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David M. SCHAPS* - The Invention of Coinage in Lydia, in India, and in China (part I).

I: Coinage Thrice Invented.

All modern money is at least notionally coinage: although in fact the use of coins in modern societies is extremely restricted – try to buy a car, or even a bicycle, with coins and you will see what I mean – moderns speak of all their ways of transferring value as if they were ways of transferring dollars, pounds, or Euros, and they speak of those units as if they were large coins[1] each of which is worth a given number of smaller coins. Even in those places such as prisons, D.P. camps, and fourth-grade classrooms where real coins are hard to come by, the available items (cigarettes, bread rations, or, among the schoolchildren of my country, apricot pits) are conceived of as being substitutes for coins, which are considered "real" money.

All modern coins, in turn, are descended from the coins that appear to have been invented in the kingdom of Lydia in Asia Minor somewhere around the year 600 BCE[2] and that spread throughout Greece in the following centuries: disk-shaped, made of gold, silver, bronze or imitations thereof, with both sides bearing an image produced by stamping; one side is often a human head.

Lydia was not, however, the only place where coins were invented, nor are Greek-style coins the only ones that have existed. In India and in China,[3] indigenous forms of coinage yielded place to the western-style forms: Indian coinage has followed western practice since the Hellenistic age, while China finally adopted western-style coins only with the Nationalist revolution of 1911.[4] It is my intention in this paper to examine certain parallels in the political situations that led to the development of coinage in these three places, and to suggest a reason why it was in these particular places, and at this particular time, that coins first appear.

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I use throughout this article the Pin Yin system of transliteration currently in use in mainland China. The reason is neither scholarly nor political, but rather that I am more familiar with it. The article is intended for historians, economists, and numismatists; I apologize to each for occasionally explaining terms and concepts that are well-known to them.

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(1) Or, since the twentieth century, banknotes, which are now generally thought of as "real money."

(2) On the dating of Lydian coinage see below, p. 288-9.

(3) For my reasons for excluding Egypt and Mesopotamia, see below, p. 287.

(4) In fact many local issues of modern-style coins had been minted in the last years of the empire, and a switch-over to a new-style currency system had already been legislated, but not completed, at the time of the revolution. Peng 659-706.

Money and coinage. Before we continue, I must distinguish between coinage and money, a distinction generally recognized today but still necessary for our discussion. Coins, small metal objects with an identifying mark that serve exclusively as money and are produced for that purpose[5], are an invention, an idea that first appeared in a given place and time and then spread to other societies by means of cultural influence and imitation. Money, on the other hand, which we may define broadly as a standardized item generally acceptable in trade not for its particular use but because the person accepting it can later exchange it for whatever he needs, is a phenomenon that tends to appear when a culture reaches a certain level of complexity.[6] One cannot properly speak of the "invention" of money;[7] it is not an idea that passes from one society to another by imitation, but a cultural phenomenon that any society may start to use, even without external examples, as the need arises. Primitive societies generally use a different item for each of its various functions; in modern society a single item, coin, performs all the functions of money.[8] In Mesopotamia and the Levant, silver was a true all-purpose money long before coins were invented; but the Babylonians and the Phoenicians did not use coins. They weighed their silver at each transaction, and continued to do so even after coins minted abroad had begun to come into their hands. I have dealt elsewhere with the question of what significance there was to the invention of coinage in a world that already used money freely;[9] for the current investigation it is sufficient to note that the invention was important enough to be imitated, in the fullness of time, throughout the world.

II: Three Different Technologies.

Figure 1: A Lydian electrum coin of royal issue, with double incuse square (*BMC* 31); Courtesy of Classical Numismatic Group, Inc.

That coins were not an invention that simply spread from Greece eastward to China, or from China westward to Greece, or from India outward to China and Greece, is obvious to anyone who glances at the early coins of these three societies. The earliest coins in what became the Greek tradition were apparently coined by the kings of Lydia, a non-Greek kingdom of western Asia Minor.[10] These early coins were made

(5) And therefore are interchangeable ("fungible"): on the importance of this criterion see Helfferich 22-3.

(6) Pryor, pp. 161-83. Pryor's definition is intentionally somewhat broader than mine. I define money merely to distinguish between it and coinage, and so have chosen a short and comprehensible definition rather than a methodologically productive one.

(7) At least, not in the economic sense used in this paper, for which it is irrelevant whether the people involved think of themselves as using "money", or indeed even have a concept of "money." I have argued elsewhere (Schaps, *Invention of Coinage* 15-7; similarly Seaford 3-6, 16-20, 318-37) that the *concept* of money as a universal item whose possession is synonymous with wealth first appears among the Greeks.

(8) This, at any rate, is the orthodox interpretation, for which see Polanyi 264, 266, Quiggin 4 and Einzig 428-30; in fact the modern situation is more complicated than usually admitted, as Melitz 1021-3, points out. For further discussion see Schaps, *Invention of Coinage* 215-21.

(9) That is the subject of Schaps, *Invention of Coinage*, particularly pp. 34-56, 111-212.

(10) The Lydians were not Greeks, but their history is known to us chiefly through Greek sources and through the work of classical archaeologists. The spread of coinage, moreover, took place in Greece much more than in Lydia; see Osborne 250-9. I shall therefore occasionally speak of Greece and Greek history when explaining what happened in Lydia, for there is no independent discipline of Lydian history.

of electrum, an alloy of gold and silver, both of which were panned in ancient times from the Pactolus River that flows by the Lydian capital of Sardis. They were disks of metal that had been struck with a hammer on a surfacing bearing an intaglio pattern. The intaglio design produced the obverse[11] of the coin; the reverse held simply the mark of the hammer, a mark known to numismatists as an incuse square. Later a second intaglio image replaced the incuse square, producing a form that remains, with some variation,[12] down to the present day. (**Fig. 1**).

Figure 2: A rectangular punch-marked coin. One corner has been cut off to make the proper weight. Courtesy of RBI Monetary Museum, www.rbi.org.in.

Indian coins do not resemble the coins of the Greeks. They are rarely disk-shaped; sometimes they are entirely irregular, but more commonly they take the shape of a short bar, often with bits chopped off one or more corners. (**Fig. 2**).

The punch-marks are of two types. The "primary" symbols are deeply impressed on the obverse, and were apparently made after the blanks had been heated or annealed. Most coins, however, also bear various shallow marks, punched when the metal was cold, either as test-marks to prove that the coin was solid silver, or else – perhaps more likely, since there were so many of them – as marks of ownership or marks that a particular individual guaranteed the coin.[13] There is no fixed place for either type of mark; unlike a Greek coin, which has on each side[14] a single picture that occupies the whole of its side, an Indian punch-marked coin has a number of small punches, each of them an identifiable pattern, which may be found anywhere on the face of the coin, rather like a train-ticket that has been punched by a conductor.

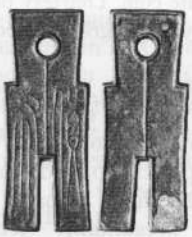

Figure 3: A Pre-Qin spade coin. Courtesy of Paul Liu (UBS AG, Zurich).

The primary punch-marks may be from one to five in number; what is significant for our purposes is that they appear in regular series, with the same number and types punched on many coins, leaving little doubt that these primary marks served to identify the mint, moneyer, or jeweler that produced them, or the ruler who authorized them. The secondary marks, on the other hand, may number anywhere from zero to fifteen.[15] Their chief historical interest – since we can have no real hope of identifying the person to whom they belonged – is in the clear evidence they offer that these coins circulated from hand to hand: whatever their use, they were by no means items to be held indefi-

(11) Most commonly the emblem of the city or, in the Hellenistic period, the head of the ruler.

(12) The biggest change is due to the fact that coins are no longer struck by hand, but by machine, producing a much more regular disk, with the image always filling the entire surface.

(13) Lahiri 17; Gupta and Hardaker 6-7.

(14) After, of course, the earliest coins whose reverse had only a punch-mark.

(15) Lahiri 17; Gupta and Hardaker 7, state that coins have been found with over thirty such marks.

nitely in a single person's treasure-chest. Some coins are counter-marked on the reverse with one of the primary marks. These marks have been thought to be a guarantee of their authenticity and a means of preventing further marking which could obliterate the original marks entirely; a recent study takes them to be marks of successive rulers.[16]

Figure 4: Knife coin. Courtesy of T. K. Mallon-McCorgray, www.grifterrec.com.

The earliest coins are saucer-shaped, made from a blob of silver heated so that it spread more or less evenly before having the punch applied; but soon the coins take the shape of bars, for reasons that were presumably technological. The coiner first made a large plate of silver or other metal,[17] then cut it into rectangular pieces that he proceeded to mark by punching, either applying the primary marks while the silver was still hot or reheating it for the purpose.[18] Unlike the Greek coins, where the weight of the flan was guaranteed by the production process, the Indian coins were apparently weighed only after having been cut from the original plate. To achieve the proper weight, it was always possible to chop off an edge of the coin, producing the more irregular shapes that share the field with squares and rectangles.[19]

(16) Gupta and Hardaker 7; Agrawal and Rai 153-61.

(17) The metallurgical tests of Agrawal and Rai have demonstrated, contrary to previous accounts, that although the coins generally have an outward appearance of silver, they were in fact heavily alloyed with other metals, with different alloys corresponding to different issues.

(18) For the precise procedures (two somewhat different procedures can be recognized) see Agrawal and Rai 21.

(19) Lahiri 16-7.

Chinese coins were something else again. In some places they are shaped like spades, in others like knives, in others like cowries – what the Chinese call "ant-nose coins" – and in some they are simply disks.[20] **(Figs. 3, 4, 5).** The knives and disks usually have a hole in them, and the spades sometimes do as well, indicating that they were meant to be carried on a string; Chinese still speak of "a string of cash", and the hole did not disappear from Chinese coins until they were superseded by western types.

Figure 5: "Ant-nose" coin. Courtesy of T. K. Mallon-McCorgray, www.grifterrec.com.

The coins of China were neither struck like those of Greece nor punched like those of India, nor were they made of gold or silver.[21] They were made of bronze[22] and cast in a clay mould that was broken to remove the completed coin. The Chinese here were using their own customary method of metal work: cast bronzes of extremely high quality had been important items of wealth in

(20) It has been claimed that a recent find of dagger-axes found in Shaoxing were also a form of currency; see Zhou for a rebuttal.

(21) There was one exception to this rule: in the southern state of Chu, thin square plates of gold, with appropriate characters punched on them, seem to have circulated at the same time as the other pre-imperial forms: Li 392-6. It cannot be said whether this coinage, anomalous in China, has any connection with the Indian punch-marked coins.

(22) Although the early coins of Rome, as is well known, were also made of bronze, they were struck, not cast, and developed out of the earlier use of weighed bronze (*aes rude*) under the influence of the Greek coins that were used by the cities of Sicily and South Italy.

China for centuries, and they might often have a short inscription commemorating the person or occasion for whom or for which they were made. The spade, knife, and disk coins, which almost always bore a few characters, were also "valuable bronzes" in their way. To some extent all of these forms originally derived their value, as Greek and Indian coins certainly did, from the weight of metal they contained;[23] the names and nominal values of the later coins of China are often those of weights (*banliang*, "half-ouncer", *sanzhu*, "three-grainer"), but their value was often marked up by the government—a markup that was accepted in practice only within certain limits.[24]

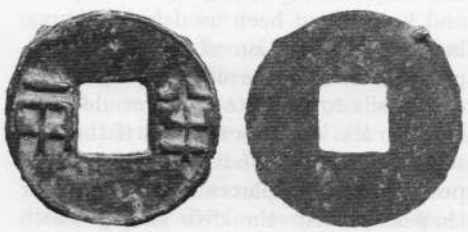

Figure 6: A Qin "half-ouncer." Courtesy of Bob Reis, www.anythinganywhere.com.

Chinese coins were not utensils; not in any way. One might have imagined – indeed, when I began my research, I did imagine – that utensil coins were an example of Gresham's law,[25] by which bad money drives out good: at first, so I thought, people used spades for trade, but since in trade one spade counted for the same as any other, they soon did not bother making spades good enough for digging, and over the course of time the real spades were replaced by mere symbolic spades, the spade-coins. One might indeed have imagined that, but that is not the story that archaeology tells. The spade-coins and the knife-coins appear suddenly, with hardly any intermediate stages. The earliest spade-coins, indeed, have a hollow socket as if to hold a wooden handle; but they are much too thin and too small to have been used for digging. The coins of China, no less than those of Greece and India, seem to have been an invention, not a gradual development.

The spade- and knife-coins lasted only until the unification of China under Qin Shih Huang Di in 221 BCE; at that point the coins of Qin, cast bronze disks with a square hole, superseded all the earlier forms and remained the standard form until the last decades of the Manchu empire.[26] (Fig. 6)

III: Contact or Coincidence ?

All of the cultures that we have mentioned are cultures rich in accomplishments, both technological and artistic, whether they invented coinage on their own or adopted it from others. The coins of Lydia still seem to be the earliest that can be dated with certainty,[27] but at any time a well-executed excavation could change that appearance. I shall accept, for the sake of argument, the claim of the Lydians, but the question remains whatever relative chronology we adopt: did these three peoples invent coinage independently, or did one or two of them merely adopt a foreign innovation?

(23) They varied considerably in weight, but were quite standard in their size: Thierry, "Monnaie et monnaies" 62-3. It was more important that they be easily recognizable and convenient than that they include any particular weight of bronze.

(24) Scheidel 6-14.

(25) Einzig 413-415, demonstrates that this well-known law holds for primitive money no less than for all-purpose money.

(26) Not that these two millennia knew no further experimentation: a few centuries passed before coins achieved their "normal", lighter form. Nor was the imperial monopoly on coinage always respected, even in theory: see Thierry, "Monnaie et monnaies" 60-1, and for more detail Peng, *passim*.

(27) See below, pp. 288-9.

At first glance the idea of these three coinages being a matter of imitation seems preposterous. If there is one thing that seems clear from a punch-marked coin, it is that the person who first thought it up had never seen a Greek coin—or if he had seen one, it had not impressed him. The punch-marked coin is made by an entirely different metallurgical process, with markings placed randomly and with little visible relationship to the kind of artisanship that distinguishes Greek coinage. A Chinese spade-coin or knife-coin is something else again, made of a different metal, by a different process, its weight imprecise, and flaunting the fact that it is not an imitation coin but an imitation tool. It is hard to believe that people as sophisticated as the Indians and the Chinese could not have produced a good imitation of a Greek coin, if that was what they were trying to do.

And for all that, there are indications that the three coinages may not be entirely independent. Silver was foreign, scarce, and out of favor in Vedic India;[28] the idea that it could become the embodiment of value can only have been an imported one. We must suspect foreign influence, and the most reasonable presumption is that here, as in Greece, it was the influence of the preexisting trade of Mesopotamia that was the decisive factor. A few archaeological finds seem to bear this out: a piece of silver found at Mohenjo-Daro, dating from the early second millennium and said to bear a cuneiform character,[29] may perhaps be discounted, but a hoard of ingots and *Hacksilber* from Nūsh-i Jān, a mound in Media, is more suggestive. Although the cultural and economic connections of Media were with Assyria and Babylonia at least as much as with India, the ingots found at Nūsh-i Jān bear some resemblance to the Indian "bent-bar" currency of which the earliest examples are found in the Chaman Huzūrī hoard from Afghanistan.[30] This seems to offer at least a plausible route for the intrusion of monetary silver from Babylon through Iran and Afghanistan to India. If this reconstruction is true, the use of silver as money (at least as special-purpose money) will have come to India, as it came to Greece, under the influence of Mesopotamia, while the punch-marked coinage itself will have been an indigenous invention of India.

Chinese coins, too, for all of their individuality, may not be as isolated as Westerners tend to think. Even if they had seen coins, it would not have been unreasonable for the Chinese to produce their own by the technique of casting bronze, which was developed to a high standard of art in China. The spade-coins and knife-coins, indeed, may be thought to tell against this idea, and the only literary evidence that spades and knives had been used for exchange before the invention of coinage is suspect;[31] but the idea of using the shape of utensils to indicate value would have been no less clever a thought if the person who thought of it knew that other people in other places had used other shapes. Indeed, the disk shape, which may be quite as ancient as the spade and knife, may support the idea of connection as much as the spade and the knife may argue against it.[32]

Lastly, we should note that even if no Greek coin had found its way to India and no Indian coin to China when the first such items sprung up in their new home, that does not necessarily mean that the inventions were entirely unconnected. There was nothing revolutionary about the technique of striking coins in Lydia; Assyrian or Egyptian workmen surely would have been capable of casting coins a thousand years earlier, had they wished to do so. What was new was the idea of carrying on trade exclu-

(28) Dhavalikar 332.

(29) Kosambi, "Origin and Development" 85-9.

(30) Bivar 101, Dhavalikar 335-6. The bent-bar coins seem to be found only in places under Persian influence: Bivar 101, from Walsh 2.

(31) See below, p. 293, n. 87.

(32) Of course this is not the only possible explanation; it is more commonly, and not implausibly, taken to be an imitation of a ring.

sively by means of an "official" medium guaranteed by a stamp. If that, for the Indians and Chinese, was an idea whose time had come – and we shall still have to ask why that should have been the case in India and China but not in Babylonia or Scythia – the idea may have passed even if the physical item did not. There may be more to cultural influence than mindless copying.

Once all of that is said, however, the simplest explanation is still that the very different-looking coins of Greece, India, and China were indeed three independent inventions. And even if the basic idea may have traveled in one direction or another, mere diffusion cannot explain why these three societies adopted this idea so thoroughly that coins became the essential medium of their economy, while other societies developed far-flung economies without inventing coins.

Surely the peoples of the near east had nothing like it. These people were by no means moneyless: Egyptians, even when bartering, evaluated the articles being traded as so-and-so many units of copper, and the rich hoarded certain items specifically for use in trade. Much more monetized was Mesopotamia, where trading firms, contracts, mortgages, leases, interest rates, price fluctuations, and many other matters that we associate with money are abundantly documented.[33] Many scholars have gone further and seen certain items turned up by the spade as "practically" coins, or at least predecessors of coins.[34] In Egypt we find a picture of rings being weighed against merchandise; in Babylonia there is non-negligible evidence for the presence of rings and coils of more or less regular weight having been hoarded, and presumably made, for uses that were probably monetary.[35] For all that, it must be clear by now that what was happening in Lydia and Greece, in India, and in China, was something quite unlike anything known to us from Egypt or Mesopotamia. Where real coinage appears, we find small, interchangeable metal items with a standard mark clearly displayed on them that occur by the hundreds or thousands at a multitude of sites. There can be no denying the name of coins to the early Indian and Chinese coins, and Egyptian and Mesopotamian sites have nothing like them.

Lydia, India, and China probably invented coinage independently of each other; and even if that was not the case, they surely developed the use of coins independently of each other. It is possible that these three independent events had independent causes, and that none of them has any light to shed on the others; but it is surely worthwhile to consider the possibility that there were similar conditions in these particular places that made coinage a plausible and a useful innovation.

IV: The Political Background of Coinage and its First Appearance.

The earliest Greek cities of Asia Minor – Miletus, Smyrna, Cyme and others – dated from the end of the second millennium BCE, shortly after the end of the Mycenaean period. The Greeks of Asia Minor, however, like those of the mainland, were few in number, poor and isolated, during the eleventh, tenth and ninth centuries. With the beginning of the eighth century we find in Ionia, as in mainland Greece, a notable increase in the size and number of settlements, and signs of a revitalization of international relations and commerce. New colonies were founded in Asia Minor itself, and the established cities sent out colonists of their own.[36] Precious metal, chiefly silver, was used

(33) Le Rider 1-39; Schaps, *Invention of Coinage* 42-52; and see now Vargyas, *History of Babylonian Prices*.

(34) The description of the predecessors of coinage is often repeated, and was best developed by Miriam Balmuth in the articles cited in the bibliography. I have argued elsewhere (Schaps, *Invention of Coinage* 222-35; similarly Le Rider 17-35 and Seaford 318-337) that none of these "predecessors" can have functioned as currency.

(35) On this see the articles of Dayton and Powell.

(36) On this "Ionic Renascence" (Cook's phrase) see Roebuck 61-70; J. M. Cook 46-60; Huxley 55-84; Emlyn-Jones 25-32.

in international trade, at least with the Phoenicians. Among themselves, however, those Greeks whom we can document apparently used, at least at first,[37] nothing more than utensils: bronze tripods, bronze cauldrons, and iron spits all seem to have served, but none of these were produced in quantities that could suffice for any but a very clumsy medium of trade.[38]

In Lydia itself this surge of prosperity was associated with the rise of a new dynasty under the king Gyges, whose wealth became proverbial,[39] and might still have been so had it not been so greatly surpassed by that of his last royal descendant, Croesus. An expanding economy offers a fertile field for new modes of economic activity, and the invention of coinage is undoubtedly in some sense a result of the increased prosperity of Lydia and Ionia, and of Greece in general, in the early archaic age.

The kings of Lydia were not only prosperous; they were competitors for domination of all western Anatolia, and eventually even more.[40] When the oracle told Croesus that by going to war against Cyrus he would destroy a great empire,[41] Croesus was not being entirely unrealistic in presuming that the empire to be destroyed would be that of the Medes and the Persians. The Persians themselves, who defeated Croesus, practically achieved what must have seemed to them as a world empire.[42] It almost seemed that way to the Greeks as well.

It is by no means clear, however, that the first coins were official royal issues. Some twenty coins with the legend .WALWE. might seem to bear the name of the king that Herodotus calls Alyattes, father of Croesus; but from the same place we find others with the inscription .KALI., which is not the name of any Lydian king.[43] The prevailing opinion is that the types of the coins (there are some twenty, many more than the two or three kings who reigned from the time coins were invented until the end of the Lydian empire) identify not the king under whom they were struck, but the producer of the coin – perhaps a royal functionary, more likely an independent gold-merchant.[44] Some coins bear a lion, the symbol of the Lydian royal household, and these may have been at least guaranteed by the king's authority.

The earliest coin hoard was originally dated around 700 BCE.[45] In 1951, however, E. S. G. Robinson reviewed all the finds that had accompanied the coins and concluded that some of them dated from as late as the end of the seventh century; he therefore dated the coins closer to 620 than to 700.[46]. More tellingly, re-excavation of the site by Austrian archaeologists under the direction of Anton Bammer in 1987 and 1988 indicated that the structure in connection with which the coins were found was not the oldest, but the youngest of three early structures on the site: it stands on a layer of sand that was deposited when the other structures were flooded.[47] The coins that were found there may have been deposited as late as a date between

(37) John Kroll has argued ("Silver" and "Observations", followed by Kim, "Archaic Coinage" 15-7 and Seaford 93 n. 31) that the Athenians, at least, developed a true bullion economy before the invention of coinage; although there is no doubt that weighed silver was used in international trade and as a store of value, I remain skeptical about its use in the marketplace (Schaps, "Conceptual Prehistory"). Cf. below, n. 138.

(38) See Guarducci.

(39) Archilochus fr. 19 West.

(40) For a brief sketch of the rise and fall of the Mermnad dynasty of Lydia see M. Mellink in *CAH* III^{2}2 643-55.

(41) Hdt. 1.53.3.

(42) See Cyrus' titles in lines 20-22 of the Cyrus cylinder, and cf. Ezra 1:2 (= II Chronicles 36.23).

(43) Wallace, ".WALWE. and .KALI.", with references to earlier literature. See, however, Karwiese 8-14, who argues that Alyattes is indeed meant.

(44) See Breglia 42, and Furtwängler 157-8.

(45) Head, "Coins", particularly 92.

(46) Robinson, "Coins" 164-5, cf. *id.*, "Date", and Jacobsthal 85, 90-3. Kagan's two articles, supporting Hogarth's earlier date, and the later study of Weidauer 72-109, have found few supporters among English-speaking numismatists; Vickers has fared no better with his attempt to lower the date to the 540's.

(47) Bammer 137-8.

600 and 560-50.[48] This still makes them the oldest real coins that can be dated with certainty.

Whether it was Lydia or its Greek neighbors[49] that first produced coins, it was surely Greece where coinage grew to maturity. Within a matter of decades, a number of Greek cities had begun to mint their own coinage; by the year 480, more than a hundred different mints had been active in Greece.[50] Electrum, however, did not remain the material of choice. Although some states of Asia Minor continued to use it – the electrum staters of Cyzicus remained the standard Greek "gold" coin until the Hellenistic period[51] – most Greek cities from the middle of the sixth century onward produced only silver coinage. Electrum, which did not occur naturally in most of Greece,[52] was not a convenient medium outside of Asia Minor; and silver, which had long been the dominant metal in Near Eastern trade and in Greek overseas trade as well, was a much more natural choice. Lydia itself, under its last king Croesus,[53] replaced its electrum coinage with two different coinages, one of silver and one of gold;[54] the kings of Persia continued this practice.[55] In Phoenicia coins began to catch on as the Greeks introduced them. The earliest Phoenician coins date from the mid-fifth century, after a period when Attic minting seems to have slowed down, but they did not spread into the hinterland until some generations later.[56] It is possible that coins came to be used in Babylon as well, but even if this is the case the Babylonians seem to have treated them no differently from any other item of silver, to be thrown into a scale and valued by weight.[57] Gold coins, used more for hoarding and for gifts than for retail trade, did indeed spread throughout the Persian empire and beyond it; the Persian silver *sigloi*, on the other hand, seem to have been minted and used chiefly in western Asia Minor.[58] Coinage in the west, in its first century, was very much a Greek phenomenon. As the sixth century progressed, the coins of Aegina (the "turtles") were the first issue to spread beyond their immediate place of issue, reaching Asia Minor, Lebanon, and Egypt.[59] Coins of Thrace and Macedon, where productive silver mines existed, found their way to Egypt and the near east in significant numbers,[60] and by the early fifth century, the "owls" of Athens became the first truly international currency, so widely used and recognized that they became the coinage *par excel-*

(48) This is the conclusion of Le Rider 59-67, who admits, however, that the question of chronology remains open.

(49) See Pollux 9.83 for a sampling of Greek ideas about the originators of coinage.

(50) Osborne 252-55, cf. Kim, "Archaic Coinage" 10 n. 8. Osborne offers a list, and Holle a detailed catalogue, of these mints.

(51) Head, *HN* 522-3.

(52) Of course, most *poleis* had no indigenous silver, either; but purified silver, whether from Greek or external sources, was much more commonly available than electrum.

(53) This is the generally accepted opinion; Le Rider 101-21, suspects this coinage of being a Persian innovation.

(54) Whether Croesus copied or inspired the Greek cities depends upon the relative chronology, which has become uncertain since recent research has lowered the dates for the earliest Aeginetan coins. See Holloway 9-16; Price and Waggoner 84; Holle 75-7.

(55) On the relationship between the Lydian Croesids and the Persian darics and sigloi, see Carradice 90-3, and Le Rider 123-64.

(56) Starr, *Athenian Coinage* 81-4; Elayi and Elayi 386, cf. Betlyon 3-4.

(57) That coins arrived early in Babylon and were in common use there is the theory of Vargyas, "*Kaspu ginnu*" and *History of Babylonian Prices* 24-34; cf., however, the comments of Le Rider 30-35.

(58) Carradice 89-90, confirming the earlier results of Schlumberger. Vargyas, "Darius" 43 n. 37, argues that the siglos was "widely used in the economic life of the empire", a conclusion based on his claim (see previous note) that they were "widely circulated in Babylonia" at the time (41). In fact the mentions of *kaspu ginnu* that Vargyas believes to refer to coined silver seem to be confined to Babylon and its environs (*History of Babylonian Prices* 32). He does not dispute the fact that even in Babylon coins were used merely as one form of silver, no more valid than any other silver of similar fineness. Cf. Le Rider 169-74.

(59) Kraay, "Hoards" 78-9.

(60) *Ibid.* 82-3.

lence,[61] of which other states' first coinages were occasionally mere imitations[62] or replacements.[63]

We cannot trace the introduction of coinage in India with anything like the detail we have offered for Greece. The shortage of historical documentation[64] makes the role of archaeology even larger than in Greece: not only the existence of the coins, but their historical context as well, must be learned as best we can from what the spade can dig up. What the literary sources and archaeology do make clear is that the society of the early Aryans was not a commercial society. There were tokens that served as ways of storing wealth, and that might be given as presents from one noble to another. Cowrie shells, a form of money whose geographic extent is probably unsurpassed to this day, were apparently at one time a form of treasure,[65] and various gold ornaments known as *nishkas* probably served the same purpose;[66] but we do not know to what extent either of these, or indeed anything else, might have served as a medium of commerce. The commercial caste of India has left little direct impression on the early literature.[67]

Punch-marked coins, once invented,[68] are found throughout India, but most of the various types are more or less restricted geographically. P. L. Gupta identified these as issues of the various *Janapadas*, the tribal states of which India in the fifth and fourth centuries BCE had quite a number (the sixteen largest enjoy the title *Mahā-Janapada*, "great" *Janapada*). Other issues are distributed very broadly throughout India; these Gupta connected with the *Janapada* of Magadha, and the Nanda and Maurya dynasties that began from Magadha and united most of India under their rule in the course of the late fourth and the third century.[69] Other scholars, however, are skeptical with regard to Gupta's chronology, suggesting rather that the local issues may be just that, coinages that were issued by local coiners at the same time that other coins were being spread throughout India.[70]

Who issued the coins? It would seem reasonable to presume that when a single type of coin, with a single set of symbols, appears throughout the subcontinent, we must be dealing with a governmental issue; this is the case of the Magadhan coinage, known as *kār-*

(61) *Ibid.* 80-2.

(62) Meshorer, I 13-8.

(63) Elayi and Elayi 386.

(64) "India has virtually no historical records worth the name. In India there is only vague popular tradition, with very little documentation above the level of myth and legend. We cannot reconstruct anything like a complete list of kings. Sometimes whole dynasties have been forgotten. What little is left is so nebulous that virtually no dates can be determined for any Indian personality till the Muslim period. It is very difficult to say over how much territory a great king actually ruled." Kosambi, *Ancient India* 9-10.

(65) See Prakash and Singh 55, for a speculative suggestion of how the value of a cowrie may have been incorporated in an early system of coin values.

(66) On *nishka* see Goyal 55-61.

(67) Kosambi, *Ancient India* 15-6; cf. Goyal 19-23.

(68) It was once held (by Europeans) that the punch-marked coins originated under the influence of the Macedonian conquest, but that can no longer be maintained. A hoard found at Taxila included more than a thousand punch-marked coins, many of them very worn, along with two coins of Alexander the Great and one of his brother and successor Philip Arrhidaeus in almost mint condition (Walsh 1-2). The presumption must be that such a hoard was deposited only a short time after the Macedonian conquest, and that the punch-marked coins had by then been circulating for a good time. This presumption is strengthened yet more by the Chaman Huzūrī hoard, which includes forty-three silver punch-marked coins together with Athenian and Achaemenid Persian coins – that is, coins that predate Alexander entirely. This hoard, indeed, strongly suggests that Greek coins were to be found in India before the Macedonian conquest, but whatever influences there may have been, Indian coins were surely not an importation of the Hellenistic period. Although there remains some uncertainty, the dates offered for the appearance of punch-marked coins now generally fall in the sixth or fifth century (Mitchiner 5-6, 20; Dhavalikar 335; Sinha and Sharma 33; Gupta and Hardaker 1, 11; Goyal 65-71).

(69) Gupta and Hardaker 1-4.

(70) Goyal 86-94.

shāpanÿas. But even if the government prescribed the particular punches to be used, we cannot be sure that it was state employees who made them, nor can we determine the extent of state control over coining. The local issues, furthermore, may have been issued either by local magnates or by merchants; in fact, the *Arthaśāstra*, a contemporary manual of statecraft, makes it clear that even in the Maurya period, a private person could make coins as long as he took them to the mint to be checked for weight and fineness, and to have the proper marks placed upon them.[71] The survival of this practice in a period of radical centralization strongly suggests that the earliest coins were also made by merchants or silversmiths. That seems to have been the belief of people who dealt with these coins in later ages, for the fifth-century CE monk Buddhaghosa explained the nature of understanding as follows:

> Suppose that three persons: one an undiscerning child, one a peasant, one a banker, see a heap of coins[72]. on a counter. The undiscerning child just knows that the coins are pretty and variegated, long, square, round; but does not know that they are held to be valuables for the use and employment of men. The peasant knows that they are pretty and variegated, and that they are held to be valuables for the use and employment of men; but does not know such distinctions as: This coin is genuine, that false, and that half genuine. The banker knows all the varieties: he knows that by looking at the coins, or by striking them and listening to the sound, or by finding out what smell or taste they have, or by holding them in his hand. He knows further that they were made by such and such a master[73] in such and such a village, market town, city, or on such and such a hill, or by the banks of such and such a river.[74]

Buddhaghosa was not himself a banker, and almost a millennium separates him from the first punch-marked coins; but his presumption that they were local issues, and that an expert could recognize each artisan's coins, says quite a bit about the nature of coinage in India. It is hard for me to think of any period since the invention of coinage in which a European money-changer would be able to know that particular coins "were made by such and such a master in such and such a village, market town, city, or on such and such a hill, or by the banks of such and such a river."

When the state was strong enough, it controlled the coinage as best it could. The *Arthaśāstra* put it succinctly: "The treasury is based upon mining, the army upon the treasury; he who has army and treasury may conquer the whole wide earth."[75] But in between the mines that the king should control and the coins whose production he should regulate, the metal might pass through a number of hands before it was ever turned into the final product.

Whatever the original purpose of the coins, the secondary marks make it clear that in India as in Greece they quickly became a common, and eventually more or less universal, medium of payment. Coined money was a strong force in the administration of the Magadhan state, and it is presumably not

(71) Kosambi, *Ancient India* 154-5.

(72) Goyal 33, states that the reference is to *kārshāpanÿas*, and although I have not seen the original text, the fact that coins are "long, square, [or] round" seems to indicate that punch-marked coins are at least some of the ones he is imagining.

(73) *Āchārya*, artisan.

(74) Buddhaghosa, *The Path of Purity* XIV.2.

(75) This is the way Kosambi, *Ancient India* 154, quotes *Arthaśāstra* 2.12.27; typically, Kosambi has given a non-literal translation that strikes to the heart of what the author has to say. More literal is the translation of Shamasastry 90: "Mines are the source of treasury; from treasury comes the power of government; and the earth whose ornament is treasury is acquired by means of treasury and army." Cf. also Rangarajan 259. These words come at the end of a chapter describing minutely the various mines, coins, taxes, and the jobs of the officials in charge of them, and there is no doubt that the author is trying to stress, as Kosambi's translation does, the importance of the control of metallurgy for consolidation of a kingdom's power.

accidental that the heyday of punch-marked coins corresponded with the most thoroughly monetized economy that ancient India knew before or after.[76]

In China of the Western Zhou period (1066-771 BCE), riches were expressed in terms of possessions, and the economy was organized around a system of lands that were publicly owned and distributed to those who worked them – though these peasants might be given away, apparently with their land, by the king to a noble.[77] Media of exchange, when they are found, are generally cattle, sheep, silk and grain, rather than cowries or utensils.[78] Taxes were mostly levied in kind rather than in money of any sort.[79]

China, like India, had once used cowries as a sign of wealth; in Chinese, many words connected with the idea of value have a picture of a cowrie as part of their ideogram. The ideogram whose pictures can be described as "cowrie + divide" means "poor"; "cowrie + few" gives "cheap"; "cowrie + work" = "tribute"; "cowrie + natural ability" = "wealth".[80] For China, there can be no doubt that cowries were used to reward meritorious actions and to pay for service, and the value of gifts is often stated in terms of *bei*, cowries.[81] They may have served as a medium of exchange as well.[82] Even stone and bronze imitations were used; the oldest of these go back to the Neolithic period, but they became particularly common at the end of the Western Zhou period, and even more in the Spring and Autumn period (722-481 BCE).[83] At this time they generally appear as grave-offerings, presumably because the real cowries, whose supply was limited and which could not be manufactured, were needed for transactions among the living.[84]

The use of ersatz cowries for burial goods suggests that the need for cowries was outstripping the supply. The peak of cowrie use appears to have been in the early Spring and Autumn period; from the seventh century BCE onward, cowries are less common, and usually concentrated in a few tombs.[85] It may have been the availability of the new coins that made cowries less attractive; alternatively, the discovery of cowries may not have been able to keep up with

(76) On cash in the Magadhan economy see Kosambi, *Ancient India* 152-7.

(77) On the "well-field system" see briefly Li 481-4.

(78) Hu 3.

(79) *Ibid.* 14. Hu does believe that there were money taxes, since there were – or are said to have been – "tariffs, poll taxes, and certain other commercial taxes" (16); but whether we take these to have been paid in cowries, coins, or in some other medium that was evaluated in terms of a standard of value will depend on how we think payments were generally made at the time. The expression of a value in terms of a given unit or commodity does not necessarily imply that it was in fact that unit or commodity that changed hands: see Schaps, *Invention of Coinage* 12-15, 38-40, 45-46, 224-25.

(80) The first two examples are from Peng, xxii. More can easily be offered by anyone who has a Chinese dictionary organized by radicals. It would appear that a detailed study of the semantic fields of the characters including the *bei* (cowrie) radical could offer a good deal of information about the functions of cowries; but such a study would have to take care (a) to note carefully the first known appearance of the character, for the radical in time takes on an abstract meaning no longer connected with the physical cowrie shell; (b) to note carefully the meaning of the character in its early uses, excluding later expansions of its semantic field.

(81) Thierry, *Monnaies chinoises* 39-44; Hsu, "Spring and Autumn" 581.

(82) Use of cowries in payment for services and as a measure of value is abundantly documented; some examples are quoted by Thierry, *Monnaies chinoises* 39-41. If, however, there is any contemporary reference to their use in trade, Thierry does not mention it, but seems to presume that whatever performed the first two functions must have performed the last, a presumption for which innumerable counterexamples could be offered: see Einzig 428-30.

(83) Peng and Zhu 13-4.

(84) Thierry, *Monnaies de Chine* 12. The imitation cowries in the burials are presumably a reflection of the same beliefs about the afterworld that appear more spectacularly in the army of thousands of life-size terra-cotta warriors found near the Qin dynasty tombs in Xi'an.

(85) Peng and Zhu 9-12.

the needs of an expanding economy, so that they were superseded by other forms of money, of which coins were the last and most successful. What else might constitute wealth in China? That would depend upon one's class. An early book tells us:

> If one inquires as to the riches of the ruler, the answer is quantities of land and the produce of mountains and marshes. If one inquires as to the riches of the high officials, to reply that they have the power to engross food, utensils for sacrifice and clothing would not be false. If one inquires as to the riches of the common people, one would reply with the number of their livestock.[86]

For payments, however, we are told that the wise first rulers (those whom moderns consider to have been more or less legendary) "used pearls and jade as their superior method of payment, gold as their middle method of payment, and knives and spades as their lower method of payment."[87] We have here the same phenomenon of "special-purpose money" that we mentioned above as being generally used among peoples who have no coins; and it is worth noting that although utensils might serve for payment here as they seem to have done in Greece, the most prestigious form of payment was not precious metal, but precious stones. The same hierarchy of value can be seen in the fact that when imitation cowries made of bone or of stone were used as burial goods and real cowries were used for monetary purposes, jade and turquoise cowries, which were also made, were kept exclusively as treasure.[88]

Another phenomenon that goes back long before the introduction of coinage is the cast-bronze utensil, a vase, cauldron, or other item that might perhaps be given as a gift but might equally well simply be made at a certain time, to memorialize the occasion on which it was given or made and the relationship that lay behind it. Sometimes characters on the bronze would state the occasion explicitly. These bronzes were never money in any commercial sense – on the contrary, they would likely have been guarded jealously and even hidden from the view of strangers – but they were valuable items that would be held by their owners and passed down to their heirs. That the coins that eventually were chosen to embody value took the form of cast bronze items with characters on them is not likely to be unrelated to the age-old practice of enshrining a precious moment in a cast bronze vessel.

Recent research has added another facet: in the ancient Wu state, during the centuries before the introduction of coinage, many hoards have been found of broken-up pieces of bronze. These pieces came from ingots of an artificial alloy of high lead content and low tin, not very useful for casting vessels but cheap and easily broken; the earliest coins show a similar composition. Since the pieces in a given hoard never fit together and often differ greatly in their lead and tin content, they appear to have circulated after being broken up, so that any given hoard contains miscellaneous pieces of diverse origins. All of this suggests that bronze was circulating, presumably by weight, as a medium of exchange well before the introduction of coinage.[89] This in no way requires us to believe that these pieces of bronze were the only medium in use in the

(86) *Record of Rituals*, quoted in Peng 5.

(87) *Guan Zi*, quoted *ibid.* 7; "method of payment" is the meaning Peng offers for the term *bi* in the text, a term which later came to mean "money". The *Guan Zi* as we have it, however, is an eclectic book much of whose material is a good deal later than it claims to be, and this passage may be nothing more than an inference from the later use of knife- and spade-coins.

(88) Thierry, *Monnaies chinoises* 46

(89) Dai and Zhou, cf. Thierry, *Monnaies chinoises* 48. Chinese coins, however, were in practice rarely if ever valued by their true weight, as mentioned above, p. 285. Although they were nominally equivalent to a weight of bronze, the issuing authorities tried to treat the coins as if they were cowries, items whose value was established by custom, any one of which was equivalent to any other. When the overvaluation became too obvious it does not seem to have been successful for long: Scheidel 6-14, cf. Thierry, "Monnaie et monnaies" 60.

marketplaces of Wu;[90] nevertheless, the fact that bronze seems to have been being produced specifically for use in exchange is noteworthy, and not paralleled in Greece,[91] where pre-coinage utensils were apparently fully useful items, and the silver used for exchange was held to a high standard of purity.[92]

In China as in India, there are terms in literature that might suggest the existence of coins in very early times, but archaeology finds them no earlier than the latter part[93] of the Spring and Autumn period; a literary reference refers to a reform of coinage in 524.[94]

In the late Spring and Autumn period, and even more in the following "Warring States" period (481-221 BCE), we find small bronze objects that are universally admitted to be coins.[95] During the Warring States period, although the King of Zhou was the nominal emperor, there were in fact a number of large states competing for dominance, a rivalry that lasted for centuries until the Qin finally came out on top, establishing a dynasty that lasted for only fifteen years but an empire that lasted, at least notionally, for two millennia.

Here, too, as in Lydia, Greece, and India, the coins were standardized within a given political unit: although we find disk-coins, knife-coins, spade-coins, and ant-nose coins, each state used only one. In Greece and in Asia Minor, the invention of coinage accompanied the transition from a "Dark Age" of small communities with a very localized economy to larger states with integrated economies and pretensions to broad dominion. In China, the period before the appearance of coins had been characterized by a feudal economy that, like the Greek system of gift-exchange and of utensil money, could not have supported the large-scale exchange of goods.[96] Whether coinage was cause or effect, its development coincided with the transition from a thoroughly feudal economy to one in which market trade played a larger part.

V: Theories of the Invention of Coinage.

The question of what may have motivated the person who first struck coins is an intriguing one, and western numismatists and historians have offered numerous ideas.[97] For convenience I shall divide them into three families: those who see the origin of coinage in the growth of the economy, those who see it in the growth of the state, and those who see it in the peculiar characteristics of electrum.

Growth of the Economy. The first and perhaps most widespread theory began with Aristotle:

(90) On the existence of such markets see Dai and Zhou 300.

(91) There was a parallel in Babylon: Powell, "Contribution."

(92) See, for example, Cowell and Hyne 171, table 7.5.

(93) Hsu, "Spring and Autumn" 581; Li 376, speaks of the middle Spring and Autumn period, but the difference may be one of terminology. Li 371-398, gives the fullest account of early Chinese coinage readily available in English, though much has continued to happen in Chinese archaeology in the thirty years since his book was written.

(94) Li 372; the literary reference is to the *Guoyu*, chapter "Zhouyu", second half. This reference cannot be relied on blindly as a firm date for the use of coinage, since there are earlier literary dates as well that are now discounted as later fabrication, and this might be no better than they.

(95) Coole's *Encyclopedia* is an exhaustive catalogue, now very much out of date but containing a great amount of information not otherwise available in English. Li 371 states that Coole contains "the overwhelming majority" of pre-Qin coin types, and that its bibliography is "reasonably complete."

(96) Hsu, "Spring and Autumn" 582. Thousands of coins may seem impressive to an archaeologist, but of course caution is in order with regard to the extent to which China became a cash economy at this period: Lewis 607.

(97) I ignore here those whose theories dealt with the invention of money, even when, like Laum, they thought money first to have appeared with coinage; since, as explained at the beginning of this article, money is a phenomenon that appears spontaneously rather than by diffusion, these theories are no longer seriously entertained. (See now, however, Seaford 102-9).

> For when, by importing things that they needed and exporting things of which they had too much, people became dependent upon more distant places, the use of money was invented out of necessity. For not all of the things that are required by nature are easy to transport; and so for use in exchanges they agreed among themselves to give and take something of a sort that, being itself one of the useful items, was easy to handle for the needs of life, such as iron or silver, or anything else like that. At first it was simply defined by size and weight, but finally they also added an impressed stamp, to free them from measuring it, since the stamp was put on as a sign of the amount.[98]

Although this story is still repeated by economics textbooks on the rare occasions when they mention the subject, it is no longer plausible. Anthropology has shown us that very complex economic arrangements may exist in the absence of coinage, and archaeology has shown us that the near east had a highly developed monetary economy for almost two millennia before coins came on the scene. The final blow to this theory came in '64, when Kraay demonstrated that the earliest Greek coins are hardly ever found far from their point of origin.[99] Although precious metal had surely been used in international trade well before coins were invented, the Phoenicians, who were the greatest of traders, always weighed the metal, and indeed continued to do so long after the Greeks had started using coins. Even today, coins rarely change hands in international commerce: the sums involved are too large.[100] If coins were supposed to enhance international trade, they do not seem to have had any immediate success.

If international trade was not the impetus, perhaps local trade was. Herodotus states that the Lydians "were the first of people that we know to strike gold and silver coinage and use it, and the first to be retail traders."[101] This does not explicitly say that coinage was invented for retail trade,[102] but it surely suggests it, and the Roman jurist Paulus[103] said it explicitly, though not on the basis of any historical research. The minute dimensions of some of the earliest electrum coins[104] lend some plausibility to the suggestion, for they would hardly have been necessary in large-scale commercial dealings. There are those who doubt, however, that shopkeepers had the influence required to bring about such a signal invention merely for their own convenience;[105] and other suggestions have been made.

The general objection to economic theories of the invention of coinage was

(98) Arist. *Politics* I 9.7-8 (1257a 31-41), cf. (with a slightly different explanation) *Nicomachean Ethics* V 5.8-10 (1133a 8-24). I discuss these two passages at somewhat greater length in Schaps, *Invention of Coinage* 5-7.

(99) Kraay, "Hoards" 88, cf. above, p. 289. Kim, "Archaic Coins" 12, does not seem to be speaking of the earliest issues when he says that "archaic coins ended up great distances from their issuing cities." I do not know whether Kim adduces further evidence in his M. Phil thesis, "Greek Fractional Silver Coinage", which was not available to me.

(100) R. M. Cook 260. The size of the sums would not have prevented the ancients from using coins, but another consideration would: an ancient merchant traveled with his wares, and after selling them in a foreign port, it would be wasteful for him to make the return journey "empty", with coins in his purse but no cargo in the hold to be sold at a profit in the next port.

(101) Herodotus 1.94.1.

(102) It does not even necessarily refer to the invention of coinage; Six 210 n. 69, and more recently Balmuth, "Remarks" 3, note that it may mean only that the Lydians were the first to strike a *bimetallic* coinage, which (unless Le Rider, above n. 53, is correct) they almost certainly were.

(103) *Digest* 18.1.1.

(104) The smallest is one ninety-sixth of a stater, about one-seventh of a gram: Head, "Coins" 77. Although Kraay, "Hoards" 85-88, claimed to demonstrate that small-denomination coins were rare in the earliest issues, more recent scholars have not followed him: cf. Holle 187-8 and Kroll, *Greek Coins* 4, and most particularly Kim, "Small Change".

(105) Kraay, "Hoards" 89. This is all the truer for China, where merchants were a despised class: Li 470-3. In India, on the other hand, they were quite influential, if Kosambi, *Ancient India* 100-1, 124, is to be believed.

stated by Helfferich a century ago: "Our whole economic system is based upon the existence of money. It appears to be so eminently useful and necessary in our scheme of things that one cannot even conceive of its absence. But just for this very reason, it is clear that in many respects money must have preceded our institutions. In many important respects economic organisation appears to be the product of money, and it is, therefore, inadmissible to ascribe the origin of money to its special suitability for our existing scheme of things."[106] Aristotle and Paulus do not quite fall into this trap, but the economy that they envision is one that was always a market economy: coins came about when exchange came about, because before this there was only a primitive condition with no economy to speak of. In fact there are economies in which exchange plays only a marginal role, and there are various forms of money where there is no coinage. An economic theory of the invention of coinage is not inadmissible *per se*, but it must be fitted into the known historical framework, not invented *a priori*.

Growth of the State. Robert Cook, noting that the most obvious use for coins would be to make a large number of identical small payments, suggested that they were first invented for the payment of mercenaries[107] – a theory, however, that leaves open the question of what the mercenaries were expected to do with them, if the idea of using them in trade had not yet occurred to anyone. M. J. Price suggested that they were designed to be "far more akin to gifts (or medals) than to coins as we know them,"[108] though one-seventh of a gram of electrum, if it had no value in trade, would not make much of a medal. Colin Kraay suggested more generally that they were designed to provide a universally recognizable standard of payments to the state, to make it possible for the state to control the value of the metal it received.[109] Robert Wallace criticizes this theory because it does not explain the restriction of the earliest coins to electrum;[110] it may be added that a decision on the part of the state to require payment in a form whose possession was not, at first, general in the population, and which could be obtained only through the state, its agents, or its authorized coiners, would require every person to pay essentially a double fee, once when he bought the coin and again when he paid it to the state. Such a system would be cumbersome for the state itself and even more so for those who had to pay; worse, its unfairness would be obvious, so that it would probably arouse fierce opposition that would outweigh any eventual increase in convenience when the system was in place.[111] In the final analysis, no explanation of coinage that involves the state can be convincing if it does not explain how the coins were to circulate through the population so as to be available for continued use.

The problematic nature of electrum. Since electrum is an alloy of silver and gold, its actual content may vary greatly; since gold is more valuable than silver, the value of a given weight of electrum may vary similarly. Sture Bolin, noting that the gold content of the earliest coins might be (and in fact demonstrably was[112]) diluted, considered their invention to be no less than a governmental swindle: the government, requiring that the coins be accepted as if they had more gold than they really did, will have pocketed the extra gold that should have gone into their manufacture.[113] Lest one take this as a paranoiac conspiracy theory, we should note that it is the regular practice of states,

(106) Helfferich 3. The first German edition of Helfferich's book was published in 1903.
(107) R. M. Cook 261.
(108) M. J. Price 7.
(109) Kraay, "Hoards" 89-90.
(110) Wallace 388.
(111) The ostensible convenience of having coins that could be accepted without weighing, although mentioned as long ago as Aristotle, does not in fact seem to have been appreciated; on the contrary, as Wallace (*ibid.*) mentions, a large number of coins would probably have to be weighed to make sure that they had not been clipped or adulterated.
(112) Bolin 24, Table 2; Kraay, "Composition"; Cowell and Hyne 172.
(113) Bolin 11-45.

from antiquity to modern times, to sell their coinage at a value somewhat higher than its bullion value, making a profit on the coining process; the difference is called *seigniorage*. Wallace points out, however, that at a certain point debasement of electrum becomes visible to the observer, and if carried out surreptitiously would make the coins unwelcome in the marketplace, defeating their purpose.[114]

R. Ross Holloway also noticed the variability of electrum, but according to him the issue of coinage was designed not to exploit that variability for a royal profit, but rather to eliminate it for the public good, by having a stamp that would guarantee its value.[115] How the "guarantee" would prevent tradesmen and customers from presuming the worst about a given coin's value is not something that Holloway explains; but Robert Wallace has filled in the gap by suggesting that the original issuer, who was identifiable by the stamp on the coin, would always receive it at the value he had originally received for it[116] – a value that must have been artificially fixed, if the composition of the coins was indeed as variable as Bolin, Holloway, and Wallace all believed. (In fact, more recent investigation has established that the gold/silver ratio of the royal Lydian issues, though depressed, was quite constant.)[117] The motivation for such a guarantee Wallace identifies as the stabilization of the price of electrum, which "presumably brought some profit to the issuing body."[118] Wallace does not specify what profit this might have been; he excludes seigniorage, since he thinks that Bolin's swindle would have been so obvious that it would have prevented the acceptance of coins when they were a new invention.

According to any theory that sees the purpose of coinage in stabilizing the price of a naturally variable alloy, the essential purpose of a coin was to represent a certain externally fixed value, a value that was not equivalent to its uncertain bullion worth. It is a weakness of any such theory that Lydian and Greek coins, unlike our own,[119] never carried upon them any sign or numeral to represent their value. On an Attic tetradrachm the owl appeared in profile with an olive sprig in the upper left, while on the triobol the owl is full-face with olive branches on either side;[120] but neither coin bears any symbol directly stating its value, and often coins of different denominations bear the same images. If the entire purpose of coinage had been to establish a standard value for these small bits of stamped metal, it would seem that their stamp should have included a mark indicating their value, just as weights were (and are) often marked with a number or symbol indicating their weight. This was never the case.

The electrum theories may explain why Lydia invented coinage; they cannot explain why the invention spread so quickly and thoroughly to Greece, where electrum had not been in use before, and where coins, almost from the beginning, were made of silver held to a high standard of purity. Édouard Will suggested that coinage offered a standard by which the nascent Greek *poleis* could evaluate and equalize the responsibilities of a citizen and the damages that he might cause or suffer. This explanation, not unreasonably for its time, confuses coinage and money; in fact Greece used the ox as a standard of value already in Homeric times, and in

(114) "There is sufficient difference in color between coins of 60% silver and coins of 40% silver to result not in standardized issues, but in endless doubts and disputes over particular coins By a variant of Gresham's Law it seems more likely that deceptive manipulation of the alloy would tend rather to have discredited electrum coinage." Wallace, "Origin" 388-9.

(115) Holloway 10-13.

(116) Wallace, "Origin" 393.

(117) Cowell and Hyne 172.

(118) Wallace, "Origin" 395.

(119) But like most early Chinese coins, whose characters are not numerals, though the character "half" occasionally occurs on them: Peng 42-46. Such interpretations as I have seen of the punch-marks on Indian coins do not consider them to have been signs of weight or value, but what they do mean still requires further investigation.

(120) For an illustration see Head, *Historia Numorum*, pp. 371-2, figs. 209-212.

some places used utensils as a medium of exchange in the archaic age.[121] The Greeks could, and did, estimate a person's worth and the appropriate recompense for offenses in those terms before they had ever seen a coin. Another suggestion is that the coin was a symbol of the state's authority;[122] it is not clear why this particular symbol should have appealed so much to the Greeks, when the city-states of the near east and Italy, never short in local patriotism, issued their own coins only after long contact with the Greeks had made coinage the normal form of money. I shall have more to say about why coinage appealed to the Greeks,[123] but whatever the reason, it certainly was not because it stabilized the value of electrum.

VI: Applicability of the Theories to India and China.

It will be seen that some of these theories are more easily exportable to the situation in India and China than others. Aristotle's explanation may perhaps be acceptable (scholars of ancient Indian numismatics, like modern economists, take it for granted), but there is an undoubted problem of scale involved. The largest communities of Dark Age Greece are unlikely to have reached as many as a thousand inhabitants;[124] the archaic age seems to have seen a dramatic increase, but the estimates even for Athens in the time of its greatness do not surpass some two hundred thousand inhabitants, including women, children, and slaves.[125] The urban population of ancient Lydia is not knowable in the current state of research, but its communities are not remarkably large in Greek terms. In India, on the other hand, the Mauryan empire is said to have had an army of four major corps, with six hundred thousand infantry, thirty thousand cavalry, eight thousand chariots, and nine thousand elephants; on this basis, even allowing for exaggeration, Wolpert presumes that there were close to fifty million people in South Asia by the third century BCE.[126] The largest of the warring states of China are said to have been able to raise armies of a million soldiers by conscription.[127] If Aristotle is right that the growing need for trade between communities forced the invention of coinage in the Greek archaic age, it is hard to see how the Indians and the Chinese did without it until their communities were an order or two of magnitude beyond those of the Greeks.

Other hypotheses may be more exportable. Such knowledge as we have from India and China does suggest that there was a good deal of market trade when coins appeared. The need for mercenaries was obviously very great in the time of the *Janapadas* and the Warring States, so that the mercenary theory is quite congenial to the situations we have noted. Surely the *Arthaśāstra*'s dictum that "the treasury is based upon mining, the army upon the treasury" suggests that this idea was not far away from the mind of a ruler. Still, the major problem with this theory – why would the mercenaries accept coins, if they were not valuable for trade? – is no less applicable to India and to China than to Lydia. Seigniorage is not a likely explanation for India, where the

(121) Schaps, *Invention of Coinage* 69-71, 82-88.

(122) Snodgrass 135; Martin has argued at length that this motivation was never decisive, but his evidence, entirely from classical and Hellenistic Thessaly, can only be suggestive, if that, about sixth century communities.

(123) Below, pp. 305-306.

(124) Tandy 19-23.

(125) Cf. now, Hansen, *The Shotgun Method* and *Studies in the Population of Aigina, Athens, and Eretria*.

(126) Wolpert 59. I suspect, however, that Wolpert may underestimate the possibilities for exaggeration in information that is passed from generation to generation.

(127) Roberts 23, basing himself on Hsu, *Ancient China* 71. It is not at all clear that the difference in the size of the *communities* was very great; Hsu quotes 70,000 families, which is larger than anything Greek but – remembering the Greek slave and metic population – not necessarily that far from the mark. Nevertheless, what we must compare are the issuing authorities, which in Greece were the individual *poleis*, in China the kingdoms (and, where they could get away with it, their vassals: Thierry, *Monnaies chinoises* 38).

punch-marked coins do not seem to have been state issues; in China, on the other hand, standardization of weight was inexact and not universal, and it will not have been difficult for the rulers to overvalue the coins, as they surely did in later periods.[128] Kraay's more generalized theory of state intervention – that coins were invented to be acceptable for all state-sanctioned payments – are based in the history of the developing *polis*, and do not seem to offer much explanatory power when applied to India and to China; on the other hand, it cannot be doubted that the propaganda value of coinage, which introduced the royal stamp of authority into the purse of every individual who had something of his own, was great and appropriate in the large states of wide ambitions that characterized the political situation in each of the places we have seen. The theories that locate the stimulus for coinage in the problematic nature of electrum are the least exportable of all, since electrum played no role in the coinage of India or of China. They may be acceptable if it turns out to be true, as we have presumed in this paper, that the Lydians invented coins before the Indians and the Chinese, and if it should also be true that coinage passed from west to east by imitation. This would still require us to explain why these two societies found coins a worthwhile institution, but that is no different from the problem of explaining why Greece adopted coinage when it did not use electrum. If, however, Indian or Chinese coinage proves to be earlier than Lydian, or even if it should be a later independent invention, the electrum theories obviously cannot explain what happened in India or in China.

VII: Parallels and contrasts.

In a very vague mode of thought, we might think that Greece, India, and China represent the three great cradles of civilization, and a phenomenon that appears in all three of them may be taken as almost universal. At closer inspection, this idea cannot be maintained. Egypt and Mesopotamia may boast claims no weaker than the three lands that we have considered; one might go further afield to the Aztec and the Incas, peoples who commanded vast wealth in precious metal, ruled over great stretches of territory and teeming cities, and yet did not coin their silver and gold. Whether they each invented it independently or whether it passed from one to the other, Lydia/Greece, India, and China all proved fertile ground for an institution that neither originated nor was quickly adopted in other civilizations no less advanced culturally and economically. In fact, there are some parallels in the development of the economies of Lydia, India, and China that may be significant for our understanding of their role.

In the political sphere we are dealing in all three cases with relatively[129] large states, dominated internally by a dynast or king but challenged externally by other states of similar size and resources competing for supremacy. In all three places, the competing states among which coinage first arose eventually fell before a single dynasty that unified the entire area: Asia Minor became a part of the Achaemenid Persian empire, India fell under the hegemony of the Nandas and the Mauryas, China under the Qin. This parallel of later development is not directly relevant for the invention of coinage – the kings of Lydia, the rulers of the *Janapadas*, the lords of the Warring States, did not know that they were all doomed to fall before a single conqueror – but it does indicate the strong international competition that preceded the establishment of a unified empire. It was in this environment of deadly competition among wide-ruling dynasts that coinage was first invented.

In the economic sphere, all of these states were in a state of passage from a land-based economy that might loosely be termed feudal to one in which urban markets played a larger role. In Greece and in China, population had increased

(128) Scheidel 3, 6-14.

(129) That is, relative to the same society's previously existing political units.

sharply.[130] This is not to say that any of them were "market societies" in the sense that modern Europe and America are, but in Lydia, India, and China market exchange began to play a significant role around the time that coinage was invented. It is not a simple matter to know which is the cart and which the horse: did the increase in market exchange encourage the development of coinage, as Paulus[131] would have it, or did the ready availability of coins encourage people to fulfill their needs by purchase rather than by agricultural production?[132] For none of the three places, as far as I know, can a certain answer be given; but there are some indications. It is at least worth noting that a great revival of international trade had already taken place in Greece a century and a half before the first coins were minted. As we have seen, it cannot have been international trade that stimulated the development of coinage, but at least the transition from land-based wealth to more liquid forms had begun without any stimulus from coins. Land- and lineage-based oligarchies had begun to fall before tyrants in Greece as early as the mid-seventh century BCE;[133] in China, the crumbling of the feudal system was well underway by the beginning of the Warring States period,[134] and both the apparent use of broken fragments of bronze[135] and the imitation-utensil form of the early coins suggest that the people themselves, like the Greeks with their tripods, cauldrons, and spits, had begun to try alternative media of exchange before the first coins were cast.

Another similarity is that the coins spread very quickly within certain geopolitical boundaries. That there was no long period before coins "caught on", although it is the opposite of the accepted description of "predecessors of coinage", should in fact not surprise us: nothing can function as an exchange medium unless there is enough of it to make it generally available. If coins, or anything else, are in short supply, they will be hoarded, and will not be available for exchange. More interesting is the fact that their spread was limited to these three areas, skipping over spaces between. In India and China, bordering on peoples whose level of economic development did not include a great deal of commerce, this is hardly surprising: what use would the Mongols have had for coins in the fifth century BCE? In the west, on the other hand, the failure of the Phoenicians to adopt coinage has occasioned a good deal of comment, and suggests that even among monetized societies, coins were not everywhere welcome.

In all three places, the earliest coins bear marks that indicate that they were not minted by the central government. In Lydia there are too many coin-types for the number of kings; in India and China the coins normally include some indication of the locality where they were produced. On the other hand, their circulation seems to have been circumscribed by the political situation. This is perhaps less true in Lydia, where the Persian empire adopted the minting of coins, but the use of these coins tended to be concentrated around their birthplace in Asia Minor. It was certainly the case in Greece, and apparently in India and China as well.[136]

(End of Part I)

(130) For Greece, Tandy 19-43; for China, Li 490 (against the traditional numbers). For India I have not found any evidence.

(131) Above, p. 295.

(132) For this uncertainty in Athens see Schaps, "Monetization of the Marketplace".

(133) De Libero 23-30 138, 180-1.

(134) Li 484.

(135) Above, p. 293.

(136) For Greece see Kraay, *Hoards*; for India see the thesis of Agrawal and Rai; for China Li 371-98.

B. COLLIN – Le trafic des Piastres de l'Espagne au Levant au XVIII[e] siècle.

Bien qu'en cette seconde moitié du XVIII[e] siècle la grande période coloniale espagnole dans les Amériques soit passée, l'afflux de métal précieux, or et argent, continue à irriguer l'Europe. Il est un des principaux moteurs du commerce et, par sa proximité avec l'Espagne, la France est en première ligne pour pouvoir en profiter. Ces importations s'effectuent parfois sous forme de lingots, mais surtout sous forme d'espèces espagnoles, parfois monnayées dans les ateliers du Nouveau Monde ou, plus souvent, dans les hôtels des monnaies ibériques. En France, ces monnaies font l'objet d'un triple niveau de circulation. Régional tout d'abord, car, en Languedoc, elles contribuent largement au développement des foires régionales d'importance comme celle de Beaucaire. National ensuite du fait que, compte tenu de la faible production des mines d'or et d'argent françaises, la production des ateliers monétaires du pays est largement dépendante de ces importations. International enfin puisque le commerce extérieur, qui se développe en particulier vers le Levant ou l'Afrique, a besoin de monnaies acceptées par tous.

L'argent d'Espagne.

Pourquoi cet argent d'Espagne remonte-t-il ainsi vers le nord? Essentiellement parce que si ce pays est riche de métaux importés des Amériques, les espagnols ont peu de denrées à vendre et achètent beaucoup à l'extérieur. C'est ce qu'écrit J.B.Aubert, consul de France à Cadix, le 18 mai 1784: « *les Espagnols reçoivent beaucoup de l'étranger; ils n'ont à donner que des espèces en échange et surtout à notre nation, qui n'a pas besoin de leurs vins et eaux-de-vie comme les anglais, les hollandais et autres* ».
La péninsule ibérique achète grains, toiles et droguerie, mais le principal objet du commerce reste sans doute le bétail, mules et moutons. Et ce commerce extérieur, à la balance déficitaire, se solde en espèces sonnantes et trébuchantes. Pourtant, l'Espagne prend des mesures draconiennes pour éviter la fuite des métaux; protection douanière, contrôle des changes... Ainsi, en 1784, le roi Charles III renouvelle ses interdictions de sortie hors du royaume d'Espagne des monnaies d'or et d'argent. Il en augmente même les rigueurs allant jusqu'à interdire aux particuliers de circuler en dehors des villes avec plus de 5 piastres ou son équivalent en petite monnaie. On doit donc recourir à la contrebande comme le confirme la lettre de J.B. Aubert du 12 mai 1784: « *les droits de la douane espagnole sont actuellement si exorbitants que la contrebande est devenue nécessaire à ceux qui tirent des marchandises étrangères pour soutenir leur commerce* ». Monsieur de l'Epinay, fermier général à Montpellier, donne une idée de l'importance de ce phénomène dans son rapport du 23 juin 1785: « *un seul négociant de Montlouis... a expédié depuis la Foire de Baucaire dernière pour deux cent soixante dix mille neuf cent deux livres de marchandises... soyeries, draperies du Languedoc, bonneterie en tout genre, dont le payement ne lui a été fait qu'en piastres* ».
Autre élément facilitant cette hémorragie monétaire, l'usage accentué des Lettres de Change. Une grande partie des achats espagnols sont payés en France par ce moyen. Un réseau bien organisé d'hommes d'affaires achètent au meilleur cours ce papier qui servira à acheter les piastres en Espagne (à Cadix, Madrid et Barcelone) qui rentreront ensuite en contrebande.

La contrebande ou « *interlope* ».

C'est ainsi que la frontière espagnole laisse passer de toutes parts ces « *piastres du Mexique et Péroulienne*s ». Pierre Vilar a relevé des passages à Figueras de grosses quantités de ces pièces en or, dont l'exportation d'Espagne était pourtant interdite: « *8 novembre 1745: 7 chariots d'or.... 20 avril 1746: 5 chariots d'or... 5 juillet 1748: 5 chariots d'or...* ».
Mais c'est, quantitativement, l'argent qui domine et tous les moyens sont bons pour le prendre à sa source européenne. Les grandes maisons de commerce françaises établies à Cadix voient figurer l'argent-marchandise dans leurs échanges au même titre que la soie ou les grains. Ce trafic peut se faire aussi bien par mer

que par terre à travers les Pyrénées, au départ de Barcelone. Monsieur de l'Epinay le confirme: « *c'est dans cette ville où toutes les piastres sont entreposées et de là suivent leur route pour cette frontière* ».
Ainsi que le signalait Louis Dermigny, « *les chemins pyrénéens de montagne se révèlent étonnement perméables aux piastres* ». Le métal passe par Le Perthus ou la Cerdagne d'où il est acheminé vers Foix et Toulouse par la vallée de Carol, ou vers Perpignan par le Conflent. Il arrive sous couvert de règlement de bétail, de draperies... Le rapport de monsieur de l'Epinay apporte un éclairage sur cet usage: « *il n'y a pas de semaine qu'il n'en passe pour descendre en Roussillon... Hier, j'ai vu arriver vingt et un mulets qui portaient chacun 4.000 de ces piastres. On estime qu'il en passe par la seule route de Montlouis à Perpignan pour trente à quarante millions... Ce commerce se fait avec une fidélité et une bonne foy singulière; ces convois considérables ne sont escortés que par les seuls muletiers* ».
D'énormes quantités d'argent arrivent aussi par bateau. Le 20 octobre 1745, 900 caisses d'argent arrivent par cette voie à Marseille; en novembre 1745, le navire suédois sur lequel, sans doute pour des raisons de neutralité, on a chargé une cargaison de blé et des piastres d'Espagne, fait naufrage sur la côte languedocienne. En dépit du repérage de l'épave, les difficultés au sujet de la répartition des frais de l'avarie, ne permettront pas de récupérer le trésor.
Un commerce plus restreint se fait grâce aux patrons-pêcheurs majorquins et catalans installés sur la côte languedocienne; à Sète, en particulier, où ils représentent une colonie d'une trentaine de familles. Ainsi, en 1777, l'échouage à l'entrée du port d'Agde du chebeck « Notre-Dame-du-Mont-Carmel », dont le patron est majorquin, révèle la présence inopinée d'« *un group d'or et d'argent monnayé d'Espagne* » (fig. 4). Il a été chargé clandestinement à Majorque et Montaro.

Marseille et les marchés du Levant.

En cette seconde moitié du XVIII[e] siècle, le marché espagnol, jadis florissant, des toiles et draps de France, est désormais largement supplanté par la concurrence anglaise. Par chance, c'est vers le Levant que ces produits vont désormais trouver à s'exporter. Les fabricants languedociens envisagent même d'ouvrir des fabriques uniquement consacrées à ce nouveau marché. Mais ce commerce présente des contraintes pour cette province qui est obligée de se plier au monopole marseillais tant pour les importations que pour les exportations vers ces régions.
Néanmoins, en dépit de sa brillante situation commerciale, le commerce de cette ville souffre d'un manque permanent de monnaies. Achetant au comptant, le négociant marseillais est contraint de vendre à crédit au Levant; de plus, il doit souvent solder ses importations en espèces étrangères ou françaises. Or, à cette époque, en dépit de la taille de la ville, il n'y a pas d'atelier monétaire royal à Marseille et ce n'est pas celui d'Aix-en-Provence, un des plus petits de France, qui peut alimenter cette place commerciale. Il faut donc se procurer ailleurs ces monnaies, et c'est donc essentiellement aux piastres qu'il faut faire appel.
Pour se les procurer, plusieurs voies sont utilisées. Tout d'abord, en provenance directe de Cadix, par la mer ou, par terre grâce à l'entremise de négociants toulousains. Ensuite, par les Pyrénées. La ville de Perpignan (fig. 1) joue, dans ce trafic, un rôle important comme lieu de concentration de toutes les voies de passage et départ de véritables convois. Les négociants marseillais, mais aussi lyonnais et parisiens, y entretiennent des correspondants qui traitent pour eux directement sur le terrain et envoient la « *marchandise* » ici ou là, suivant les cours les plus favorables du change. Jean Ribes, directeur de la Monnaie de Perpignan, est un des acteurs les plus actifs de ce commerce illicite d'espèces. Il est vrai que sa position lui facilitait les opérations. Ce personnage mènera donc une double vie très lucrative. D'un côté, il multiplie l'activité de son atelier monétaire français de Perpignan où une partie des piastres espagnoles sont refondues et refrappées en espèces françaises à peine trois jours après leur arrivée sur notre territoire. De l'autre, il possède une fonderie privée d'argent dans la banlieue de Perpignan où il stocke ses achats

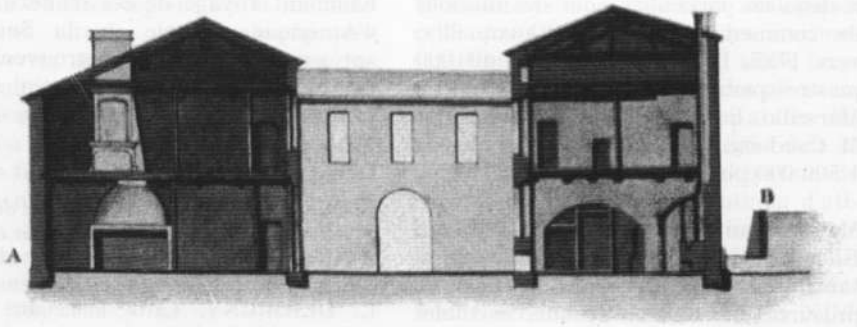

Fig. 1. L'atelier de Perpignan (extr. des *Archives Municipales de Perpignan*).

Fig. 2

Fig. 3

Fig. 4

réalisés en particulier pour des maisons de commerce marseillaises auxquelles, vers 1787, il expédie de 30 à 40 000 piastres par mois. La maison Roux, de Marseille, qu'étudièrent F. Rebuffat et M. Coudurié, obtient par ce canal plus de 1 500 000 piastres entre 1785 et 1790.

Mais à quoi donc servent ces piastres? Elles ne sont, en fait, pas utilisées en tant que telles mais surtout pour se procurer une autre monnaie, le thaler autrichien de Marie-Thérèse (fig. 2-3), ou « *talari* », nécessaire aux échanges commerciaux avec le Levant qui les préfère aux piastres, jugées trop faciles à « rogner ». En effet, la Monnaie autrichienne bénéficie des derniers progrès de la technique qui permet d'imprimer lors de la frappe des monnaies une légende en relief sur la tranche. Cette avancée ne vise pas seulement à ajouter une difficulté de fabrication. Elle contribue à lutter contre le « rognage », opération qui consiste à ôter avec une lime un peu de métal précieux sur la tranche des espèces ce qui, sur une grande quantité, peut s'avérer lucratif. Ce qui est possible sur les pièces à tranche lisse, comme les piastres, monnaies de fabrication souvent sommaires. Car, n'oublions pas, ces pièces n'ont cours que pour la valeur de métal précieux qu'elles contiennent. Or, il n'est pas possible de les peser toutes à chaque transaction. Les thalers échappent donc à ce risque.
Marseille est donc une étape du circuit des monnaies vers l'est. De là, les piastres partent vers les ateliers monétaires de Günzburg ou Milan où elles sont refrappées sous forme de thalers à l'effigie de Marie Thérèse. Ils repartent ensuite vers Marseille via Lyon ou Gènes, et enfin vers le Levant. Notez qu'elles semblent bien ne jamais en revenir car l'étude des trésors français de cette période (et même du début du XIX^{e} siècle) ne présente jamais aucun exemplaire de ces thalers. Cet usage continuera très longtemps car, jusqu'au début du XX^{e} siècle, la Monnaie autrichienne poursuivra ces émissions de grosses monnaies d'argent portant le portrait d'une impératrice décédée depuis longtemps mais dont les monnaies continueront à être utilisées dans ces mêmes régions orientales et africaines.

Étonnant voyage de ces métaux venus d'Amérique centrale ou du Sud qui, après un long circuit se retrouvent dans une zone couvrant le Moyen Orient jusqu'à la corne de l'Afrique.

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Eugen NICOLAE* - La pénétration des aspres ottomans dans les Pays Roumains aux XIV^{e}-XVI^{e} siècles.

L'étude des aspects monétaires des relations entre l'Empire Ottoman de l'époque classique (XIV^{e}-XVI^{e} siècles) et ses voisins de l'Europe Centrale et celle du Sud-Est, aboutit les dernières deux décennies à corriger et à compléter un tableau dominé depuis longtemps par des stéréotypes sans fondement. Aujourd'hui encore, une partie des historiens des pays qui furent victimes de l'expansion ottomane hésitent à renoncer à l'idée que la monnaie de l'Empire s'imposa sur les marchés locaux uniquement après la conquête ou l'instauration ferme du régime tributaire. Les résultats des recherches sur les Pays Roumains, que nous allons présenter en synthèse dans ce qui suit, permettent d'éliminer l'allégation, en dévoilant un processus plus complexe. Rappelons que les Principautés de Valachie et de Moldavie s'opposèrent énergiquement aux sultans et obtinrent un statut autonome à long terme, en formant avec la Transylvanie, qui accéda au même statut après la chute de la Hongrie en 1541, un bloc tampon entre le monde ottoman et l'Europe Centrale. Notons aussi qu'on est mieux informé sur les Pays Roumains

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que sur d'autres régions où la monnaie ottomane circula, car beaucoup des découvertes monétaires ottomanes furent publiées. Notre démarche est concentrée sur la principale catégorie monétaire (en argent) de l'Empire: l'aspre (les sultans firent frapper d'autres catégories en argent en Orient, pour les marchés locaux, après les annexions de 1514-1517 dues à Selim I[er], et les premières émissions officielles en or datent de 1477/1478).

L'aspre ottoman est dès le début une monnaie stable et de très bonne qualité, ce qui explique son acceptation sur le marché des pays voisins. Les émissions de l'émir Orkhan (1324-1362), qui inaugura le monnayage ottoman en argent, sont attestées par les découvertes jusqu'à proximité du Danube. L'augmentation de la production monétaire de l'émirat va de pair avec son expansion territoriale: sous Bayezid I[er] (1389-1402) les Ottomans imposent leur suprématie dans la Péninsule Balkanique et en Anatolie et l'aspre devient la principale monnaie d'argent de la zone. La frontière de l'empire islamique atteint le Danube et les monnaies de Bayezid I[er] et celles de l'émir Süleyman (1402-1411) pénètrent au nord du fleuve, en Valachie et en Moldavie. Le processus est favorisé par le fait que les deux principautés sont dépourvues de gisements de métal et, par conséquent, incapables de soutenir une production monétaire de qualité et de grand volume. La Valachie, qui finit par abandonner ses possessions du sud du Danube, fut plus exposée à la pression militaire et économique de l'empire, surtout après l'installation des garnisons ottomanes au nord du fleuve. En dépit de cela, les découvertes monétaires prouvent que la monnaie ottomane pénétra très tôt en Moldavie aussi. En plus, on constate qu'au début il s'agit surtout d'émissions en cuivre, qui ne sortaient pas d'habitude en dehors de l'empire; quelques exemplaires, trouvés récemment dans le Sud-Est de la principauté, portent des contremarques locales (fig. 1/1). Cette étrange réceptivité du marché moldave n'a pas encore été expliquée. Le phénomène semble se greffer sur une évolution locale. Les villes du Sud-Est de la Moldavie avaient connu à l'époque de la Horde d'Or (avant 1369) un système monétaire analogue à celui des Ottomans; dans les sixième-septième décennies du XIV[e] siècle on a même frappé dans la région des pièces en cuivre similaires à celles des Tatares (les émissions dites de type Costeşti-Gârla et Şehr al-cedid). Après l'émancipation de la domination tatare on continua d'utiliser le stock ancien et on importa de pièces tatares et ottomanes (par assimilation). Une partie de ces monnaies furent contremarquées à la fin du XIV[e] siècle et au début du suivant (vraisemblablement dans la ville marchande de Cetatea Albă). Ce fut le prince Alexandre le Bon (1400-1432) qui élimina du marché les pièces islamiques en cuivre et les remplaça par des émissions divisionnaires moldaves.

L'annexion des régions minières de la Macédoine et de la Serbie permit aux Ottomans l'augmentation spectaculaire de la production des ateliers monétaires de la Péninsule Balkanique. En analysant la structure des dépôts monétaires on constate que vers 1481 les pièces balkaniques sont prédominantes (surtout celles provenant de l'atelier de Novo Brdo — Novar / Novabirda dans les inscriptions monétaires), position qu'elles garderont, en général, pendant un siècle. Ainsi les monnaies ottomanes qui envahissent après le milieu du XV[e] siècle les régions du Nord du Danube furent frappées surtout de l'argent des mines macédoniennes et serbes. L'aspre devient la principale monnaie d'argent dans les Pays Roumains, ce qui est clairement illustré par le fait que dans le registre douanier de Braşov (Kronstadt) de 1480-1481 les sommes sont consignées en aspres ottomans. Dans ce contexte, la Valachie, qui avait renoncé à la confrontation armée avec l'Empire et avait accepté le statut tributaire, abandonne la frappe de ses émissions monétaires. Les découvertes monétaires indiquent de nouveau une situation particulière en Moldavie. C'est l'époque du prince Étienne le Grand (1457-1504), qui dénonce le statut tributaire récemment obtenu (en 1456) et s'engage héroïquement dans la guerre contre les Ottomans. Le faible soutien de la part des puissances chrétiennes, l'installation des garnisons ottomanes en Crimée et surtout la perte de la zone du littoral de la Mer

Noire avec les riches villes marchandes de Cetatea Albă et de Chilia (en 1484), déterminèrent la principauté à revenir au régime tributaire. En dépit de cette politique anti-ottomane, le marché moldave est dominé par l'aspre. En plus, une partie des aspres du XV[e] siècle découverts en Moldavie sont des faux aux légendes barbarisées: pièces fourrées (contrefaçons) ou en argent au poids réduit (imitations). Les pièces fourrées sont très bien représentées dans les découvertes isolées (mais on a trouvé aussi un petit dépôt à Orheiul Vechi, dép. d'Orhei, Rép. de Moldavie), tandis que les imitations en argent sont attestées aussi dans les trésors (fig. 1/2-4). Ces faux représentent une production locale de type ottoman, qui devint intense vers la fin du XV[e] siècle et au début du suivant. Il y a des indices que la Valachie aussi fit frapper alors des monnaies de type ottoman: trésors contenant des imitations (Buzău, dép. de Buzău, et Ghinoaica, dép. de Prahova), qui s'ajoutent à quelques informations des documents des archives. La pénétration des aspres faux en Transylvanie (confirmée par un trésor inventé à Şieu, dép. de Bistriţa-Năsăud) provoqua la réaction ferme du roi de Hongrie en 1505, ce qui entraîna l'abandon de cette production en Valachie et en Moldavie, mais le matériel numismatique indique des moments de reprise de moindre intensité au cours du XVI[e] siècle (on a identifié dans quelques trésors de la Moldavie des imitations aux types de Selim I[er], Süleyman I[er], Selim II et Murad III).

La pression militaire et économique de l'Empire sur ses voisins de l'Europe s'accroît après les conquêtes d'Asie et d'Afrique de Selim I[er] (1512-1520). Les aspres ottomans dominent catégoriquement le marché des Pays Roumains dans la première moitié du XVI[e] siècle; la plupart proviennent des ateliers de la partie centrale et occidentale de la Péninsule Balkanique, mais il y a des moments où les pièces des capitales (Constantinople — Kostantiniye, et Andrinople — Edirne) et des ateliers asiatiques enregistrent des pourcentages significatifs. Après la chute de la Hongrie et l'annexion de sa partie centrale (1541), le bloc des trois États tributaires — Valachie, Moldavie et Transylvanie —, est presque encerclé par les possessions et les garnisons ottomanes (le contact direct avec l'Europe chrétienne est possible uniquement vers le Nord). Mais les succès militaires des Ottomans sont tardifs et la supériorité économique de l'Europe chrétienne se manifeste clairement sur le plan monétaire. Les thalers et d'autres émissions européennes de grande valeur s'imposent rapidement en position dominante sur le marché au détriment des aspres. Les payements officiels (tribut et autres) se font en bonne partie avec de la monnaie européenne et même les négociants ottomans envoyés au Nord du Danube pour pourvoir au ravitaillement de la capitale sont tentés de négliger leur devoir et d'acheter des thalers pour les revendre à profit à l'intérieur de l'Empire. Les exploitations minières sont mises en difficulté par cet afflux d'argent et la plupart des ateliers monétaires ottomans fermeront jusqu'au début du XVII[e] siècle. Mais la crise du système monétaire ottoman fut provoquée surtout par la politique imprudente du gouvernement. Comme la guerre contre l'Iran (1578-1590) mit en difficulté le fisc impérial, on jugea convenable en 1584-1586 de mettre en œuvre une réforme sévère de l'aspre, dont le poids fut diminué de 0,68 g à 0,38 g. Le fisc enregistra des profits en fixant un cours d'échange défavorable aux aspres anciens et à d'autres catégories monétaires et en retardant exprès l'ajustement des tarifs. Ce qui devait être un expédient tourna en catastrophe et le gouvernement ottoman ne réussit pas à contrôler l'économie et à rééquilibrer le système monétaire. Devenu une menue monnaie instable et de mauvaise qualité, l'aspre ne jouira plus du crédit d'autrefois et l'Empire s'abandonnera à l'afflux des pièces européennes en argent. La crise se répercuta durement dans les Pays Roumains, déjà essoufflés par des obligations financières démesurées. Le marché local fut profondément bouleversé: la population osa parfois refuser les aspres nouveaux, ce qui mit en difficulté le ravitaillement des garnisons ottomanes, tandis que des émissions exotiques — des *şahi* frappés en Asie (ayant à l'origine un poids de 4,6 g, diminué graduellement après la réforme

de 1584-1586) — pénétrèrent en quantités considérables, le tribut de la Valachie et de la Moldavie étant payé en 1585-1589 en bonne partie avec des *şahî*. L'analyse récente de quelques trésors inventés en Moldavie a démontré que la plupart des émissions d'aspres du temps de Murad III (1574-1595) et Mehmed III (1595-1603) proviennent aussi des ateliers asiatiques (surtout de celui de Canca). Sous prétexte que les *şahî* étaient d'habitude de mauvais aloi ou faux, le sultan interdit en 1590 les payements officiels avec cette catégorie monétaire. La motivation n'était pas sans fondement, car en analysant les découvertes monétaires du Nord du Danube on constata beaucoup d'aspres et de *şahî* faux aux types de Selim II (1566-1574) et de Murad III (1574-1595); les pièces aux légendes barbarisées seraient d'une production locale, mais il y a aussi des exemplaires qui pourraient provenir de l'empire, où, selon les documents des archives, l'activité des faussaires fut très intense à cette époque (fig. 1/5-8). La situation de la Moldavie et de la Valachie s'aggrava rapidement jusqu'à l'insolvabilité qui risquait d'entraîner l'annexion. Ceci contribua à la décision des trois principautés de dénoncer solidairement le statut tributaire et de s'engager en 1594 dans la guerre antiottomane. L'âpre défaite des armées impériales au Nord du Danube en 1595 et les effets économiques de l'insurrection déterminèrent les Ottomans, lorsqu'ils réussirent, avec l'aide de la Pologne, à restaurer le régime tributaire dans les trois pays (en 1600), d'établir des obligations financières plus raisonnables. Jusque récemment on considérait que l'aspre a presque disparu de la circulation au Nord du Danube à la fin du XVI^{e} siècle, mais la constatation est basée sur le fait qu'on a publié très peu des découvertes monétaires de l'époque. Le recul est réel, mais il est temporaire et pas si sévère, et la monnaie ottomane continuera à jouer un rôle relativement important sur le marché local.

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Fig. 1

Émission en cuivre de Bayezid I[er] avec contremarque (chrisme) moldave (1); contrefaçons (pièces fourrées) d'après les aspres de Murad II, atelier de Serez, et Bayezid II, atelier de Novar (2-3); imitations (argent) d'après les aspres de Bayezid II, atelier de Novar, et Murad III, atelier de Novabirda (4-5); contrefaçon (pièce fourrée) et imitations (argent) d'après les *şahî* de Murad III, atelier d'Alep (6-8).

Provenance: Costeşti, dép. de Chişinău, Rép. de Moldavie (1); Suceava (2); « Moldavie » (3); trésor non localisé (4); trésor de Bălești, comm. de Deleşti, dép. de Vaslui (5); dépôt non localisé (6); inconnue (7); Ciocâlteni, dép. d'Orhei, Rép. de Moldavie (8). Collections privées (1 et 8), de l'Institut d'Archéologie de Bucarest (2-3 et 5-7) et du Musée Départemental de Braşov (4).

Kristine MAGERMAN en Steven SAERENS - Muntvondsten in Asse (Vlaams-Brabant).

Bij een archeologische opgraving op perceel sectie F905G16 werd in spoor 1 één munt gevonden. Dit spoor is meer dan 18 m lang en wordt door de archeologe, Kristine Magerman, geïnterpreteerd als een uitbraakspoor van een fundering. De verwerking van de context dient nog te gebeuren en zal gepubliceerd worden in het jaarboek van AGILAS V.Z.W.

NERO, atelier niet met zekerheid vast te stellen, vermoedelijk Lyon, 64-68.
]O[,
buste van de keizer naar links.
[ ]C, langs de rechterzijde van de munt, naast de figuur. Zeer sterk aangetast.
Vermoedelijk gaat het om een gevleugelde Victoria naar links met schild.
As, 10,21 gram, 29 mm.

Bij een prospectie op het perceel F918a trof men in 2006 één munt aan in het midden van dit perceel, op 10 m van de grens met het huidige containerpark.

CONSTANTINUS, imitatie, 330-340 n.C.
Geen tekst leesbaar, buste van een zoon van de keizer met laurierkrans naar links.
]RC[, soldaat met speer in de linkerhand.
Deze staat rechts van een standaard.
Vermoedelijk staat er een tweede soldaat langs de andere zijde van de standaard.
Ae, 1,25 gram, 14 mm.
Vermoedelijk gaat het om een imitatie van het GLORIA EXCERCITVS-type.

Kristine MAGERMAN et Steven SAERENS - Trouvailles à Liberchies: la collection Rudy Van Cutsem (partie 1).

Depuis 5 ans Monsieur Van Cutsem effectue des prospections sur le site de l'agglomération gallo-romaine de Liberchies. Toutes les monnaies présentées ici, appartenant uniquement au Haut-Empire, furent trouvées dans le quartier de la « Fontaine des Turcs ».
Monsieur Van Cutsem a trouvé également quelques dizaines d'exemplaires datant du Bas-Empire, qui feront l'objet d'une étude ultérieure.
De plus, 72 bronzes sont trop frustes pour une détermination. Il s'agit d'un mélange d'*asses*, *dupondii* et *sesterces*. Nous nous contenterons de les mentionner ici, sans en donner le poids ; s'y ajoute également un quinaire totalement fruste, de 1,62 g.
Les monnaies suivantes ont pu été identifiées:

1. **RÉPUBLIQUE : P. Nerva**, Rome, 113 - 112 avant J.C.
Buste de Rome avec casque.
[P. NE]RVA, scène d'élection.
Denier, 3,38 g, Crawford 292/1.

2. **AUGUSTE**, atelier indéterminé, 27 avant J.C. - 14 après J.C.
Tête d'Auguste, fruste, portant la contremarque CAES.
Revers illisible.
As, 7,42g.

3. **VESPASIEN**, Rome, 76 après J.C.
]CAEAVGDOMITCOSIII
Tête laurée à droite.
Légende illisible.
Pégase courant à droite.
Denier, 2,85 g, *RIC* 238.

4. **DOMITIEN**, Rome, 80 - 81 après J.C.
DIVVS AVGVSTVS VESPASIANVS
Tête laurée à droite.
EX S.C.V
Victoire debout, plaçant un bouclier sur un trophée.
Denier, 2,77 g, *RIC* 59a

5. **MARC AURÈLE César, sous ANTONIN LE PIEUX**, Rome 145 après J.C.
AVRELIVS CAESAR AVG PIIF
Tête nue à droite.
CONCORDIA S.C.
Concorde debout tenant une patère, la main gauche posée sur la *cornucopia*.
As, 9,15 g, *RIC* 1254.

6. **ANTONIN LE PIEUX**, Rome 138-161 après J.C.
Légende illisible, tête de l'empereur à droite.
S.C.
Figure debout avec une *cornucopia*.
As, 12,02 g.

7. **MARC AURÈLE**, Rome, 177 après J.C.
M. ANTONINVS AVG GERM SARM TRPXXXI
Tête radiée à droite.
Légende illisible.
Foudre ailé.
Dupondius, 9,50 g, *RIC* 1219.

8. **MARC AURÈLE**, Rome, 161-180. après J.C.
]ANTONINVS AVG[
Tête radiée à droite.
]IMP[
Figure (Providence?) debout à gauche tenant sceptre et globe.
Dupondius, 11,15 g.

9. **MARC AURÈLE**, Rome, 161-180 après J.C.
M. ANTONINVS AVG[
Tête radiée à droite.
Légende illisible.
Mars marchant à droite avec javelot et trophée.
Dupondius, 9,33 g.

10. **JULIA DOMNA sous SEPTIME SÉVÈRE**, Emèse ou Laodicée, 193 - 196 après J.C.
IVLIADO/MNAA[V]G
Buste drapé à droite.
VENERIVICTR
Vénus à droite avec pomme et palme.
Denier, probablement fourré, 2,41g, *RIC* 632.

11. **TRÉBONIEN GALLE**, Antioche, 252 - 253 après J.C.
IMP C C VIB TREB GALLVS PF AVG
Buste radié, cuirassé et drapé à droite.
IVNO MARTIALIS
Junon assise à gauche.
Antoninien, 1,89 g, *RIC* 83.

IN MEMORIAM

HEINRICH KOWALSKI

(1917 - 2006)

Monsieur Heinrich Kowalski venait d'accomplir son 89ème anniversaire lorsqu'il nous a quittés à Tutzing, en Allemagne près de Munich, où il s'était retiré dans les années '80 après avoir pris congé de ses fonctions à la Commission Européenne à Bruxelles.

De formation scientifique (il avait été professeur de physique et de mathématique), il devait rejoindre les cadres de l'Euratom en 1959. Doué d'une bonne plume, il avait aussi pratiqué le journalisme. Son intérêt pour la numismatique remonte au hasard d'une trouvaille, lors de travaux de restructuration dans la cave de la maison familiale à Thorn en Prusse (aujourd'hui Torun, Pologne). Il s'agissait d'un dépôt monétaire sans grande valeur, mais suffisant pour faire jaillir dans le cœur d'un jeune homme une passion qui ne pourra s'épanouir que beaucoup plus tard à l'âge adulte, lorsqu'il découvrit, sous l'influence de Ernst Kantorowicz, la fascinante histoire de l'empereur Frédéric II et du Royaume de Sicile.

Le monnayage de Frédéric II fournira un terrain idéal pour les recherches de H. Kowalski qui y laissera son empreinte. Les travaux sur les *augustales* d'or émis par l'empereur Frédéric II à partir de 1231 et sur leur version angevine - les *réales* d'or émis par Charles 1er d'Anjou de 1266 à 1278 - sont de grande importance pour la science numismatique. Ils ont donné lieu à des publications qui s'étalent tout au long des années '70, lorsque H. Kowalski était membre du CEN. Rappelons en particulier les études publiées en 1971 dans *la Revue Belge de Numismatique* et en 1979 dans le *Bulletin du CEN* (vol. 16, 3, p. 50-63).
Pour se limiter à l'essentiel, on peut dire que ses travaux se fondent sur un recensement quasi complet de tous les exemplaires existants de ces monnaies (qu'il s'agisse

de collections publiques et privées ou de pièces apparues sur le marché numismatique), couvrent les aspects métrologiques par des analyses non destructives et comportent un examen rigoureux des coins et de leurs liaisons. Son travail a rendu possible de distinguer pour la première fois les pièces issues des ateliers monétaires siciliens et celles issues des ateliers ouverts dans les Pouilles. Il a également décelé un léger affaiblissement du contenu d'or fin des *réales* de Charles 1er d'Anjou par rapport aux *augustales* de Frédéric II, permettant ainsi de clarifier un point qui demeurait obscur dans le développement de la monnaie de compte du Royaume.

Au cours des dernières années, l'état de santé de H. Kowalski ne lui permettait pas de gros efforts. Néanmoins il avait pu traduire en allemand un texte médiéval de l'école poétique qui s'était formée à la cour de Frédéric II: le *«Contrasto»* amoureux de Cielo d'Alcamo. Jusqu'à la fin il demeurait disponible pour recevoir, écouter, donner des conseils. J'ai personnellement le regret qu'en raison de mes engagements professionnels de l'époque, je n'aie pu profiter davantage et pleinement de toute son amitié.

Gaetano Testa

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ELSEN & Fils, s.a., Listes 235- 238; Ventes 87 (11-03-06):2396 lots, dont 849 Pays-Bas Méridionaux; 88 (10-06-06): 2004 lots ; 89 (09-09-06): 1884 lots, dont Coll; J.R.Lasser, New York; 90 (09-12-06): 2332 lots, Mon. et nombreuses Méd.

FLEUR DE COIN, Gent, Lijst nr. 3, Febr. 2006; Veil. 4 (22-04-06): 620 lots, Méd. & Mon.; 5 (21-10-06): 543 lots, très nombreuses médailles.

FREEMAN & SEAR, List 11, 2006; Mail Bid Sale 13 (25-08-06).

GEMINI, New York, Aukt. II (10-04-06): 628 lots; III (01-09-07): 697 lots, Ant. et Mod.

JACQUIER, Katalog 34 (Sommer 2006).

LANZ MÜNCHEN, Aukt. 128 (22-05-06): 1000 lots, Ant.et Byz.; 130 (23-95-06): 381 lots, Lit.; 131 (27-11-06): 837 lots, Münzen von Karien; 132 (27-11-06): 622 lots, Ant.; 134 (28-11-06): 336 lots, Num. Bibliothek.

MÜNZEN UND MEDAILLEN GMBH, Aukt. 19 (16-05-06): 1578 lots dont 362 Imp. Gr., Coll. Righetti; 20 (10/11-10-06): 1922 lots dont 508 Coll. Righetti, 8e partie.

NUMISMATICA ARS CLASSICA, Auct. 33 (05-04-06): 694 lots, Ant. Byz.; Q (06-04-06): 1126 lots, Ant. Byz.; 34 (21-11-06): 225 lots, Rom. Gold Coins.

O.G.N. CRINON, Listes 52, hiver 2006; 53, print. 2006; été 2006; automne 2006.

THE NEW YORK SALE, Auction XIV (10-01-07): 859 lots.

VAN ALSENOY, Antwerpen, Veil. 55 (03-06-06): 493 lots; 56 (09-12-06): 395 lots.