comacchio conference. Taking the results of this work together with the impact of Michael McCormick's recent studies<sup>2</sup> as a start-

\* I wish to thank A. Augenti, F. Cantini, E. Cirelli, S. Cosentino, S. Coupland, G. Pardini and E. Zanini for sharing their ongoing research with me. Special thanks to Mike McCormick for his friendly exchange of ideas. Any errors are entirely mine.

<sup>1</sup> For the Adriatic area and the circulation of coins issued at Ravenna, see E. Ercolani Cocchi, «La circolazione monetale fra tardo antico e alto medioevo: dagli scavi di Villa Clelia», *Studi Romagnoli*, 29 (1978), p. 366-399; E. Ercolani Cocchi, «Note di circolazione monetaria in area emiliano-romagnola e marchigiana», in *Moneta locale, moneta straniera: Italia ed Europa XI-XV secolo. The second Cambridge Numismatic Symposium. Local Coins, Foreign Coins: Italy and Europe 11<sup>th</sup>-15<sup>th</sup> centuries*, ed. Lucia Travaini, Milan, 1999, p. 343-379; G. Gorini, «La zecca di Ravenna. Monetazione e circolazione», in *Storia di Ravenna*, II, 2. *Dall'età bizantina all'età ottoniana*, Ravenna, 1992, p. 209-238; B. Callegher, «Presenza di monete bizantine nelle Marche», in *Monetazione e circolazione monetale nelle Marche: aspetti, confronti con l'esterno, proposte*. Atti della 1a Giornata di studi numismatici marchigiani (Ancona, May 10, 1997), *Atti e memorie. Deputazione di storia patria per le Marche*, 102 (1997) [2001], p. 59-78; B. Callegher, «Tra Bizantini e Longobardi in Friuli: problemi di emissione e circolazione monetaria», in *Paolo Diacono e il Friuli altomedievale (secc. VI-X)*, Atti del XIV Congresso internazionale di studi sull'Alto Medioevo (Cividale del Friuli – Bottenicco di Moimacco, September 24-29, 1999), Spoleto, 2001, p. 671-696; B. Callegher, «La diffusione della moneta di Ravenna tra VI e metà VIII secolo», in *Ritrovamenti monetali nel mondo antico: problemi e metodi*. Atti del Congresso Internazionale (Padua, March 31-April 2, 2000), ed. G. Gorini, Padova, 2002, p. 247-272; L. Passera, «La circolazione monetaria nel Friuli settentrionale in epoca altomedievale secc. VI-X», *Rivista italiana di Numismatica*, 103 (2002), p. 97-112; synthesis of the finds in the Alps in A. Saccocci, «Tra Est e Ovest: circolazione monetaria nelle regioni alpine fra VIII e XI secolo», *Revue Numismatique*, 161 (2005), p. 103-121.

<sup>2</sup> M. McCormick, *Origins of the European Economy, Communications and Commerce, AD 300-900*, Cambridge, 2001, in particular p. 319-384 and p. 811-851 and the more recent updating by C. Morrisson, «La monnaie sur les routes fluviales et maritimes des échan-

ing point, my paper is organized in two sections. I shall begin by illustrating aspects of monetary circulation between the 6<sup>th</sup> and 8<sup>th</sup> centuries, highlighting examples from the Adriatic Sea region. I am aware that, unfortunately, the publication of numismatic finds often takes a back seat to the study of ceramics. Nevertheless, the *Repertorio* which Ermanno Arslan has created and made available online has been an extremely useful research tool<sup>3</sup>. With its help, I shall review 6<sup>th</sup>-century monetary circulation in this region, notwithstanding the fact that it is outside the chronological focus of this conference. Studying the 6<sup>th</sup> century, I contend, is a useful point of departure for a better understanding of the later phases of coin circulation in this region. The second part of the paper will then synthesize the results of recent analyses of Italian Carolingian coins housed in the Cabinet des Médailles in Paris<sup>4</sup>, and will examine the presence/ absence of gold and silver coins dating to the 8<sup>th</sup> and 9<sup>th</sup> centuries in the Adriatic Sea area.

### *Some methodological issues*

Let me begin by noting that archaeological finds of coins belonging to different monetary systems are difficult to compare: for example, the multi-metallic Ostrogothic and Byzantine coinages cannot easily be compared to

ges dans le monde méditerranéen (VI<sup>e</sup>-IX<sup>e</sup> siècles)», in *L'acqua nei secoli altomedievali*, Spoleto, 2008 (*Settimane di studio della Fondazione del Centro italiano di studi sull'alto Medioevo* 55), p. 631-670.

<sup>3</sup> E.A. Arslan, *Repertorio dei ritrovamenti di moneta altomedievale in Italia (489-1002)*, Spoleto, 2005; I will refer to the online version, which is periodically updated (henceforth *Repertorio*), see [www.ermannoarslan.eu](http://www.ermannoarslan.eu).

<sup>4</sup> G. Sarah, M. Bompaire, M. McCormick, A. Rovelli, C. Guerrot, «Analyses élémentaires de monnaies de Charlemagne et Louis le Pieux du Cabinet des Médailles: l'Italie carolingienne et Venise», *Revue Numismatique*, 164 (2008), p. 355-406. These analyses of the collections of the Cabinet des Médailles of the Bibliothèque nationale de Paris were undertaken by Guillaume Sarah as a part of a joint project on Carolingian silver coinage with the Centre Ernest Babelon at Orléans and the wise guidance of Cécile Morrisson, and were financed by Harvard University and the Università della Tuscia (Viterbo, Italy). Initially aimed at identifying, through the study of trace elements, the provenance of the silver from which the coins were minted, the objective was to identify the primary sources, that is the mines or, in the hypothesis that the silver derived from melting down coins from other regions, the routes by which these arrived. Not all the questions have been answered, but some results are of undoubted importance. For a preliminary report on the Italian coins analysed by this project see also A. Rovelli, «Mines et monnaies au haut Moyen Âge», *Bulletin de la Société française de Numismatique*, 59/4 (2004), p. 58-64; see also the chapter by G. Sarah in this volume.

mono-metallic Carolingian issues. The Carolingian issues comprised a single denomination, the silver *denarius*, which was particularly suitable for medium to high levels of exchange, and is therefore much rarer in archaeological layers than either copper or bronze coins. In contrast, the complex Ostrogothic and Byzantine monetary systems reflected both the co-existence of different levels of exchange for which coins could be used and also (even in the phases in which Byzantine coinage was reduced to its simplest form, with a single denomination for each metal coined) a close relationship between coin production and fiscal administration<sup>5</sup>. The Lombard system was also different. It initially developed on a bi-metallic basis, minting gold *tremisses* and silver *siliqua* fractions, but during the course of the 8<sup>th</sup> century the Lombards tended to mint only the gold *tremissis*.

Another variable that needs to be considered for dating archaeological contexts and measuring the level of monetization is the length of time that late Roman bronze coins remained in circulation. The phenomenon of the extended circulation of several Roman coin series is amply documented in general terms<sup>6</sup>, but their geographical and chronological distribution in both Lombard and Byzantine Italy, and therefore their different political

<sup>5</sup> M. Hendy, *Studies in the Byzantine Monetary Economy, c. 300-1450*, Cambridge, 1985, in particular p. 173-195 and p. 284-304; M. Hendy, *The Economy, Fiscal Administration and Coinage of Byzantium*, Northampton, 1989 (*Variorum Reprints*); C. Morrisson, «Monnaies, finances et échanges», in *Le monde byzantin II, L'empire byzantin (641-1204)*, ed. J.C. Cheynet, Paris, 2006, p. 292-294.

<sup>6</sup> J.H. Humphrey, «A Discussion of the Interpretation of the Numismatic Evidence in the Context of the History of the Site», in *Excavation at Carthage, 1976, conducted by the University of Michigan*, IV, ed. J.H. Humphrey, Ann Arbor, 1978, p. 164-168; R.B. Hitchner, «A Discussion of the Interpretation of the Numismatic Evidence in the Context of the history of the site», in *Excavation at Carthage, 1977, conducted by the University of Michigan*, V, ed. J.H. Humphrey, New Delhi, 1980, p. 263-270; C. Morrisson, «Coin Finds in Vandal and Byzantine Carthage: a Provisional Assessment», in *The circus and a Byzantine Cemetery at Carthage*, I, ed. J.H. Humphrey, Ann Arbor, 1988, p. 431; T. Marot, *Las monedas del Macellum de Gerasa (Yaras, Giordania). Aproximación a la circulación monetaria en la provincia de Arabia*, Madrid, 1998; L. Sagui, A. Rovelli, «Residualità, non residualità, continuità di circolazione. Alcuni esempi dalla *Crypta Balbi*», in *I materiali residui nello scavo archeologico*, eds F. Guidobaldi, C. Pavolini, Ph. Pergola, Rome, 1998, p. 173-195; T. Marot, «La Península ibérica en los siglos V-VI: consideraciones sobre provisión, circulación y usos monetarios», *Pyrenae*, 31-32 (2000-2001), p. 133-160; C. Doménech Belda, S. Gutiérrez Lloret, «Viejas y nuevas monedas en la ciudad emiral de Madīnat Iyyuh (El Tolmo de Mintada, Hellín, Albacete)», *Al-Quantara*, 27, 2 (2006), p. 337-374; B. Mora, «The Circulation of Bronze Currency in Málaga during the Sixth Century AD: new findings», *The Numismatic Chronicle*, 169 (2009), p. 424-430.

and economic contexts, have yet to be documented in detail. The possible availability of substantial quantities of bronze coins (the volume of mint output during the 4<sup>th</sup> century was not reached again until the early modern period) may have warranted a subsequent reduction in coin production. Given these considerable quantities of older coins, the progressive closure of the Imperial mints during the 5<sup>th</sup> century<sup>7</sup> and the later contraction in the volume of coins issued by Byzantine Italy (Sicily, being outside the Exarchate of Italy, maintained its own rhythm of production and minting<sup>8</sup>) did not necessarily cause a shortage of coins at the lowest levels of exchange<sup>9</sup>. Let me illustrate this point using the example of the treasure found at the end of the 19<sup>th</sup> century at Pieve Torina, in the province of Macerata (Marche). This comprised 30 kg of bronze coins dating between the mid-5<sup>th</sup> and the mid-6<sup>th</sup> century (including examples of Valentinian III and Justinian I), clearly illustrating the large amount of late Roman bronze coinage still in circulation<sup>10</sup>. The new evidence from Comacchio confirms this. At Comacchio, although the studied sample is of limited quantity due to the manner in which the first archaeological investigations were undertaken<sup>11</sup>, late Roman coins constitute approximately 70% of the finds<sup>12</sup>, in line with what is known from archaeological sites with more detailed numismatic documentation.

### *Monetary circulation in the age of Justinian I*

Until the mid-6<sup>th</sup> century, monetary circulation in the Italian peninsula shows no drastic signs of diminishing, particularly if we bear in mind that there was a significant decline in population as well as concomitant changes

<sup>7</sup> J.P.C. Kent, *The Roman Imperial Coinage*, X, *The Divided Empire and the Fall of the Western Parts, 395-491*, London, 1994 (henceforth *RIC*, X), p. 30-35 for the Italian mints.

<sup>8</sup> C. Morriçon, «La Sicile byzantine: une lueur dans les siècles obscurs», *Numismatica e Antichità classiche. Quaderni ticinesi*, 27 (1998), p. 307-334.

<sup>9</sup> D.M. Metcalf, «Monetary recession in the Middle Byzantine period: the numismatic evidence», *The Numismatic Chronicle*, 161 (2001), p. 111-155 for the other regions of the Byzantine Empire.

<sup>10</sup> E.A. Arslan, *Repertorio*, n. 4450; see also *RIC*, X, p. clv.

<sup>11</sup> S. Gelichi, D. Calaon, «Comacchio: la storia di un emporio sul delta del Po», in *Genti nel Delta da Spina a Comacchio. Uomini, territorio e culto dall'Antichità all'Altomedioevo*, eds F. Berti, M. Bollini, S. Gelichi, J. Ortalli, Ferrara, 2007, p. 387-416.

<sup>12</sup> G. Bucci, «Monete provenienti dagli scavi di Santa Maria in Padovetere», in *Genti nel Delta da Spina a Comacchio. Uomini, territorio e culto dall'Antichità all'Altomedioevo*, eds F. Berti, M. Bollini, S. Gelichi, J. Ortalli, Ferrara, 2007, p. 591-599 (the data should, however, be considered with caution until the catalogue has been revised).

to the settlement pattern<sup>13</sup>. Italy was supplied with both late Roman bronze coins and contemporary Ostrogothic and Byzantine issues<sup>14</sup>. The singular (and in certain aspects contradictory) behaviour of the Ostrogothic kings should be noted. On the one hand they seem to have tolerated the circulation of old or badly coined bronze, probably valued by weight. On the other, they put into effect an elaborate monetary reform characterised by the revival of large bronze coins and by a careful choice of types that was remarkably innovative in the bronze and silver series, even if they continued to respect the Imperial monopoly on gold issues<sup>15</sup>.

Together with this well-struck bronze coinage, bronze coins bearing only faint traces of the type and legend continued to be produced. These issues tended to weigh around 0.60-0.80 grams, but they could also weigh as little as 0.20-0.30 grams or as much as or more than one gram. Their chronology is the subject of a lively debate but, in my opinion, the hypothesis of extending the production dates of at least part of this material to the first

<sup>13</sup> For these aspects, with an analysis of settlement development in several sample areas, see R.P. Duncan-Jones, «Economic Change and the Transition to Late Antiquity», in *Approaching Late Antiquity*, eds S. Swain, M. Edwards, Oxford, 2004, p. 20-52; for a general picture of Italy, see N. Christie, *From Constantine to Charlemagne. An Archaeology of Italy, AD 300-80*, Aldershot, 2006, p. 57-64. Rome, at the beginning of the 4<sup>th</sup> century, is estimated to have had between 600.000 and 800.000 inhabitants; by the beginning of the 6<sup>th</sup> century a population of around 100.000 is considered plausible. According to some estimates this decreased to 25.000 between the end of the 6<sup>th</sup> and the 7<sup>th</sup> century, see C. Morrisson, J.-P. Sodini, «The Sixth-Century Economy», in *The Economic History of Byzantium: From the Seventh through the Fifteenth Century*, ed. A.E. Laiou, Washington, D.C., 2002, p. 172-173; for Ravenna, see S. Cosentino, *Storia dell'Italia bizantina*, Bologna, 2008, p. 37-40: during the 6<sup>th</sup>-7<sup>th</sup> centuries the population of Ravenna may have decreased by one third and in the first decades of the 8<sup>th</sup> century is estimated to have been circa 7.000/7.500 inhabitants.

<sup>14</sup> E.A. Arslan, «Cultura monetaria e circolazione tra V e VIII secolo in Italia», in *Città e campagna nei secoli altomedievali*, Spoleto, 2009 (*Settimane di studio della Fondazione Centro italiano di studi sull'alto Medioevo* 56), p. 975-1004; regarding the volume of Ostrogothic issues E.A. Arslan, «La struttura delle emissioni monetarie dei Goti in Italia», in *Teodorico il Grande e i Goti d'Italia. Atti del XIII Congresso internazionale di studi sull'alto Medioevo*, Spoleto, 1993, p. 517-553; E.A. Arslan, «Dalla classicità al Medioevo. La moneta degli Ostrogoti», *Numismatica e Antichità classiche*, 33 (2004), p. 429-462.

<sup>15</sup> E.A. Arslan, «Emissioni monetarie e segni del potere», in *Committenti e produzione artistico-letteraria nell'alto Medioevo occidentale*, Spoleto, 1992 (*Settimane di studio del Centro italiano di studi sull'alto Medioevo* 39), p. 791-850; E.A. Arslan, «Tra romanità e altomedioevo: autorità delegante ed autorità delegata nella moneta», in *Le invasioni barbariche nel meridione dell'impero: Visigoti, Vandali, Ostrogoti*, ed. P. Delogu, Soveria Mannelli, 2001, p. 297-319.



half of the 6<sup>th</sup> century seems plausible<sup>16</sup>. The formal poor quality, that might suggest some doubt about the provenance from an official mint, is a characteristic element of these coins. However, it cannot be excluded that the limited care taken in striking may have been a deliberate measure also adopted by official mints in order to decrease production costs<sup>17</sup>. Coins of this module constitute the majority of recent 6<sup>th</sup>-century finds from Rome – for example, in a number of areas on the Palatine hill<sup>18</sup>, in trenches dug for Line C of the underground<sup>19</sup>, at the *Basilica Hilariana* on the Caelian hill<sup>20</sup>, as well as in the new excavations in the area of the *Crypta Balbi*. They are even widespread among the finds from Naples in 6<sup>th</sup>-to 7<sup>th</sup>-century strata (again from excavations for the urban underground)<sup>21</sup>. A similar picture, even if in a completely different context, can be seen at the Pieve del Pionta at Arezzo (Tuscany)<sup>22</sup>. The weights of these coins made them com-

<sup>16</sup> E.A. Arslan, «La moneta in rame nell'Italia longobarda», in *Humana sapit – Mélanges en l'honneur de Lellia Cracco Ruggini*, eds J.M. Carrié, R. Lizzi Testa, Turnhout, 2002, p. 293-298; *contra* see M. Asolati, «Il ripostiglio di Camporegio (Grosseto). «Note sulle imitazioni bronzee di V sec. d.C. e sulla questione della cosiddetta 'moneta in rame nell'Italia longobarda'», *Rivista italiana di Numismatica* 107 (2006), p. 113-158, who traces these irregular bronze coins back to the fifth century. As a response see E.A. Arslan, «Ancora sulla questione della cosiddetta 'Moneta in rame dell'età longobarda'. Una replica e problemi di metodo», *Rivista italiana di Numismatica*, 108 (2007), p. 491-508.

<sup>17</sup> H.L. Adelson, G.L. Kustas, «A Bronze Hoard of the Period of Leo I», *Museum Notes*, IX, p. 139-188; C. Morrisson, «Coin Finds in Vandal and Byzantine Carthage», 1988, p. 434.

<sup>18</sup> M. Munzi, «Vigna Barberini, settore D, Periodo IV: 540/550-580/590 d.C. Le monete», in *Roma dall'antichità al medioevo, II, Contesti tardoantichi e altomedievali*, eds L. Paroli, L. Vendittelli, Milan, 2004, p. 89-90; M. Munzi, «Domus Tiberiana: contesti tardoantichi dal settore nord-orientale, *ibidem*, p. 119-125; M. Munzi, «I contesti tardoantichi e altomedievali del Bastione Farnesiano nella domus Tiberiana. Monete», *ibid.*, p. 157-161.

<sup>19</sup> Personal communication from Giacomo Pardini.

<sup>20</sup> For a synthesis of the numismatic finds and the stratigraphic context of the excavation, currently awaiting publication and edited by C. Pavolini and P. Palazzo, see A. Rovelli, «Numismatics and Archaeology in Rome: The Finds from the '*Basilica Hilariana*', in *XIV International Numismatic Congress, Proceedings*, Glasgow, 2009, forthcoming.

<sup>21</sup> A. Rovelli, «Naples, ville et atelier monétaire de l'Empire byzantin. L'apport des fouilles récentes, in *Mélanges Cécile Morrisson* (Travaux et Mémoires 16), Paris 2010, p. 693-711.

<sup>22</sup> Here I anticipate the results of cataloguing that is still underway. I wish to thank Laura Vendittelli (Soprintendenza Archeologica di Roma) and Alessandra Molinari (Università di Roma – Tor Vergata) for having entrusted me with the study of these finds.

patible both with the *nummi* of Theoderic, Athalaric and Baduila and with those minted in Rome by Justinian I. At Sant'Apollinare in Classe (near Ravenna) there are probably many *minimi* among the more than 1800 *nummi* found as a result of sieving the excavated deposits during recent excavations<sup>23</sup>. The similarity of weights of the coins made possible the diffusion, however modest, of the Ostrogothic *nummi* towards the East, in particular the Peloponnese, along with analogous Vandal examples, which spread by way of Mediterranean trade as well as military campaigns. The finds are generally located along the coastlines or inland along the rivers<sup>24</sup>.

<sup>23</sup> A. Morelli, «Rinvenimenti monetali di età tardoantica da contesti archeologici ravennati», in *L'archeologia dell'Adriatico dalla Preistoria al Medioevo*. Atti del convegno internazionale, Ravenna, 7-8-9 June 2001, Florence, 2003, p. 552-565.

<sup>24</sup> C. Morrisson, «L'atelier de Carthage et la diffusion de la monnaie frappée dans l'Afrique vandale et byzantine (439-695)», *Antiquité tardive*, 11 (2003), p. 65-84; C. Morrisson, «La monnaie sur les routes fluviales», 2008, p. 631-666; B. Callegher, «Un ripostiglio dal Peloponneso nord-occidentale (ca. 578/579 d.C.): note sulla tesaurizzazione della moneta bronzea», *Rivista italiana di Numismatica*, 110 (2009), p. 89-128; for an overview of the evidence of coin hoards, see C. Morrisson, V. Popović, V. Ivanišević, *Les Trésors monétaires byzantins des Balkans et d'Asie Mineure (491-713)*, Paris, 2006, where 368 coin hoards are described: hoard n. 66 (Constanța, circa 400 bronze coins including 1 *minimus* of Odovacar? from Ravenna; 1 *minimus* of Theoderic or Witigis and 1 *minimus* of Theodahad), hoard 103 (Thessalonica, hoard of 115 *solidi* and *tremisses* including 1 *solidus* of Justin II, perhaps from Ravenna); hoard 122 (Athens, 154 *minimi* including 1 example of Justinian I from Rome), hoard 123 (Athens, 222 *minimi* including 1 example of Justinian I from Rome and 10 Ostrogothic examples, one of which an imitation); hoard 124 (Athens, 397 *minimi* including 7 Ostrogothic examples); hoard 129 (Athens, 349 bronze coins including 10 Ostrogothic *minimi*); hoard 130 (Athens, 591 bronze coins, including 1 *pentanummus* of Justin II from Sicily); hoard 138 (Corinth, 626 bronze coins including 1 example of Theoderic); hoard 139 (Corinth, 742 *minimi* including 1 example of Baduila); hoard 141 (Corinth, 928 bronze coins including 17 Ostrogothic examples); hoard 144 (Corinth, 85 *minimi* and fragments including examples of Witigis and Baduila, unspecified number); hoard 145 (Corinth, 76 bronze coins including 1 example of Justinian I from Rome); hoard 146 (Corinth, 579 bronze coins including 3 *minimi* of Justinian I perhaps from Rome and 1 *minimus* of Baduila); hoard 154 (Hagios Nikolaos, 82 *minimi* and bronze fragments including 1 example of Justinian I from Rome ? and examples of Witigis and Baduila, unspecified number); hoard 155 (Isthmian, 280 bronze coins including 12 'Ostrogothic and Vandalic' examples); hoard 156 (Kenchreai, 240 bronze coins including 1 example of Justinian I from an Italian mint and 4 Ostrogothic examples); p. 262 among the treasures conserved at Olympia there is mention of Ostrogothic coins; treasure 179 (Philiatra, 256 bronze coins including 1 *pentanummus* of Justinian I from Sicily); hoard 183 (Priolithos, 121 bronze coins including 1 example of Baduila); hoard 205 (Trypé, 76 *minimi* and fragments including an unspecified number of Justinian I, according to some scholars from Rome, and of



The age of Justinian I, therefore, remained in Italy a period of active monetary circulation punctuated by influxes of coins from other Byzantine mints. Among the finds in the northern Adriatic area are examples from Constantinople and Salona<sup>25</sup>, which are attested in quantities similar to those of the locally minted coins issued by Ravenna. The presence of bronze coins struck in Rome is rarer. Finally, issues from Thessalonica, Nicomedia, Cyzicus, Antioch, Alexandria and Carthage crop up<sup>26</sup>.

*Monetary circulation and ceramic data between the 6<sup>th</sup> and 7<sup>th</sup> centuries*

During the second half of the 6<sup>th</sup> century, the situation changed not only in Lombard areas, where there was a further decrease in the use of bronze

Witigis); hoard 207 (Zacha, 1179 *minimi* including 7 examples of Justinian I from Rome and 71 Ostrogothic examples which represent 16,8% of the *minimi* datable to between 491 and 550); hoard 269 (unknown provenance, 4167 *minimi* and 602 fragments, including *nummi* of Justinian I from Rome and Ostrogothic examples which are mentioned without specifying their numbers); hoard 270 (unknown provenance, 102 *minimi* including an unspecified number of Justinian I from Rome and from an Ostrogothic mint); hoard 271 (unknown provenance, 113 *minimi* including examples of Justinian I from Rome and in Baduila's name); hoard 272 (unknown provenance, 348 *minimi* and 3 Greek coins, examples of Justinian I and Ostrogothic examples are mentioned); hoard 325 (Thèra, 144 *minimi* and 11 fragments including 1 example of Justinian I from Rome).

<sup>25</sup> E.A. Arslan attributes to Ravenna some issues found on both sides of the Adriatic coast that are generally considered to have been struck by the temporary mint of Salona, see «La zecca e la circolazione monetale», in *Ravenna, da capitale imperiale a capitale esarcale*. Atti del XVII Congresso internazionale di studio sull'alto medioevo, Ravenna, 6-12 June 2004, Spoleto, 2005, p. 222-226.

<sup>26</sup> For example, in Friuli, excavations have produced 1 *folles* of Justinian I from Nicomedia (E.A. Arslan, *Repertorio*, n. 2300); 1 *folles* of Justinian I from Antioch is in the museum of Aquileia (*ibidem*, n. 2225); as regards the Veneto, 1 *folles* of Justinian I from Antioch was found at Altino (*ibid.*, n. 8640), copper coins of Justinian I from an eastern mint come from Adria (*ibid.*, n. 8610, Cyzicus), Altino (*ibid.*, n. 8670, Nicomedia), Ariano Polesine (*ibid.*, n. 8730, Cyzicus), Asolo (*ibid.*, 8750, Antioch), Camposampiero (*ibid.*, n. 8820, Carthage), Mel, Castelvint (*ibid.*, n. 9070, Cyzicus), Monselice (*ibid.*, n. 9100, Antioch), Salgareda (*ibid.*, n. 9250, Carthage), 'territorio opitergino-mottense' (*ibid.*, n. 9320, Antioch); copper coins in the name of Justin II are mentioned from Castelfranco Veneto (*ibid.*, n. 8840, Alexandria), from Fusina (*ibid.*, n. 8990, Nicomedia), from Montebelluna (*ibid.*, n. 9110, Thessalonica), from Oderzo (*ibid.*, n. 9140, Thessalonica) from the 'territorio opitergino-mottense' (*ibid.*, n. 9320, Thessalonica) and in the museum at Feltre (*ibid.*, n. 8960). For a recent overview of Carthage, see J.W. Betlyon, «The Coins from the 1975-1978 Seasons in the Punic Port and Tophet of Carthage, Tunisia», *Revue Numismatique*, 164 (2008), p. 321-353.

coinage that could still have been in circulation, but also in territory that was still Byzantine.

In this phase, however, Ravenna maintained a leading role in the minting of *siliqua* fractions. This denomination had had particular success in the Ostrogothic monetary system, to the point of being subsequently adopted by the Byzantine mints in Italy, even though it was neither minted at Constantinople nor in any other eastern mints. Finds of *siliqua* fractions from Ravenna have also been documented outside of the Exarchate, although these occur in a limited area: some examples are attested to the north of the central-eastern Alps and in Dalmatia, while others reached central-southern Italy. The same restricted circulation characterizes the bronze coinage<sup>27</sup>.

It is difficult to assess how much of the progressive decline of numismatic evidence was due to the Lombard desire to prevent the circulation of foreign money within the confines of their kingdom, and how much was caused by the contraction of networks and levels of exchange. On balance, it is likely that this decline was a consequence of both circumstances. One must acknowledge an important element, however, namely that the Lombards had adopted the silver *siliqua* fraction into their monetary system, in imitation of Byzantine types<sup>28</sup>. This is a significant, if tenuous, clue of economic and monetary contacts (also recognisable in the subsequent evolution of the Lombard gold *tremissis*<sup>29</sup>), best illustrated in the *pactum* of Comacchio<sup>30</sup>; a unique text that marked the high point of this economic

<sup>27</sup> Regarding Ravenna, the data is mainly taken from B. Callegher, «La diffusione della moneta di Ravenna», 2002, with a wide ranging analyses and finds catalogue; further, see E.A. Arslan, *Repertorio, passim*.

<sup>28</sup> On the *siliqua* fractions, see E.A. Arslan, «Considerazioni sulla circolazione monetaria in età protobizantina a S. Antonino», in *S. Antonino: un insediamento fortificato nella Liguria bizantina*, eds T. Mannoni, G. Murialdo, Bordighera, 2001, p. 239-254; B. Callegher, «Tra Bizantini e Longobardi in Friuli», 2001, p. 677, underlines that in north-eastern Italy, finds of *siliqua* fractions form 30% of the total number of coins for this period. For the circulation of *siliqua* fractions with the monogram attributed to Perctarit, also found in Corsica and attested in various centres of northern Italy, see G. Murialdo, «Alto-Adriatico e alto-Tirreno nel mondo mediterraneo: due mari a confronto tra VI e X secolo», in *La circolazione delle ceramiche nell'Adriatico tra tarda antichità e altomedioevo. III Incontro di studio CER.AM.IS*, eds S. Gelichi, C. Negrelli, Mantova, 2007, p. 9-26, in particular fig. 8.

<sup>29</sup> A. Rovelli, «Some Considerations on the Coinage of Lombard and Carolingian Italy», in *The Long Eighth Century: Production, Distribution and Demand*, eds I.L. Hansen, C. Wickham, Leiden, 2000, p. 195-223.

<sup>30</sup> See L.M. Hartmann, *Zur Wirtschaftsgeschichte Italiens im frühen Mittelalter. Analekten*, Gotha, 1904, p. 123-124 for an edition of the Liutprand 'pactum'; for the chronology,

moment which changed shortly after. Indeed, the production and circulation of Lombard silver coins do not appear to continue beyond the reign of Liutprand, who died in AD 744<sup>31</sup>. In the Byzantine area, the last issues of *siliqua* fractions attributed to the Ravenna mint were in the name of Tiberius III (AD 698-705)<sup>32</sup>. In Rome, *siliqua* fractions continued to be minted until the papacy of Stephen III (AD 768-772), but presumably the output was minimal<sup>33</sup>. It should also be noted that beginning with Sergius I (AD 687-701), *siliqua* fractions minted in Rome were the first coins upon which the monogram of a pope appeared, albeit only occasionally and on the reverse. This important iconographic innovation, introduced on coins issued in relatively modest volumes, suggests that during the course of the second half of the 8<sup>th</sup> century the striking of *siliqua* fractions by the Roman mint might have had more a political than an economic significance

Returning to Ravenna, *folles* and bronze fractions continued to circulate, notably during the reign of Constantine IV as well as the first half of the 8<sup>th</sup> century, even if they are mainly found along the Adriatic coast across from and around Ravenna itself. The excavations undertaken in 2002-2003 in the port area of Classe produced coins of Phocas, Heraclius, Constans II, Constantine IV, Justinian II and Tiberius III<sup>34</sup>. *Folles* of Constantine IV

see G.C. Mor, «Un'ipotesi sulla data del 'Pactum' c.d. Liutprandino coi 'milites' di Comacchio relativo alla navigazione sul Po», *Archivio storico italiano*, 135 (1977), p. 493-502; more generally, see M. Montanari, «Il capitolare di Liutprando: note di storia dell'economia e dell'alimentazione», in *La civiltà comacchiese e pomposiana dalle origini preistoriche al tardo Medioevo*, Bologna, 1986, p. 461-475; C. Wickham, *Framing the Early Middle Ages*, Oxford, 2005, p. 732-733; S. Gelichi, «The Eels of Venice. The Long Eighth Century of the Emporia of the Northern Region along the Adriatic Coast», in *774. Ipotesi su una transizione*, ed. S. Gasparri, Turnhout, 2008, p. 81-118. A synthesis of the economic evolution of the Lombard period outlining the key points of the historiographic debate is given by P. Delogu, «Longobardi e Romani: altre congetture», in *Langobardia*, ed. S. Gasparri, P. Cammarosano, Udine, 1990, p. 111-167, in particular p. 145-167 and P. Delogu, «La fine del mondo antico e l'inizio del medioevo: nuovi dati per un vecchio problema», in *La storia dell'alto medioevo italiano (VI-X secolo) alla luce dell'archeologia*, eds R. Francovich, G. Noyé, Florence, 1994, p. 7-29, recently updated in P. Delogu, *Le origini del Medioevo. Studi sul settimo secolo*, Rome, 2010.

<sup>31</sup> E.A. Arslan, «La moneta in argento dei re Longobardi. Un'emissione inedita di Ariperito I», *Numismatica e Antichità classiche. Quaderni ticinesi*, 31 (2002), p. 327-344.

<sup>32</sup> W. Hahn, *Moneta Imperii Byzantini*, 3, Wien, 1981, pl. 45, n. 72.

<sup>33</sup> C. Morrisson, J.-N. Barrandon, «La trouvaille de monnaies d'argent byzantines de Rome (VII<sup>e</sup>-VIII<sup>e</sup> siècles): analyses et cronologie», *Revue Numismatique*, VI série, 30 (1988), p. 149-165.

<sup>34</sup> E. Cirelli, *Ravenna: archeologia di una città*, Florence 2008, p. 130-140 (the coins must still be conserved and thus the mint-marks are often illegible); A. Augenti, E. Cirelli,

have also been found in the lagoon area, along the coasts of Istria and, above all, in the territories subject to Ravenna<sup>35</sup> from which the city collected taxes in kind (grain, wine and oil) as well as in currency<sup>36</sup>.

Notwithstanding all this, it is also true that in the 7<sup>th</sup> century there was a net downturn in the already small-scale flow of coins from Ravenna to the central-southern Adriatic. Not surprisingly, then, the evidence of such coins further afield, from Greece and the eastern Mediterranean is minimal. No Ravenna issues have been noted from the excavations in Athens, Saraçhane, Ephesus, the Syrian-Palestinian region or from the African port of Carthage. Much the same can be said for the opposite phenomenon, the increasing rarity of non-Ravennate issues both from around Ravenna itself and along the western Adriatic coast<sup>37</sup>. The growing regionalization of monetary circulation is a phenomenon that can be traced throughout the Byzantine Empire, albeit occurring at different speeds<sup>38</sup>. The Adriatic region, although obviously maintaining an important role on the Byzantine chequessboard, at least as far as regards the Dalmatia islands, was relegated to a background role as Byzantium concentrated its military forces in the East<sup>39</sup>. Only the southern part of the Adriatic region and Calabria were still reached by a significant influx of bronze coins of eastern provenance, but

S. Tontini, «Commercio e circolazione monetaria a Classe e Ravenna tra VI e VII secolo», in *Uomini, merci e commercio nel Mediterraneo da Giustiniano all'Islam (VI-X secc.)*. Atti del Convegno, Bordighera, 3-4 dicembre 2004, c.s.

<sup>35</sup> B. Callegher, «La diffusione della moneta di Ravenna», 2002.

<sup>36</sup> J. Durliat, *De la ville antique à la ville byzantine. Le problème de subsistances*, Rome, 1990, p. 434; S. Cosentino, «L'approvvigionamento annonario di Ravenna dal V all'VIII secolo: l'organizzazione e i riflessi socio-economici», in *Ravenna da capitale imperiale a capitale esarcale*, Atti del XVII Congresso internazionale di studi sull'alto Medioevo, I, Spoleto, 2005, p. 405-434.

<sup>37</sup> B. Callegher, «La diffusione della moneta di Ravenna», 2002.

<sup>38</sup> C. Morrisson, «Survivance de l'économie monétaire à Byzance (VII<sup>e</sup>-IX<sup>e</sup> siècle), in *The Dark Centuries of Byzantium (7<sup>th</sup>-9<sup>th</sup> c.)*, ed. E. Kountoura-Galake, Athens, 2001, p. 377-397; A.E. Laiou, C. Morrisson, *The Byzantine Economy*, Cambridge, 2007; D.M. Metcalf, «Monetary recession», 2001; M. Whittow, «Decline and fall? Studying long-term change in the East», in *Theory and Practice in Late Antique Archaeology*, eds L. Lavan, W. Bowden, Leiden-Boston, 2003, p. 404-423.

<sup>39</sup> J. Ferluga, «Les îles dalmates dans l'empire byzantin», *Byzantinische Forschungen*, 5 (1977), p. 35-71; I. Goldstein, «Byzantium on the Adriatic from 550 till 800», in *Hortus artium medievalium*, 4 (1998), p. 7-14; V. Prigent, «Notes sur l'évolution de l'administration byzantine en Adriatique (VIII<sup>e</sup>-IX<sup>e</sup> siècle)», *Mélanges de l'École française de Rome, Moyen Âge*, 120/2 (2008), p. 393-417; F. Curta, «Byzantium in Dark-Age Greece (the numismatic evidence in its Balkan context)», *Byzantine and Modern Greek Studies*, 29/2 (2005), p. 113-146; F. Borri, «L'Adriatico tra Bizantini, Longobardi e Franchi. Dalla

even this decreased during the 7<sup>th</sup> century<sup>40</sup>, as is clearly evident from the Byzantine coins found in the Salento. Of the hundreds of coins found in the region, only eight are datable to the 7<sup>th</sup> century<sup>41</sup>.

In general terms, notwithstanding specific local situations that may have been more dynamic or may have contracted earlier or faster, the decrease in numismatic evidence essentially correlates with the diminished range of ceramic circulation. North African, Palestinian and Aegean-Anatolian pottery, the distinctive wares of Late Antique long distance trade, were by the mid-7<sup>th</sup> century at the latest restricted to coastal areas and privileged inland centres<sup>42</sup>.

*The contraction of monetary circulation between the 8<sup>th</sup> and 9<sup>th</sup> centuries*

Comparing the numismatic and archaeological data for the 8<sup>th</sup> century is less straightforward. This period coincides with the diffusion of a new type of container, the so-called early medieval globular amphora, that is found

conquista di Ravenna alla pace di Aquisgrana (751-812)», *Bullettino dell'Istituto storico italiano per il Medio Evo e Archivio muratoriano*, 112 (2010), p. 1-56.

<sup>40</sup> C. Morrisson, «La monnaie sur les routes fluviales», 2008, p. 653-654: Eastern coins form 20% of the collections in the Provincial Museum of Catanzaro and 21% in the Archaeological Museum of Bari. Ostrogothic and Vandalic coins are known among the single finds from the excavation of Scolacium (Catanzaro); Byzantine issues between the 6<sup>th</sup> and 7<sup>th</sup> centuries are represented by *nummi*, *pentanummi*, *decanummi*, half *folles* and *folles* from Thessalonica, Constantinople, Nicomedia, Carthage, Catania and Rome; the 8<sup>th</sup> century is attested by examples from Syracuse (E.A. Arslan, *Repertorio*, n. 0980 and 0985).

<sup>41</sup> P. Arthur, «Il Salento bizantino: alcune osservazioni», in *L'Adriatico dalla tarda antichità all'età carolingia*, eds G.P. Brogiolo, P. Delogu, Florence, 2005, p. 183-194.

<sup>42</sup> See for example, the case of Brescia, in particular the excavation of Santa Giulia, where in the first half of the 6<sup>th</sup> century Tunisian amphorae represent 76% of transport containers. The flow began to decrease, although still remaining high, in the early Lombard period (61%): B. Bruno, S. Bocchio, «Le anfore da trasporto», in *S. Giulia di Brescia, gli scavi dal 1980 al 1992. Reperti preromani, romani e alto medievali*, ed. G.P. Brogiolo, Florence, 1999, p. 231-260; for the numismatic finds, see E.A. Arslan, «Le monete», *ibidem*, p. 347-399 and E.A. Arslan, *Repertorio*, n. 3550 (1 Ostrogothic *decanummi* from Ravenna, 1 1/8 *siliqua* of Tiberius II from Ravenna, 1 *folles* of Constans II from Constantinople, 1 gold *tremissis* in the name of Godepert and Grimwald and 1 1/8 *siliqua* with the monogram of Perctarit; the chronology of several bronze *nummi* previously dated to the 5<sup>th</sup> century could perhaps be post-dated to the 6<sup>th</sup> century); for the ARS; see S. Massa, «La ceramica di importazione Africana», *ibidem*, p. 143-173. For a synthesis, see C. Wickham, *Framing*, 2005, p. 728-741; for successive updates and in-depth studies about specific areas, see C. Scalari, «Le terre sigillate», in *Gli scavi del battistero*

throughout the Mediterranean basin and was produced in various centres, many of them yet to be identified. As regards the samples from Comacchio, laboratory analyses indicate the Black Sea and the Aegean-Anatolian region among possible areas of provenance, and these fragments appear more numerous than those from the Adriatic coast. Therefore, the pottery seems to suggest the renewal, if not the maintenance, of lasting contacts with the eastern Mediterranean as well as with southern Italy<sup>43</sup>.

Notwithstanding this new ceramic pattern, the main feature of the monetary circulation remained one of stasis: we can observe not only a decrease in finds but also a reduction in the number of denominations and thus a simplification of the monetary system. At Ravenna, for example, the striking of bronze coinage during the first half of the 8<sup>th</sup> century became intermittent and for some emperors only a few gold coins are known. As regards silver, the last documented *siliqua* fractions are, as noted above, in the name of Tiberius III for the Byzantine series, whilst the Lombard series ends during the reign of Liutprand. At this date, the circulation of bronze coins seems to have been limited to those areas directly under Byzantine influence<sup>44</sup>.

How do we explain this apparent dichotomy between the ceramic and numismatic evidence in gauging the intensity of Mediterranean trade? It is superfluous to recall that each class of material followed its own rhythm of production and its own distribution routes, which did not necessarily coincide. Furthermore, some scholars deny that Roman and Byzantine coins reflect economic processes, contending instead that the minting of coins by the State depended on reasons which, in short, can be defined as 'fiscal' rather than commercial. Christopher Howgego has, however, found the appropriate synthesis in restoring coinage to its economic *raison d'être* and its role as an economic 'marker'<sup>45</sup>. On the other hand, for some ceramic ty-

*di Mantova (1984-1987)*, ed. G.P. Brogiolo, Mantua, 2004, p. 89-97; *La circolazione delle ceramiche nell'Adriatico tra tarda antichità e altomedioevo*, eds S. Gelichi, C. Negrelli, Mantua, 2007.

<sup>43</sup> " '... Castrum igne combussit ...': Comacchio tra tarda antichità ed alto medioevo", ed. S. Gelichi, *Archeologia Medievale*, 33 (2006); C. Negrelli, «Produzione, circolazione e consumo tra VI e IX secolo: dal territorio del Padovetere a Comacchio», in *Genti nel Delta*, eds F. Berti, M. Bollini, S. Gelichi, J. Ortalli, p. 437-471; for ceramic finds from sites on the eastern side of the Adriatic, see J. Vroom, «Dishing up history; Early medieval ceramic finds from the Triconch palace in Butrint», in *Mélanges de l'École française de Rome, Moyen Âge*, 120/2 (2008), p. 291-305. See also the essays by Gelichi, Negrelli and Vroom in this volume.

<sup>44</sup> B. Callegher, «Presenza di monete bizantine nelle Marche», 1997, p. 71-74.

<sup>45</sup> C. Howgego, «Why did ancient states strike coins?», *Numismatic Chronicle*, 150 (1990), p. 1-25; in the sphere of Byzantine studies, the terms of the debate are sum-



pologies, particularly amphorae, an analogous problem of 'representative-ness' also exists. Between the 8<sup>th</sup> and 9<sup>th</sup> centuries the use of amphorae as transport containers seems to decline (but not cease) in favour of other types of container, such as wooden barrels, rarely documented in archaeological deposits because they are made of perishable materials<sup>46</sup>.

Before proceeding with a parallel analysis of the coin and pottery finds, we must also remember that by the 650s most of the imperial mints had ceased striking coins because of the Persian, Arab and Avaro-Slav offensive. Under Heraclius, in AD 610, the diocesan mint of Antioch closed, followed by those at Thessalonica, Nicomedia and Cyzicus between AD 625 and 628. Alexandria shut down in AD 646, and Cherson in the Crimea in AD 658/59<sup>47</sup>. These closures, and the end of bronze emissions bearing the name of a mint, make it impossible to compare the numismatic and ceramic data in order to define the Mediterranean trade routes. We must therefore look for other clues to reconstruct commerce at this time.

It should be noted that Byzantium solved the problem of supplying money to the western territories still under its control by reorganising Diocletian's pattern of coin production<sup>48</sup>. The end of the minting activity at Carthage in AD 695 (it was conquered by the Arabs in AD 698) led to the transfer of the Carthaginian moneyers to Sardinia, presumably to Cagliari where, until AD 720, *solidi* and half *folles* were minted at an irregular rate<sup>49</sup>. During his journey to Sicily, Constans II opened a mint in Naples (where

marised in C. Morrisson, «Survivance de l'économie monétaire à Byzance», 2001, p. 377-378.

<sup>46</sup> P. Ditchfield, *La culture matérielle médiévale. L'Italie méridionale byzantine et normande*, Rome, 2007, p. 320-321; S. Gelichi, C. Negrelli, «Anfore e commerci nell'alto Adriatico tra VIII e IX secolo», *Mélanges de l'École française de Rome, Moyen Âge*, 120/2 (2008), p. 307-326.

<sup>47</sup> See the recent synthesis in C. Morrisson, «Byzantine Money: its Production and Circulation», in *The Economic History of Byzantium: From the Seventh through the Fifteenth Century*, III, ed. A.E. Laiou, Washington D.C., 2002, p. 910-966.

<sup>48</sup> M. Hendy, *Studies*, 1985, p. 417-424.

<sup>49</sup> Data relating to coin production and monetary circulation in Byzantine Sardinia are scarce, see P. Grierson, *Catalogue of the Byzantine Coins in the Dumbarton Oaks Collection and in the Whittemore Collection*, II, *Phocas to Theodosius*, I, Washington, 1968 (henceforth DOC), p. 44; P. Grierson, L. Travaini, *Medieval European Coinage*, XIV, *Italy (III) (South Italy, Sicily, Sardinia)*, Cambridge, 1998, p. 285-287; S. Cosentino, «La Sardegna: temi di storia economica e sociale», in *Ai confini dell'impero. Storia, Arte e archeologia della Sardegna bizantina*, eds P. Corrias, S. Cosentino, Cagliari, 2002, p. 55-68; F. Guido, «Note sulle monetazione sardo-bizantina», *ibidem*, p. 165-170; M. McCormick, *Origins*, 2001, p. 354-357.

no coins had been minted throughout the Roman period) to supply the peninsular regions which by then, following the Lombard conquest, were no longer part of the Exarchate. Production at the new mint, however, seems to have been intermittent and, judging from the data now available, essentially restricted to local circulation<sup>50</sup>.

The Syracuse mint, which opened at an uncertain date after the closure of Catania<sup>51</sup>, constitutes the only significant exception to this pattern and not simply because Sicily remained Byzantine longer than most other regions in Italy. In fact, Syracuse grew to become the most important provincial mint between the end of the 7<sup>th</sup> century and AD 878, when it was captured by the Arabs. As in the case of the Arab conquest of Carthage, that led to the transfer of the latter mint to Cagliari, the Byzantine mint of Syracuse survived the Arab conquest of Sicily thanks to the temporary renewal of its activities at Reggio, which had become the capital of Sicily and Calabria. During the reigns of Basil I (AD 867-886) and Leo VI (AD 886-912), Reggio minted *folles* and several gold series, which are very rare today<sup>52</sup>.

The case of Syracuse is worth looking at, even if briefly, in the light of recent studies that have further highlighted the key role of Sicily in the economic and military strategies of Byzantium during the 7<sup>th</sup> and 8<sup>th</sup> centuries. Already during the reign of Heraclius, the island had received a substantial influx of countermarked old copper coins (heavy *folles* of Anastasius I, Justin I, Justinian I) which probably arrived directly from Constantinople to purchase grain for the capital's supply, since the Arab conquest of Egypt had

<sup>50</sup> P. Grierson, L. Travaini, *Medieval European Coinage*, XIV, 1998, p. 43-49; P. Arthur, *Naples, from Roman town to city-state: An archaeological perspective*, Rome, 2002, p. 133-138.

<sup>51</sup> The beginning of Sicilian issues remains uncertain, despite the imperial arrangement of AD 537 which, in addition to defining the island's particular constitution, also provided for the opening of a mint from that date. The date of the transfer from Catania to Syracuse is also uncertain. The first precise data come from the reign of Maurice Tiberius (AD 582-602) with *decanummi* and *pentanummi* bearing the mark *cat(ania)*. Bronze coins with *cypakovci* attest the existence of a mint at Syracuse at the end of the first reign of Justinian II; see *DOC*, II, 1, p. 44-46; C. Morrisson, V. Prigent, «La monetazione in Sicilia nell'età bizantina», in *Guida per la storia delle zecche italiane medievali e moderne fino all'Unità*, ed. L. Travaini, Rome, 2011, p. 427-434.

<sup>52</sup> D. Castrizio, «La zecca bizantina di Reggio dopo la conquista araba di Siracusa», *XII. Internationaler Numismatischer Kongress Berlin 1977. Akten*, II, eds. B. Kluge, B. Weisser, Berlin, 2000, p. 859-861; D. Castrizio, «I ripostigli di Via Giulia (RC) e del Kastron di Calanna e la zecca bizantina di Reggio sotto Basilio I e Leone VI», *Revue Numismatique*, 158 (2000), p. 209-219.

deprived the empire of its richest granary. This resulted not only in the enrichment of the Sicilian *possessores* but also, subsequently, in the increase of local monetary production, both bronze and gold<sup>53</sup>. The phenomenon was particularly significant during the reign of Constans II and continued thereafter, although the gold issues were marked by successive debasements<sup>54</sup>.

The abundant output of the Syracuse mint is well attested by finds in Sicily and in Calabria<sup>55</sup>. But if we exclude this area, the mint's 'natural' hinterland – easily identifiable from the Classical period onwards<sup>56</sup> – the finds of Syracusan coinage seem more to represent a thin web of trade routes reaching across the Mediterranean. In the west, between the 8<sup>th</sup> and 9<sup>th</sup> centuries, Sicilian coinage is present, although in minimal quantities, where coinage from Constantinople no longer arrived. The presence of Syracusan coinage at the Black Sea and northern European sites confirms the existence of long-distance contacts<sup>57</sup>.

Next to this 'positive' data, we should also look at the 'negative' evidence. One example is the absence of 8<sup>th</sup>- and 9<sup>th</sup>-century Sicilian issues among the excavated material in Naples, which still appears to have been served by coins minted in Rome and Carthage between the VI and VII centuries. A small hoard comprising twelve *decanummi* of Heraclius from Carthage and twenty *decanummi* of Constans II from the mint of Rome was found at the excavation of Carminiello ai Mannesi<sup>58</sup>. The *decanummi* found during the

<sup>53</sup> V. Prigent, «Le rôle des provinces d'Occident dans l'approvisionnement de Constantinople (618-717): témoignages numismatique et sigillographique», *Mélanges de l'École française de Rome, Moyen Âge*, 118/2 (2006), p. 269-299, V. Prigent, «Notes sur l'évolution de l'administration byzantine en Adriatique (VIII<sup>e</sup>-IX siècle)», *Mélanges de l'École française de Rome, Moyen Âge*, 120/2 (2008), p. 393-417, in particular p. 395 and note 23.

<sup>54</sup> C. Morriçon, J.-N. Barrandon, J. Poirier, «Nouvelles recherches sur l'histoire monétaire byzantine: évolution comparée de la monnaie d'or à Constantinople et dans les provinces d'Afrique et de Sicile», *Jahrbuch der Österreichischen Byzantinistik*, 33 (1983), pp. 267-286; W.A. Oddy, «The Debasement of the Provincial Gold Coinage from the Seventh to Ninth Centuries», in *Studies in Early Byzantine Gold Coinage*, eds W. Hahn, W.E. Metcalf, New York, 1988, p. 135-142.

<sup>55</sup> G. Guzzetta, «Per la Calabria bizantina: primo censimento dei dati numismatici», in *Calabria bizantina. Istituzioni civili e topografia storica*, Reggio Calabria, 1986, pp. 251-280; E.A. Arslan, *Catalogo delle monete bizantine del Museo provinciale di Catanzaro*, Catanzaro, 2000, in particular p. 15-29.

<sup>56</sup> I wish to thank Emanuela Spagnoli for this information.

<sup>57</sup> C. Morriçon, «La Sicile byzantine: une lueur dans les siècles obscurs», 1998; C. Morriçon, «La monnaie sur les routes fluviales», 2008, p. 659-660.

<sup>58</sup> B. Sgherzi, «Monete», in *Il complesso archeologico di Carminiello ai Mannesi, Napoli (scavi 1983-1984)*, ed. P. Arthur, Galatina, 1994, p. 343-349.

excavation of the present Piazza Bovio and Piazza Municipio, probably datable to the reign of Heraclius or Constans II, also came from Rome. Following this, the mint of Rome, which was still striking bronze in fairly substantial amounts, is no longer documented in Naples<sup>59</sup>.

To quote Cécile Morrisson, the coin circulation in Rome represents a case of monetary 'resistance', easily discernable in the substantial numismatic evidence which came to light during excavations of urban areas that were still inhabited during the Byzantine period<sup>60</sup>. In the *suburbium* and surrounding regions, evidence of monetary circulation appears rarer. As the research now stands, the last bronze issues of Rome, datable to within the first half of the 8<sup>th</sup> century, seem to have had a short-range regional circulation. Known examples from the excavations at the monasteries at Farfa and San Vincenzo al Volturno probably only indicate the movements of individuals<sup>61</sup>.

Further north, the numerous coin finds from Luni in Liguria sum up the trend of monetary circulation and its evolution between the 6<sup>th</sup> and 9<sup>th</sup> centuries<sup>62</sup>. Excluding the finds associated with burials<sup>63</sup>, there are over fifty examples from Ostrogothic, Byzantine and Lombard mints in gold, silver and bronze for the period between the reign of Theoderic and that of Constans II. The Ostrogothic mints of Ravenna and Rome are well represented,

<sup>59</sup> A. Rovelli, «Naples, ville et atelier monétaire de l'Empire byzantin», 2010.

<sup>60</sup> C. Morrisson, «Survivance de l'économie monétaire à Byzance», 2001; A. Rovelli, «Emissione e uso della moneta: le testimonianze scritte e archeologiche», in *Roma nell'alto Medioevo*, Spoleto, 2001 (*Settimane di studio del Centro italiano di studi sull'alto Medioevo* 48), p. 821-856.

<sup>61</sup> A. Rovelli, «Un tremisse di Giustiniano II da San Vincenzo al Volturno. Osservazioni sulle emissioni auree dell'Italia bizantina», in *Scritti in onore di Girolamo Arnaldi offerti dalla Scuola nazionale di studi medievali*, Rome, 2001, p. 497-512.

<sup>62</sup> E.A. Arslan, *Repertorio*, n. 3380; as Arslan has stressed, the list may be incomplete or, on the contrary, some coins may have been cited several times in various catalogues. In fact, the abundant documentation from Luni, partly deriving from the excavations in the 19<sup>th</sup> century, still awaits a thorough re-examination, see A. Bertino, «Monete attestate a Luni dal IV al IX secolo», *Rivista di studi liguri*, 49 (1983), p. 265-300.

<sup>63</sup> For the hoard of «Sarzana-Luni» found in 1868 by A. Remedi, see J. Lafaurie, «Le trésor carolingien de Sarzana-Luni», in *Le zecche minori toscane fino al XIV secolo*. Atti del 3<sup>o</sup> Convegno internazionale di studio (Pistoia, 16-19 settembre 1967), Pistoia 1974, p. 43-56. The small hoard comprises twelve *denarii* coined in the mints of Wijk-bij-Duurstede, Mainz, Saint-Martin de Tours, Sens, Milan and an uncertain Italian mint. It should be noted that this hoard was found in a tomb. Therefore the coins may well attest to the route of an individual traveller, arriving from beyond the Alps and buried in Luni, rather than local monetary circulation.

as are the Byzantine mints of Thessalonica, Constantinople, Cyzicus, Antioch, Carthage, Rome and Ravenna. Finds at Luni include a half *folles* of Justinian II (AD 685-695) and a *folles* of Leo III (AD 717-719) from the Syracuse mint. There then followed a gap of approximately one hundred years before coins reappear again. The 9<sup>th</sup>-century coins comprise three *folles* of Michael II (AD 820-829), two *folles* of Theophilus (AD 829-842) and one *folles* of Michael III and Theodora (AD 852-856), all minted at Syracuse. Carolingian coinage is represented by a *denarius* of Charlemagne from the Melle mint, which was found during excavations in the 1970s. A further seven *denarii* from the mints of Milan, Pavia, Treviso, Arles and of the *christiana religio* type are listed in the 19<sup>th</sup>-century catalogues compiled by A. Remedi. Notwithstanding the archaeological evidence of the decay of the ancient urban structures, these coin finds are a sign of continuing activity connected to Mediterranean commerce. Along the Tyrrhenian coast, it seems, Luni was still an active port.

In conclusion, if there is any indication that can be drawn from the numismatic data useful for characterising the routes along which early medieval trade was organised during the 8<sup>th</sup> and 9<sup>th</sup> centuries in the seas around the Italian peninsula, it is the prevalence of short- to medium-range routes. This regionalization seems to have favoured the re-emergence of ancient commercial networks<sup>64</sup>, somehow successful in their resistance to the effect of changing political and military circumstances, which ended up as more important than the network of long distance routes of Late Antiquity. The latter nonetheless survived, but they were redrawn on the basis of different needs, such as the trade in luxury goods, diplomatic missions and the movement of pilgrims. All these routes are now legible in their interaction and complexity thanks to Michael McCormick.

<sup>64</sup> For example, A. Cazzella, «L'Adriatico nel Neolitico e nell'Eneolitico», in *L'archeologia dell'Adriatico*, 2003, fig. 2 reconstructs the routes which favoured the circulation of ceramic and metal artefacts between both sides of the Adriatic beginning in the Neolithic period; L. Malnati, «Recenti rinvenimenti archeologici nell'alto Adriatico tra tarda età del Bronzo e prima età del Ferro», *ibidem*, p. 131-139, analyses the distribution of Daunian pottery in the northern Adriatic between the 9<sup>th</sup> and 7<sup>th</sup> centuries B.C. For early medieval commerce, see A.R. Staffa, «Insediamento e circolazione nelle regioni adriatiche dell'Italia centrale fra VI e IX secolo», in *L'Adriatico dalla tarda antichità*, p. 109-182; F. Marazzi, «The Early Medieval Alternative: Monasteries as Centre of non City-Based Economic Systems in Italy Between Eighth and Ninth Century A.D.», in *Nourrir les cités de Méditerranée, Antiquité-Temps modernes*, eds B. Marin, C. Virlouvét, Paris, 2003, p. 739-767, draws attention to the role played by a number of monasteries in creating new 'landing-points' along the Adriatic and Tyrrhenian coasts.

An example illustrating the predominance of these short to medium range routes could be, as mentioned above, the preferential, even if not exclusive, diffusion of Sicilian coins in Calabria, which seems, however, not to have had any impact whatsoever on the monetary circulation of Naples between the 8<sup>th</sup> and 9<sup>th</sup> centuries. But it must be asked how much this view is influenced by the limits of the available archaeological sample. Furthermore, similar questions need to be posed concerning the quantity of ceramics actually circulating between Sicily and the central-southern Tyrrhenian coast<sup>65</sup>, as well as the amount of Alpine soapstone which arrived in the south<sup>66</sup>, if we are to fully grasp the pattern of connections in this period. The loss of the Church of Rome's patrimony in Sicily and Calabria, which according to the most recent hypothesis occurred during the papacy of Zacharias (AD 741-752)<sup>67</sup>, must have had consequences not only for the activity of the mint at Rome and the quality of its issues but, more generally, for monetary circulation along the Tyrrhenian coast. Additionally, Si-

<sup>65</sup> For example, the globular amphorae found at Marettimo and Cefalù thought to have come from central Italy are 'rarely entirely reconstructable and mostly attested by single fragments for each type of container', see F. Ardizzone, «Rapporti commerciali tra la Sicilia occidentale ed il Tirreno centro-meridionale nell'VIII secolo alla luce del rinvenimento di alcuni contenitori da trasporto», in *II Congresso nazionale di Archeologia medievale*, ed. G.P. Brogiolo, Firenze, 2000, p. 402-407, p. 404; for an update see F. Ardizzone, «Nuove ipotesi a partire dalla rilettura dei dati archeologici: la Sicilia occidentale», in *La Sicile de Byzance à l'Islam*, eds A. Nef, V. Prigent, Paris, 2010, p. 51-76; L. Arcifa, «Nuove ipotesi a partire dalla rilettura dei dati archeologici: la Sicilia orientale», *ibidem*, p. 15-49.

<sup>66</sup> C. Malaguti *et al.*, «Grado. Cultura materiale e rotte commerciali nell'Adriatico tra tardoantico e altomedioevo», in *La circolazione delle ceramiche nell'Adriatico*, 2007, p. 83 notes the 'sporadic and quantitatively unimportant' presence of soapstone containers in finds in the coastal areas of Friuli, Istria and Dalmatia and also in Apulia and the Marche; for the scarcity of soapstone finds in Tuscany, see A. Alberti, «La pietra ollare in Toscana», in *V Congresso nazionale di Archeologia medievale*, Firenze, 2009, p. 630-633; P. Santi, A. Renzulli, F. Antonelli, A. Alberti, «Classification and provenance of soapstones and garnet chlorite schist artifacts from Medieval sites in Tuscany (Central Italy)», *Journal of Archaeological Science*, 36 (2009), p. 2493-2501. M. Leo Imperiale, «Otranto, cantiere Mitello: un centro produttivo nel Mediterraneo bizantino. Note attorno ad alcune forme ceramiche di fabbricazione locale», in *La ceramica altomedievale in Italia*, ed. S. Patitucci Uggeri, Firenze, 2004, p. 327-342, specifies that transport amphorae represent only 8% of locally produced materials.

<sup>67</sup> V. Prigent, «Les empereurs isauriens et la confiscation des patrimoines pontificaux d'Italie du Sud», *Mélanges de l'école française de Rome, Moyen Âge*, 116/2 (2004), p. 557-594, with an important re-examination of the phases of reduction in fineness of the coins from Rome.



ilian coinage is largely absent along the western Adriatic coast between the 8<sup>th</sup> and 9<sup>th</sup> centuries<sup>68</sup>. The intermittent reappearance of Sicilian coinage in this region may well have depended on the presence of the Byzantine fleet at a time when the strategic efforts of Byzantium were concentrated further south in the area of the Sicily-Peloponnese axis<sup>69</sup>. Malta, as the papers at the conference have shown, appears to have been an important stopping place along this favoured itinerary<sup>70</sup>. Sicily, as a stronghold of Byzantine resistance between the 7<sup>th</sup> and 8<sup>th</sup> centuries and a late victim of Arab expansion, illustrates the diverse rhythm of monetary circulation in Byzantine Italy and its coastal centres in comparison to a number of eastern provinces<sup>71</sup>.

In the coastal towns of Apulia, for example Brindisi and Otranto, which remained significant population centres, monetary circulation ceased during the era of Constans II (AD 641-668) in the case of Brindisi, and Justinian II (AD 685-698) at Otranto. In both cases, coinage appears again during the Byzantine re-conquest of Apulia, under Theophilus (AD 829-842), and increases notably under Basil I (AD 867-886) and Leo VI (AD 886-912). At Otranto, the substantial influx of coins from Constantinople (over seventy *folles* of Leo VI from the city and its territory) was accompanied by the increasing importation of ceramics produced in Greece and in the area around the Sea of Marmara. Byzantine coins also occurred at this time not only in the coastal towns but also in inland rural areas<sup>72</sup>.

Let us return to northern Italy, which in the second half of the 8<sup>th</sup> century

<sup>68</sup> C. Morrisson, «La monnaie sur les routes fluviales», 2008, p. 657.

<sup>69</sup> V. Prigent, «Notes sur l'évolution de l'administration Byzantine», 2008, p. 399-400. The role of the army, particularly the Byzantine fleet, in monetary circulation between the 7<sup>th</sup> and 8<sup>th</sup> centuries is highlighted by F. Curta, «Byzantium in Dark-Age Greece», 2005, p. 113-146.

<sup>70</sup> See the paper given at the Comacchio conference by N. Cutajar, «The role of inter-regional commerce in Malta from 7<sup>th</sup>-10<sup>th</sup> cent. A.D.».

<sup>71</sup> C. Morrisson, «Monnaie, finances et échanges», 2006, p. 304; V. von Falkenhausen, Réseaux routiers et ports dans l'Italie méridionale Byzantine (VI<sup>e</sup>-XI<sup>e</sup> siècles), in *Hē kathēmerinē zoē sto Byzantio*, ed. C.G. Angelidēs, Athens, 1989, p. 711-731.

<sup>72</sup> P. Arthur, «Economic Expansion in Byzantine Apulia», in *Histoire et culture dans l'Italie byzantine. Acquis et nouvelles recherches*, Rome, 2006, p. 389-405; A. Degasperi, *La circolazione monetaria nel Salento tra alto e basso Medioevo*, post-graduate thesis in Medieval Archaeology and Numismatics, Università degli Studi di Lecce, supervisor Prof. P. Arthur; the research, which undertook a census of 1177 medieval coins, including over 350 *folles* datable to between the reign of Theophilus (AD 829-842) and that of John I Zimiseno (AD 969-976), confirms the data synthesised by C. Morrisson, «Byzantine money», 2002, in graph 6.14.

was no longer Byzantine, but first Lombard and then Carolingian. We have noted above the difficulty in comparing the finds of coins belonging to different monetary systems, as was the case in northern Italy at the end of the Exarchate (AD 751) and during the annexation of the Lombard kingdom into the Frankish empire (AD 773/774). Here again, the available data for the reconstruction of monetary circulation is (as described above) scarce and internally contradictory.

Regarding Ravenna, Salvatore Cosentino has drawn attention to the role the city performed in the 7<sup>th</sup>-9<sup>th</sup> centuries as a centre of consumption and redistribution thanks to the properties probably still owned by its bishops in the Adriatic areas, in Sicily and in Calabria. According to the testimony of a well-known passage in Agnellus (Agn. III)<sup>73</sup>, around the second half of the 7<sup>th</sup> century, the church of Ravenna received 31000 *solidi* a year from its Sicilian properties, as well as goods of various kinds. Unlike the Roman popes, the bishops of Ravenna, during the second half of the 8<sup>th</sup> and the 9<sup>th</sup> century, that is to say until the island's conquest by the Aghlabids, might have continued to enjoy benefits from their southern patrimonies<sup>74</sup>. An indeterminate portion of this wealth might have been invested in commercial enterprises and the construction of monumental buildings along with 'institutional' activities such as aid for the poor, thus providing an impetus for local monetary circulation. The evidence of this circulation must therefore now be sought in finds of Syracusan coins in the central-northern Adriatic regions<sup>75</sup> and, perhaps more so, in the written documentation arising from

<sup>73</sup> Agnellus, *Liber pontificalis ecclesiae Ravennatis*, ed. O. Holder-Egger, MGH, SRL, Hannover, 1878, p. 275-391.

<sup>74</sup> S. Cosentino, «L'approvvigionamento annonario di Ravenna dal V all'VIII secolo», 2005, p. 405-434; and his paper in this volume.

<sup>75</sup> M. McCormick, *Origins*, 2001, p. 348, map 12.1 and p. 365-368, map 12.5; A. Saccocci, «Tra est e ovest», 2005. Taking into account this stretch of Italian coast, from north to south, the following finds are known: 1 *folles* of Constantine V from Montereale Valcellina (E.A. Arslan, *Repertorio*, 2005, n. 2395); 1 *folles* of Nicephorus I from Fusina (*ibidem*, n. 8990); 1 *folles* and 1 half *folles* of Justinian II from Verona (*ibid.*, n. 9490); 3 *folles* of Constantine V and 1 *folles* of Michael I from Vigonovo (*ibid.*, n. 9540); 2 *folles* of Constantine V, 1 *folles* of Theophilus and 1 *folles* of Michael III from Recanati (*ibid.*, n. 4470); 2 *semisses* of Syracuse and 1 *solidus* from a 'southern Italian mint' are in the National Museum of Ravenna and could be of local provenance (E. Ercolani Cocchi, «Note di circolazione monetaria in area emilano-romagnola», 1999, p. 346). For the eastern side of the Adriatic we can cite: 1 *tremisses* of Leo III and Constantine V from 'Croatia' (E.A. Arslan, *Repertorio*, 2005, n. 2520 = F. Curta, «Byzantium in Dark Age Greece», 2005, n. 121, from Vodinjan); 1 *tremisses* of Philippicus from Poreč (E.A. Arslan, *Repertorio*, n. 2620); 2 *folles* of Michael III from Rovinj (*ibidem*, n. 2700); 1 *tremisses*

the management of landed properties belonging to the church of Ravenna<sup>76</sup>.

Contrary to this seeming continuity of coin circulation, we must note that the Ravenna mint closed after a brief Lombard phase, during which Aistulf minted *solidi* and *folles*, of which only a few examples are known. The small number of finds could be due to the short period of minting, but it is also true that the coinage of Aistulf took place at a time of limited output, which had begun some decades before and concluded with the closure of the mint<sup>77</sup>. The decline of the Ravenna mint is not surprising in the context of the crisis of the Exarchate. If anything, the prolonged closure during the subsequent Carolingian period is more surprising<sup>78</sup>.

The final phases of Lombard monetization are also difficult to assess and the available data can be interpreted in various ways. It may be concluded, however, that the reforms carried out by Desiderius, regarding both coin types and mints, demonstrate the importance attributed to coinage by the last Lombard king. Desiderius, in fact, increased the number of mints, fourteen of which are known<sup>79</sup>. With the exception of Milan and Pavia, these mints were opened in places that had not minted coins during the Roman period, and they thus contributed to the creation of a new urban hierarchy. Centres that had acquired importance as military bases at the time of the

of Constantine V, of Ravenna or Syracuse from Veliki Mun (M. McCormick, *Origins*, 2001, p. 849, B60); however, from this area finds of Syracusan coins do not appear to significantly predominate over those from Constantinople, and the role of Ravenna as regards circulation is still uncertain. The *solidi* and *tremisses* of Constantine V from Biskupija come from tombs datable to the first half of the 9<sup>th</sup> century (F. Curta, «Byzantium in Dark Age Greece», 2005, p. 120-121).

<sup>76</sup> *Breviarium Ecclesiae Ravennatis (Codice Bavaro)*. *Secoli VII-X*, ed., G. Rabotti, Rome, 1985; G. Gorini, «Aspetti e problemi di numismatica nel 'Breviarium'» in *Ricerche e studi sul «Breviarium Ecclesiae Ravennatis» (Codice Bavaro)*, eds A. Vasina et al., Rome, 1985, p. 63-79; B. Callegher, «Presenza di monete bizantine nelle Marche», 1997.

<sup>77</sup> P. Grierson, *Catalogue of the Byzantine Coins in the Dumbarton Oaks Collection and in the Whittemore Collection*, III,1, Washington, D.C., 1973, p. 92-94; for the previously unknown *folles* of Constantine V, see E. Ercolani Cocchi, «Introduzione al catalogo», in *Imperi romano e bizantino, regni barbarici in Italia attraverso le monete del Museo Nazionale di Ravenna*, Bologna, 1984, p. 35.

<sup>78</sup> A. Rovelli, «I denari di Carlo Magno con la legenda + CARLVREXRETLANGACPATROM e il monogramma greco», *Annali dell'Istituto Italiano di Numismatica*, 50 (2003), p. 217-223.

<sup>79</sup> P. Grierson, M. Blackburn, *Medieval European Coinage with a Catalogue of the Coins in the Fitzwilliam Museum*, 1, *The Early Middle Ages (5<sup>th</sup>-10<sup>th</sup> centuries)*, Cambridge, 1986 (henceforth MEC, 1), p. 60.

<sup>80</sup> S. Gasparri, «Il regno longobardo in Italia. Struttura e funzionamento di uno stato altomedievale», in *Il regno dei Longobardi in Italia. Archeologia, società e istituzioni*, ed. S.

invasion, or else during the subsequent administrative reorganisation of the kingdom, now became important, but to the detriment of other centres that had remained active in late antique Italy. This was the case, for example, at Piacenza, situated at the crossroads between the Via Emilia and a branch of the Via Cassia, linking Lucca to Pavia<sup>80</sup>.

The 'negative' evidence is shown by the disappearance from the monetary system of the *siliqua* fraction, a denomination that we have interpreted as a barometer of vitality in the exchange of medium and perhaps low valued goods in the Lombard kingdom<sup>81</sup>. At the same time, the fineness of the gold *tremisses* lessened significantly. The simplification of the monetary system and, above all, the decrease in the gold content are comparable to the decline noted in Byzantine issues and reflect the same emergency: the military and economic crisis of Byzantium.

The events that overwhelmed the Lombard kingdom and the consequently brief period of activity of most of Desiderius' mints make it difficult to evaluate the economic premises of such an innovative choice as the decentralisation of monetary production. We have too few data to calculate the volume of these issues<sup>82</sup>. Hoards and single finds of 8<sup>th</sup>-century *tremisses* are not frequent but, perhaps, neither are they very rare, since they are gold coins. Taking modern Lombardy as an example, there is news of a hoard with twenty-three *tremisses*, probably minted during the reign of Liutprand, from Somma Lombardo<sup>83</sup>. A *tremissis* of Liutprand has been found at Pavia<sup>84</sup>. A *tremissis* of Ratchis and another of Aistulf come from Landriano<sup>85</sup>. *Tremisses* of Desiderius are known from Darfo, Lodigiano and San Colombano<sup>86</sup>.

Gasparri, Spoleto, 2004, p. 1-92; A. Rovelli, «Émission monétaire et administration dans le royaume d'Italie. À propos des analyses des deniers carolingiens du Cabinet des Médailles», *Revue Numismatique*, 165 (2009), p. 187-201; M. Matzke, «Il diritto monetario», in *Le zecche italiane fino all'Unità*, I, ed. L. Travaini. Rome 2011, p. 219-220.

<sup>81</sup> A. Rovelli, «Some considerations», p. 205 and *supra*, bibliography cited in note 28.

<sup>82</sup> Only for the duchy of Benevento is the scale of minting well documented thanks to the studies of E. Arslan; cf. E.A. Arslan, «Sequenze dei conii e valutazioni quantitative delle monetazioni argentea ed aurea di Benevento longobarda», in *Rythmes de la production monétaire de l'Antiquité à nos jours*, eds G. Depeyrot, T. Hackens, G. Moucharte, Louvain-la-Neuve, 1987, p. 387-409. In the case of Arechis II (AD 758-787), Arslan has estimated about 245 dies for *tremisses* with the ducal title, and 78 and 119 respectively for *solidi* and *tremisses* with the title of prince; for Grimoald III and Charlemagne, 54 dies have been calculated for *solidi*, 112 for *tremisses* and 4 for *denarii*.

<sup>83</sup> E.A. Arslan, *Repertorio*, n. 4020 and 4050.

<sup>84</sup> *Ibidem*, n. 3880.

<sup>85</sup> *Ibid.*, n. 3710.

<sup>86</sup> *Ibid.*, n. 3630 (Vicenza mint), n. 3730 (Milan mint), n. 3960 (*Sibrium* mint).

The transition to the silver monetary system introduced by Charlemagne in AD 781 does not seem to have led, however, to a tangible and widespread increase in currency, as would have been expected given that the Carolingian *denarius*, although not 'small change', was worth less than the gold *tremissis*<sup>87</sup>. Turning again to Lombardy as a sample area, the finds of Carolingian coins from Charlemagne to Charles the Fat are markedly few. The total list consists of the following: three *denarii* of Charlemagne, respectively at Bedizzole, Brescia, Carvico<sup>88</sup>; one *denarius* of Louis the Pious from San Bartolomeo di Castelaz-Valdisotto (a further four examples of Louis the Pious were part of a hoard of 1273 gold and silver coins datable to the 14<sup>th</sup> century, found at Lurate Caccivio)<sup>89</sup>; four *denarii* of Louis II from Bariano, Galliano, Lomello and Milan<sup>90</sup>; one example of Lothar I from Gallignano<sup>91</sup>; one example of Charles the Bald from San Martino di Serravalle-Valdisotto<sup>92</sup>; an unspecified number of *denarii* of Charles the Fat in the Briosco hoard and in that of Pavia<sup>93</sup>.

I have argued elsewhere<sup>94</sup> that in Italy, the rare presence of Carolingian coins is an index of the limited monetisation of the peninsula (note, by contrast, the 375 (or more) single finds of Carolingian *denarii* from Dorestad<sup>95</sup>). This scarcity is notable when compared with the many coin finds of both earlier and later periods.

Among the causes behind this paucity of Carolingian coinage, two seem to be particularly significant. The first is the growing difficulty encountered by the Frankish kings to provide the Kingdom of Italy with a network of mints similar to those established in the region between the Loire and the Rhine, where 90% of the Carolingian mints were situated. The second is the prevalence, between the 8<sup>th</sup> and 9<sup>th</sup> centuries, of an economy

<sup>87</sup> A. Rovelli, «Economia monetaria e monete nel dossier di Campione», in *Carte di famiglia. Strategie, rappresentazione e memoria del gruppo familiare di Totone di Campione (721-877)*, eds S. Gasparri, C. La Rocca, Rome, 2005, pp. 117-137.

<sup>88</sup> E.A. Arslan, *Repertorio*, n. 3525, 3555, 3595.

<sup>89</sup> *Ibid.*, n. 3955, 3745.

<sup>90</sup> *Ibid.*, n. 3523, 3653, 3740, 3820.

<sup>91</sup> *Ibid.*, n. 3655.

<sup>92</sup> *Ibid.*, n. 3985.

<sup>93</sup> *Ibid.*, n. 3565, 3895.

<sup>94</sup> A. Rovelli, «Coins and trade in early medieval Italy», *Early Medieval Europe*, 17/1 (2009), p. 45-76.

<sup>95</sup> S. Coupland, «Carolingian single finds and the economy of the early ninth century», *The Numismatic Chronicle*, 170 (2010), p. 288-289.

based on regional trading systems<sup>96</sup>. Given this, the numismatic picture appears consistent with that of local ceramic production, which in northern Italy, between the 7<sup>th</sup> and 9<sup>th</sup> centuries, was largely limited to coarse wares, predominantly domestic in use. This process of simplification went hand in hand with the regionalisation of production, distributed on short- and medium-range routes, which, when possible, favoured water transport<sup>97</sup>.

The spread of globular amphorae, so far mainly attested on coastal sites, could therefore represent the successful choice of adopting a container that was markedly multi-functional. It was particularly appropriate for carriage on diverse means of transport, that is, on the small boats most common in coastal trading, on carts and barges for internal transport and, finally, on pack animals<sup>98</sup>. All in all, the globular amphora was a medium-sized reusable container suitable for transporting surpluses of new agricultural cultivation, which, as a result of the political and economic regionalisation, occurred even in unsuitable regions and terrains. In the Po valley, the olive is an example of this innovative agricultural practice where it had been absent in the Roman period. The second half of the 8<sup>th</sup> century saw the nurturing of the olive grove to satisfy liturgical, medicinal and dietary needs<sup>99</sup>.

All this was a mainly regional commerce, at least as far as bulk exchange goods were concerned, which was unlikely to stimulate monetary circulation. This is, of course, a general trend, which does not exclude, in the sphere of the so-called 'économie des transferts', some long-distance trans-

<sup>96</sup> MEC, I, 1986 p. 196; A. Rovelli, «Émission monétaire et administration dans le royaume d'Italie. À propos des analyses des deniers carolingiens du Cabinet des Médailles», *Revue Numismatique*, 165 (2009), p. 187-201.

<sup>97</sup> S. Lusuardi Siena, A. Negri, L. Villa, «La ceramica altomedievale tra Lombardia e Friuli: Bilancio delle conoscenze e prospettive di ricerca», in *Atti del V Congresso di Archeologia medievale*, Florence, 2004, p. 59-102; F. Cantini, «Dall'economia complessa al complesso di economie (Tuscia V-X secolo)», *PCA Post Classical Archaeologies*, 1 (2011), p. 159-194; Id., «Produzioni ceramiche ed economie in Italia centro-settentrionale», in *Italia, 888-962: una svolta?*, Seminario internazionale, Cassero di Poggio Imperiale, Poggibonsi, Siena, December 4-6, 2009, eds M. Valenti, C. Wickham, forthcoming.

<sup>98</sup> E. Zanini, «Forme delle anfore e forme del commercio tardoantico: spunti per una riflessione», in *LRCW3 Late Roman Coarse Wares, Cooking Wares and Amphorae in the Mediterranean*, eds S. Menchelli, S. Santoro, M. Pasquinucci and G. Guiducci, I, Oxford, 2010 (*BAR International Series* 2185, 1), p. 139-146.

<sup>99</sup> H. Besc, «Mer morte et oliviers perdus. Repli et survie de l'olivaie méditerranéenne (IV<sup>e</sup>-XII<sup>e</sup> siècle)», in *Olivo e vino nell'alto Medioevo*, Spoleto, 2007 (*Settimane di studio della Fondazione Centro italiano di studi sull'alto Medioevo* 54), p. 87-88.



port of particular products, from outlying properties of major monasteries or lay lords to their estate centres, which might then have fed the trade in surplus goods and thus the movement of money<sup>100</sup>.

In this context of contraction, which also affected minting activity, the opening of a Venetian mint represents a significant countertrend, in a city that, as most recent research has emphasized, was in itself a countertrend. Early evidence of the Venetian role in trade between the West and the Islamic and Byzantine East is unanimously recognised not only in the finds of Arab and Byzantine coins<sup>101</sup>, but also in its first monetary issues. In this regard, the chemical analyses referred to at the beginning of this paper open up new perspectives.

Limiting my report to some points touched upon by this research, let us focus on the alloy. Between AD 771 and 822, the silver content in Carolingian coinage appears to have been increasing, although in Italy (where silver minting began in AD 781) it remained slightly inferior to *denarii* from mints north of the Alps. In fact the Italian *denarii* after the reform of AD 793/4 have an average silver content of 91.3%, while *denarii* from elsewhere in the empire reach an average of 93.5%. This difference seems to disappear in the *denarii* of Louis the Pious, minted between AD 814 and 822. Those with mint name on the reverse attained a silver content of 95%. Remarkably, the gap between the maximum and minimum values of the silver fineness of the *denarii* of Louis the Pious clearly decreased, indicating a notable capacity for managing the metal content uniformly over the empire's many mints. Yet at Venice, again, the situation appears to be different<sup>102</sup>.

There is no doubt that, from an institutional point of view, the Venetian *denarii* struck in the names of the Carolingian emperors were anomalous. Both the Byzantines, heirs of the classical conceptions regarding coinage, and the Franks considered coinage to be one of the most significant instruments of sovereignty. Despite this, Venice began to mint coins in the name

<sup>100</sup>J.P. Devroey, *Puissants et misérables. Système social et monde paysan dans l'Europe des Francs (VIe-IXe siècles)*, Bruxelles, 2006, p. 519-583; J.P. Devroey, «Huile et vin. Consommation domestique, prélèvement seigneurial et spécialisation pour le marché», in *Olio e vino nell'alto Medioevo*, Spoleto, 2007 (*Settimane di studio della Fondazione Centro italiano di studi sull'alto Medioevo* 54), p. 447-495: some important transalpine abbeys possessed *curtes* in northern Italy from which they obtained the oil destined for liturgical use or for the preparation of medicine. From this point of view, oil was a luxury product (p. 483-490).

<sup>101</sup>M. McCormick, *Origins*, 2001, p. 523-530; A. Saccocci, «Ritrovamenti di monete islamiche in Italia continentale ed in Sardegna (sec. VII-XV)», in *Simposio Simone Assemani sulla monetazione islamica*, Padua, 2005, p. 103-121.

<sup>102</sup>Cf. *supra*, bibliography cited in note 4.

of Louis the Pious in the years immediately after the treaty of Aachen, which had ratified *Venetia* as belonging to the eastern empire.

Scholars concur that economic reasons were behind the decision to mint coins that were typologically Carolingian, thereby excluding the possibility that this Venetian coin type could indicate the recognition of Carolingian sovereignty on the part of Venice<sup>103</sup>. Recent analyses support this interpretation, confirming the atypicality of Venetian *denarii* compared to all other Carolingian issues. The Venetian *denarii* have a lower silver content than those of the Frankish and Italian mints (this was also to be a characteristic of subsequent Venetian issues<sup>104</sup>). A further element of differentiation lies in the greater disparity between the maximum and minimum fineness values of the Venetian *denarius*. This may reflect less control by the local monetary authorities. Finally, some trace elements, bismuth in particular, could indicate the use of silver of an eastern provenance, perhaps obtained by melting Byzantine *miliaresia* or Arab *dirhams*. The importance of this data is evident – even if obtained from a sample that is still too small to be really significant – since it renews the continuing debate on the role of eastern coins in the economy of Frankish Europe.

The representativeness of the analysed sample is not the only quantitative aspect that needs to be resolved regarding Carolingian and Venetian *denarii*. It is equally important to estimate – if only hypothetically, given the lack of die-link studies – the quantity of silver *denarii* minted in Venice as a result of a possible input of eastern metal. This could be used to indirectly measure the importation of silver. Again indirectly, this influx of silver might serve as a measure of the economic dynamism of Venice<sup>105</sup>.

In this regard, the theme of our conference invites us to take account of the influx of silver, both coined and not, which reached *emporia* along the river routes leading to the Baltic region from the Caliphate: the quantity of silver coins (approximately half a million examples from 1660 finds, including large numbers from Russia<sup>106</sup>) appears extraordinary if

<sup>103</sup> MEC, I, 1986, p. 217.

<sup>104</sup> A. Saccocci, «La moneta nel Veneto medioevale (secoli X-XIV)», in *Il Veneto nel Medioevo. Dai comuni cittadini al predominio scaligero nella Marca*, eds. A. Castagnetti, G.M. Varanini, Verona, 1991, p. 243-262.

<sup>105</sup> In this regard see P. Delogu's observations, «Il mancoso è ancora un mito?», in *774. Ipotesi su una transizione*, p. 141-160 and Id. «Questioni di mare e di costa», in this volume.

<sup>106</sup> *Means of Exchange. Dealing with Silver in the Viking Age*, ed. D. Skre, Oslo, 2007, *Silver Economy in the Viking Age*, eds J. Graham-Campbell, G. Williams, Walnut Creek, 2007. A synthesis, with an exhaustive bibliography in S. Suchodolski, «Les routes flu-

compared to the finds examined in this paper. Carolingian Italy could also have been an important magnet for Arab silver if its economy had been able to export significant surpluses. This is especially noteworthy when taking into account Italy's interest in importing silver when the change occurred from the Romano-Byzantine monetary systems, based on gold, to the Carolingian one, based on silver. Instead, in Italy coin finds are strikingly rare. The first *denarii* from Venice are rare even in what should have been their natural area of circulation, that is the upper Adriatic region<sup>107</sup>, and the discovery at Comacchio of one *denarius* of Louis the Pious issued at Venice confirms the importance of the site in the northern Adriatic economy. Venetian coinage will begin to enjoy a greater visibility during the reign of Hugh of Arles<sup>108</sup> (this is also represented at Comacchio by one example), in a framework which is by now new, and not only in numismatic terms.

A further question regards the incidence of Italian *denarii* in monetary circulation within the Carolingian Empire. Opinions on this subject remain rather divided<sup>109</sup>. To date, coins from Italian mints (including Venice) seem

viales et maritimes du commerce de la Baltique: le témoignage des trouvailles monétaires (IX<sup>e</sup>-XI<sup>e</sup> siècle)», in *L'acqua nei secoli altomedievali*, p. 671-689.

<sup>107</sup> Finds are known of 1 *denarius* of Louis the Pious from Venzone (E.A. Arslan, *Repertorio*, n. 2490), 1 *denarius* of Louis the Pious and 1 *denarius* of Berengarius I from Aquileia (*ibidem*, n. 2230); 2 *denarii* in the name of Berengarius (it is not specified whether this is Berengarius I or Berengarius II) from the excavations at Castello di Casole, now in the San Marino museum (see E. Ercolani Cocchi, «Note di circolazione monetaria in area emilano-romagnola e marchigiana», p. 347; E.A. Arslan, *Repertorio*, n. 1765); 1 *denarius* with the legend *d's cnserva romano imp* in a 14<sup>th</sup>-century hoard, comprising approximately 1300 silver coins, found at Rosola (*ibidem*, n. 1995).

<sup>108</sup> On the circulation of Venetian coinage, see A. Saccocci, «Circolazione locale ed esportazione di monete di area veneta», in *Circolazione monetaria regionale et supra-regionale. Actes du troisième colloque international du Groupe suisse pour l'étude des trouvailles monétaires* (Berne, 3-4 mars 2000), eds H.R. Derschka, I. Liggi, G. Perret, Lausanne, 2002, p. 79-94, at p. 88-90.

<sup>109</sup> S. Coupland, «Carolingian single finds and the economy of the early ninth century», 2010; A. Saccocci, «La monetazione del *Regnum Italiae* e l'evoluzione complessiva del sistema monetario europeo tra VIII e XII secolo», in *XIII Congreso Internacional de Numismática. Madrid, 2003. Actas*, eds C. Alfaro, C. Marcos, P. Otero, Madrid, 2005, p. 1037-1049; H. Emmerig, «Der Freisinger Münzschatzfund und das Geldwesen in Bayern zur Karolingerzeit», *Sammelblatt des Historischen Vereins Freising*, 38 (2004), p. 11-75; B. Zäch, J.D. Taberner, «Bemerkungen zu den Münzfunden des 9. und 10. Jahrhunderts zwischen Bodensee und Bündner Alpen», *Schweizerische Numismatische Rundschau*, 82 (2003), p. 61-82.

to be more frequently attested beyond the Alps. It will be necessary to return to a problem that, concerning Carolingian issues, was first tackled by Michael Hendy<sup>110</sup> when he stressed the importance of focusing on coinage distribution mechanisms, beginning with the first stage, that is, when coins first leave the mint.

But, as has been shown elsewhere in this book, this is not the only problem which new research on Comacchio has brought to the centre of the current historiographical debate.



<sup>110</sup> M. Hendy, «From Public to Private: The Western Barbarian Coinages as a Mirror of the Disintegration of Late Roman State Structures», *Viator*, 19 (1988), p. 29-78.