Workshop Summaries

Medieval Monetary Problems: Bimetallism and Bullionism

Fourteen papers were given in two sessions held on Thursday, September 23, 1982, with a third session on Friday morning devoted to general round-table discussion. This workshop had been inspired by Professor Frederic C. Lane (Emeritus of the Johns Hopkins University, and ninth President of EHA, in 1956–1958), who wished to see what light monetary historians could cast upon the problems of late medieval bimetallism and associated bullion flows. Appropriately Lane presented the first paper, and the one that certainly dominated the Friday morning discussion, "Bimetallism and the Venetian Bullion Market in the Fourteenth Century." The first problem to be posed was the puzzling oscillation in the bimetallic ratio during the century following Europe's resumption of gold coinages, in 1252. The gold:silver ratio, after rising strongly in the late thirteenth century, reached a maximum of 14.2:1, at Venice ca. 1305. The bimetallic ratio was maintained at approximately this high level across Europe (Italy, Hungary, France, Flanders) until ca. 1330, when it dropped precipitously, to about 10:1 by 1350—in some places, to as low as 9.4:1 (Florence, 1347). Lane does not believe that the much discussed slump in European silver mining can explain this fall in the bimetallic ratio (that is, the appreciation of silver), on the grounds that the new silver mines in the Balkans fully compensated for declines in German-Bohemian production, at least until much later in the fourteenth century. The explanation should instead be sought in the possibly very large increases in gold supplies both from the new Hungarian mines (after the Bohemian-Hungarian pact of 1327) and from Italian maritime trade that drew upon new sources of gold in the Black Sea region (Russian gold) and in Egypt (Sudanese gold from the 1320s).

Lane also agreed, however, that another, complementary factor may well have been an increased industrial use of silver in this era, that is, diversion into luxury display. That particular theme was developed in the paper of Susan Stuard (State University of New York at Brockport), on "The Consumption of Silver After the 'Defense of the Grosso' in the Fourteenth Century." As Lane himself has recently shown, the second quarter of the fourteenth century marked, in Venetian monetary history, not only the plunge in the bimetallic ratio, but also, after a long period of deterioration of the silver coinage, a severe monetary crisis ca. 1321–1332, the virtual abandonment of the traditional *grosso* silver coinage, and finally by midcentury a shift from the *grosso*-based silver standard to the ducat-based gold standard in moneys of account (*lire di grosso a oro*).[1] Further elucidating these crucial events, Stuard has found that in this very era Venice and other Italian cities began manufacturing a wide variety of products in silver, largely for secular rather than (as in the past) sacramental purposes: luxury household articles (salt cellars, incense burners, ewers, bowls, cups, cutlery), but especially silver adornments for male dress—chiefly silver belts and daggers, some weighing 10 pounds. Production of such adornments she attributes, in part, to new modes of status-seeking and to the current fashion that began a sharp differentiation between male and female attire. Such new fashions with silver adornments spread to northern Europe by the later fourteenth century. She estimates that possibly as much as 60 percent of the Ragusan-based Balkan silver delivered to the Venetian bullion market ended up in such luxury production.

[1] Frederic C. Lane, "The First Infidelities of the Venetian Lire," *The Medieval City*, H. A. Miskimin, D. Herlihy, A. L. Udovitch, eds. (New Haven, 1977), pp. 43–63.

Lane, after stressing his second theme that Venice became the world's leading bullion dealer by this era, concluded by contending that Venice derived very considerable wealth from this role. But, he noted, if Venice undoubtedly continued to prosper from the bullion flows accompanying the fall in the bimetallic ratio, Florence did not. Many of the great Florentine banking houses suffered a disastrous reduction in the value of their loan assets previously contracted in gold, a loss that undoubtedly contributed to the collapse of the Bardi, the Peruzzi, and others in the 1340s.

A complete explanation for this sharp fall in the bimetallic ratio may ultimately depend upon an analysis of its earlier rise to 14.2:1. Although this issue was not discussed in the workshop, it was highlighted in the paper by Louise Robbert (University of St. Louis, Missouri), "Bimetallism in the Eastern Mediterranean: A General View from Venice."[2] She contended that from the late twelfth century, certainly from the Latin conquest of Constantinople in 1204, the Venetians had been practicing a de facto bimetallism by requiring payments in the Greek-speaking East to be made in terms of the old, full weight Byzantine hyperperon (nomisma, bezant) and those in the Italian West in terms of the silver *grosso*-based Venetian pound. By her calculations, the thirteenth-century ratio was between 10.6 and 10.9:1 (depending upon the actual gold content of the old hyperperon). When Genoa and Florence almost simultaneously struck the first western European gold coins in 1252, they both assigned a fine gold content of 3.55 g., in the hope of replicating the value of the old, undebased hyperperon. Subsequently Venice, in finally issuing its own gold coin in 1284, adopted this same fine gold content for the ducat; and by the value of 18½ *grossi* per ducat that meant a bimetallic ratio of 10.9:1.

Venetian monetary power in the eastern Mediterranean was further demonstrated in two more papers, the second of which explored the linkages among bullion flows, exchange rates, and credit, a theme pursued by the two following papers. The first, by Alan Stahl (American Numismatic Society) on "Money and Coinage in Late Medieval Greece," documented the absorption of Greece, with various Frankish and Venetian colonies on the mainland and on Aegean islands, into the Venetian monetary orbit. After the Fourth Crusade and conquest of Constantinople (1204), the Frankish victors in Greece displaced the current Byzantine coinages with a billon coin (20 percent silver) based upon the French *denier tournois*; but this new coinage soon encountered a rival in the virtually pure Venetian *grosso*. Over a century later Venice introduced, ca. 1332, a new coin with less silver than in the old *grosso* but four times as much as in the Greek tournois: the *soldino*, whose circulation rapidly expanded in the Greek mainland and islands. Finally, in 1353 Venice began issuing a new billon coin (just 11 percent silver) specifically designed for Greek circulation: the *tornesello*, which was deliberately overvalued and so drove out the other coinages. So important did this *tornesello* coinage become that one of Venice's three mint-masters was given the exclusive task of striking it, at a rate of some 20 million a year (7,000 silver *marcs*).

The next paper, by Reinhold Mueller (University of Venice), on "Bullion Flows and the Foreign Exchange Market in Late-Medieval Venice," effectively demonstrated that while bills-of-exchange banking and the foreign exchange market were vitally important to the Venetian economy, bills of exchange could not possibly have obviated Venice's need to ship bullion, vast amounts of which were exported annually—from the Venetian point of view, simply as a commodity—in transacting its eastern Mediterranean trade, normally in deficit. For the period 1384–1410 in particular, Mueller documented the very regular seasonal rise and fall of exchange rates at Venice in exact accordance with the bullion flows in this trade. The sharpest rise always occurred in the summer months, June to early September, when the departures of the bullion-laden "Romania," Beirut,

[2] In Ibid., p. 53, Lane attributed the sudden rise in the bimetallic ratio to the large production of silver by Bohemian mines.

and Alexandria galleys produced severe tightness (*strettezza*) in the money market. But citing Bernardo Davanzatti's comment (ca. 1581) that specie like water always flows to places where it is lacking, he also demonstrated that very sharply rising exchange rates themselves produced bullion inflows, attracting specie to be invested in bills of exchange. For a previous era, Thomas Blomquist (Northern Illinois University) also contended, in his paper on "Lucchese Exchange Rates in the Thirteenth Century," that exchange contracts, "in shifting purchasing power from one place to another, directly influenced the balance of payments and ultimately the flow of specie/bullion from place to place." In examining over 200 contracts, *instrumenta ex causa cambii*, drawn in Lucca upon the Champagne Fairs in 1284, he similarly found that exchange rates rose in the much more commercially active summer months, May through August, though in a much less regular pattern than Mueller found for Venice. Finally, within the context of local, urban trade, the role of both petty billon coins as quasi-fiduciary moneys and of credit, in so many money-of-account transactions never involving any coinage, were explored in the final Italian paper, on "Money, Credit, and Working-Class Life in Late Medieval Florence," by Richard Goldthwaite (The Johns Hopkins University, Baltimore and Florence). He also contended that gold coinage appeared to be abundant in fifteenth-century Florence, though little was being minted there. That contention surprised some of the participants, who noted that the coinage of gold in northern Europe declined more rapidly than did that of silver during the fifteenth century, and that correspondingly the bimetallic ratio rose from 10:1 to about 12:1 by the 1450s (when official gold values still remained 2 to 4 percent below free-market rates at Antwerp).

Of the next seven papers, the second half of the workshop, two were on the Near East and Asia and five were on northwest Europe. All dealt in one way or another with the themes of bullion outflows and increasing scarcity of money by the later fourteenth and fifteeth centuries. In the first, "Money Supply and Monetary Policies in Fifteenth-Century Egypt," Boaz Shoshan (Ben Gurion University of the Negev) noted that Egypt depended in this era upon trade with Europe, Italy especially, for most of its monetary metals, including copper. By the late fourteenth-century, a growing concern about monetary scarcity, of silver in particular, can be found in many Arabic documents. But the Mamluk mint policies adopted to remedy that scarcity, drastic debasements of the silver *dirhams* and alteration of the mint ratio to favor silver (to as low as 8.5:1 in 1415–1418), largely failed, thus forcing Egypt to resort to copper-based coinages. By the early fifteenth century, the pricing of foodstuffs was shifted from a base of silver *dirhams* to one of copper *fulus*. Copper supplies, however, also diminished during the first half of the fifteenth century, so that the copper coinage was also subjected to several severe debasements (87.5 percent from 1402 to 1448), reducing the weight of the *fals* and substituting more lead or iron for copper. Such copper debasements certainly have no exact counterparts in medieval Europe. Finally, the monetary famine and debasements came to an end in the late fifteenth century when Venetian trade brought greatly increased supplies of both copper and silver, flowing from the Central European mining boom of that era.

Arabic evidence indicates that much of the European monetary metals flowing into Egypt flowed out again just as rapidly in Egyptian trade with Asia, India in particular. That theme was pursued in the next paper, by John Richards (Duke University) on "Precious Metal Flows into India, 1200–1500 A.D." Richards contended first that the domestic economies and foreign trade of much of the Indian subcontinent depended more on silver than gold coinages; and second, that little domestic production of precious metals occurred after the cessation of Afghan silver mining in the early thirteenth century, so that India's monetary stocks became dependent upon bullion imports. Some metal, gold and silver, came from trade with Southeast Asia, but much more from trade with the Arabic world in western Asia and Africa. Though such bullion

imports might appear to be large by contemporary European standards, they simply did not suffice for the economic needs of this vast and very populous region of the Indian subcontinent, especially with its extensive trade in the Indian Ocean basin. Thus even in late medieval India we find a relative scarcity of silver and thus the resort, by many princes, to billon or copper coinages.

Returning us to the West, John Day (Université de Paris VII) presented additional mint and other monetary evidence on "The Question of Monetary Contraction in Late Medieval Europe," buttressing the thesis in his now well-known article "The Great Bullion Famine in the Fifteenth Century," *Past and Present*, 79 (May 1978). Supporting Day's arguments, John Munro (University of Toronto) pursued aspects of this theme in his paper "The Late-Medieval Bullion Famine and Deflation in Northwest Europe: A Critique of the Postan Thesis." This latter thesis, rejecting notions of monetary scarcity and of general deflation in late-medieval Europe, contends that "real" forces, depopulation in particular, best explain the chief economic and price trends of this era: divergent price trends of falling grain prices on the one hand, but of rising (or at least stable) livestock-product and industrial prices on the other, the latter in response to rising real wages and to rising labor costs, on the supply side. Munro tested this (implicit) hypothesis of a negative correlation between such price series by regressing various sets of weighted price indices for livestock and industrial prices against weighted grain-price indices for England, Flanders, and Brabant for various periods within the period 1350–1500. All 16 regressions produced *positive* correlations for such price series; 15 were strongly positive (with R^2 values as high as 0.72) at statistical significance levels of better than 5 percent. In Munro's view, monetary forces swamped the effects of real forces upon such price movements (which sometimes moved predictably against the grain sector, but sometimes in favor, over this whole era). Finally, trend analyses of the three weighted *composite* price indices, for England and the Low Countries, revealed severe inflation in the immediate post-Plague era, ca. 1350–ca. 1375, which was then followed by equally severe deflations into the fifteenth century, a reversal that Munro believes (from other mint evidence) marks the onset of a century-long monetary contraction. In the fifteenth century, price movements in the three countries have a discernible if less steep deflationary trend, with occasionally sharp inflationary deviations produced by coinage debasements (ca. 1415–1435 and ca. 1480–1495, especially in the Low Countries). Significantly, in all three, industrial prices moved downwards in tandem with the deflationary trend of this era, but not in accordance with the Postan thesis.

Monetary contraction and the onset of this deflation were also the subjects of the paper presented by Mavis Mate (University of Oregon), "Dealing with Coin Shortages in Fourteenth-Century England." She pointed out, however, that while deflation and a "silver famine" were indeed severe in the 1390s, prices still fell less steeply than they had during that earlier if much more temporary "silver famine" of the 1330s. One explanation for this difference may have been the cushion provided by the relatively new English gold coinage, commencing only in 1344 (and, with England's strongly pro-gold mint ratios, accounting for 96 percent of total coinage output values in the 1390s). Possibly equally or more important explanations are to be found, she suggested, in an increasing resort to jettons and other token coins, for which there is some archeological evidence, and also in the resort to various credit and even barter transactions in the late-medieval English economy.

In the next paper, for a later era, "Bullionism: the English Experience in the Late Fifteenth and Early Sixteenth Centuries," Christopher Challis (University of Leeds) returned to the theme of the bimetallic ratio, commencing with Edward IV's debasements of 1464–1465. By raising money-of-account values of gold and silver by 35 percent and 25 percent respectively, these debasements successfully reactivated the English mints after the long bullion famine of ca. 1440–1464, and at the same time

"favored" gold more strongly in response to the aforementioned rising market values for that metal (to 11.2:1). Thereafter, until 1526, the crown maintained perfectly stable gold and silver coinages; but nevertheless it continued (until 1492) to adjust, to "fine-tune" the true mint ratios—the ratios of the mint's bullion prices for one metal to the coined value of the other—by reducing the mintage fees of seignorage and brassage, which Edward IV had set at too high a level. The end result was to bring the two mint ratios much closer together, while improving the silver ratio more than the gold ratio, in response to market forces. To some extent these mint adjustments undoubtedly succeeded in attracting bullion; but the true importance of the mint ratio was really in determining which metal was the more "favored" and thus the one more likely to be surrendered to the mint in settling international balance of payments residuals. Indeed the most powerful forces in expanding early Tudor mint outputs, ca. 1485–ca. 1520, were the booms in both cloth exports and merchandise imports, both based upon the rapidly expanding Antwerp Fairs, the Central European mining boom (whose silver flows were directed there by Antwerp's strongly pro-silver mint ratios), and especially the financial aspects of Tudor warfare and diplomacy.

The fourteenth and final paper of the session, on "Money, Coinage, and Mint Outputs in Fifteenth Century France, "Harry Miskimin (Yale University) reiterated Challis's final point that political events often had powerful effects on coinage outputs and bullion flows—in particular, war, financing by coinage debasements, and various fiscal exactions. In France (and indeed also in the neighboring Low Countries) by far the largest mint outputs of that century occurred during the arguably most crucial phase of the Hundred Years' War, the 20-year period from the Battle of Agincourt (1415) to the Treaty of Arras (1435), by which Burgundy deserted England to make peace with the French king. Then followed a very sharp decline in the output of the mints and a very long, half-century period of virtual mint inactivity, which suggests to Miskimin that "political events forced the mobilization of bullion, thus exposing it to market and other forces that tended to carry it away from France." On this same theme, Miskimin also provided a new insight on the mint-ratio question by pointing out that some specific, short-term political exigency, such as paying soldiers in drastically debased silver coin, while maintaining stable gold, could result in such absurd ratios as that of 4:1 in 1418–1419, which obviously bore no relation to the market or any trends of the era in bullion flows. (The long term French ratios he found to be quite stable at about 10.8:1.) A fifteenth participant, who did not present a paper but who, as a noted scholar in the field of late-medieval French royal finances, did provide many valuable insights into our discussion, should not go unmentioned: John Henneman (University of Iowa). Our Workshop also greatly welcomed the interventions of Rondo Cameron (Emory University).

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Measuring the Integration of Markets in Labor, Capital, and Products

Six presentations formed the nucleus of this lively, well-attended workshop on market integration. Four of the contributions dealt with market integration as a process. The most sophisticated, econometric approach was provided by Barry Poulson (University of Colorado) in his "Long Swing Interactions between the U.K. and the U.S. 1855–1965." Poulson's analysis helps to illuminate the mechanism underlying the integration of the North Atlantic community. Specifically he tests Brinley Thomas's hypothesis concerning long swings in capital and migration flows between the United Kingdom and