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DIOCLETIAN'S PRICE EDICT AND ITS ASSOCIATED COINAGE DENOMINATIONS

Lawrence H. Cope

The identification and inter-relation of the denominations of the Roman coinage of the early fourth century A.D. has been a matter of long debate and controversy. But a solution relevant to at least one fixed date in a period of frequent change is now possible in the light of recent archaeological finds combined with the results of metallurgical analyses of the alloys of the different pieces and a statistical study of the maximum prices listed in the Edicts which were published in connexion with a Diocletianic coinage reform of 1 September A.D. 301.

When L. C. West¹ considered the various Edict prices known in 1951, and observed that the extant sections contained a hundred different values, he compiled a list of the instances of their occurrence (up to and including the value of 1000 *denarii communes*) and deduced that the frequency of occurrence of the price of 4 dc (87 times, compared with the next highest frequency of 51 instances of 100 dc) was strong evidence for the existence of a coin valued at 4 *denarii*. He was not, however, able to identify which of the various contemporaneous pieces this was.

In 1974 Marta Giaccherio² published what is now an almost complete review of Diocletian's Price Edict – incorporating the most recent evidence of the Aphrodisias³ and Aezani⁴ finds. In consequence, our knowledge of the Greek and Latin texts of the Edict, based on 132 fragments, extends now to more than twelve hundred different items, ranging in price from 1 to 150 000 *denarii communes*, which can be sorted into 117 different values. Furthermore, the maximum prices of copper, and silver and gold bullion, in their various metallurgical qualities and forms, are now known – as is the 100 dc denominational value of the $\frac{1}{96}$ *libra* silver piece at about the time of the Edict. There is, therefore, a much more scientific basis than hitherto for a statistical analysis of the denominational structure of the coinage necessary for the operation of the Edict, and for the calculation of the values of the less certain pieces from their relative intrinsic worths.

The number of occurrences of each of the different prices, covering the entire known range, and superseding L. C. West's analysis, are listed in Table I. From these can be deduced certain preferences for number which quite probably bore direct relationship to the coin denominations required for the wide range of purchases and sales of the goods and services listed in the Edict. We can agree with West that the formal publication of this scale of prices implies the existence of coins of suitable denominations for the practical operation of the Edict, and that a statistical study should reveal what these were likely to have been.

In the first place it is evident that a unit *denarius communis* had a place in the existing system – albeit not a very important rôle. This is attested not only by the instance of a very common item (animal feed) being priced at 1 dc for a fixed con-

¹ L. C. West, *The Coinage of Diocletian and the Edict on Prices*, *Studies in Roman economic and social history*, 1951, p. 293.

² Marta Giaccherio, *Edictum Diocletiani et Collegarum de pretiis rerum venalium*, Vols. I and II, Università di Genova, Istituto di storia antica e scienze ausiliarie, 1974.

³ K. T. Erim, J. Reynolds and M. Crawford, *Diocletian's Currency Reform: a New Inscription*, *JRS* 61, 1971, 171 ff. See also the recent contribution by C. Jungck, *Die neuen Funde zum Preisedikt Diokletians*, *SM* 26, 1976, 25.

⁴ R. and F. Naumann, *Der Rundbau in Aezani*, *Deutsches Archäologisches Institut, Istanbul Mitteilungen*, Beiheft 10, Tübingen, 1973

venient weight, but by the need for a single unit piece in the small change necessary to purchase other items priced at 3, 5 and 13 dc – and we can identify this as the then existing small laureate copper piece.

It is possible to argue that a 5 dc piece could have been a useful part of the coinage system; but its representation, for only one item in the entire Price List, is so low that the real existence of a coin of this value is remote enough to be discounted. Rather, the revised statistics in Table I much more firmly establish the reality of a 4 dc piece which, on an intrinsic-worth basis, could well have been the argentiferous bronze pre-reform radiate (antoninianus) still in circulation in A.D. 301 – and even later, as the folles hoards testify. It is the author's view that it was this coin which had been devalued to a half of its pre-reform value, at the time of the follis reform of c. A.D. 294 (and for which the Rylands Papyrus, P. Ryl GK 607 provides the evidence) whose «doubling potential» – as mentioned in an Aphrodisias inscription – still existed, and led to its re-instatement in late A.D. 301, to bring it out of hoards and back into circulation as a principal coin of 4 dc and as a fractional follis piece.

Another strong argument for the presence of a 4 dc piece as a common coin in the denominational system of late A.D. 301 is the frequent reference in the Price List to a number of items being priced at 4 dc – as though this were a most convenient coin to use. There are, for example, seven instances of four items being priced at 4 dc – rather than at 1 dc each; and five instances of forty items for 4 dc – rather than ten for 1 dc. Similarly, there are sixteen instances of ten items for 4 dc, and ten instances of twenty items for 4 dc. And five instances of twenty-five items for 4 dc are also compelling for our acceptance of the place of a 4 dc coin in the system, as is the single instance of sixty items for 4 dc. There are numerous other examples supporting this theme: they all point as clearly to the reality of a 4 dc coin as, for example, the listing of one hundred items for 100 dc points to one practical use of the silver argenteus, now known to have had a 100 dc denominational value at the time of the Edict.

A study of the low end of the price range in the Edict (see Table I) reveals an official Roman propensity for thinking mainly in double units, and simple multiples of these – corresponding, no doubt, to the known existence of a 2 dc for paying prices of 2 dc itself (in 26 instances) and 6 dc (in 33 instances); but these occurrences are greatly eclipsed by the 196 instances of the use of a 4 dc coin and its multiples, up to the price level of 16 dc. There would have been a lesser use for a 2 dc piece, therefore, which could have been met quite satisfactorily by the extant silver-free copper radiates which had been minted in substantial numbers between A.D. 294 and 301.

For transactions at prices of between, say, 10 and 100 dc the thinking determining the prices quoted in the Edict moves in tens of denarii, with a revealed statistical preference for multiples of 20 dc. Interspersed at the lower end of this price range, however, are several prices which are chosen rather as multiples of a unit of four; and these are evidenced by prices of 24, 32, 36 and 64 dc whose spacing between decimal prices is such that it is difficult to comprehend their selection without an intended frequent use of 4 dc coins, overlapping with the next highest coin denomination.

A total of 111 instances of prices fixed at 20, 40, 60 and 80 dc points to a 20 dc piece being the next denomination above one of 4 dc – although the usefulness of a 10 dc piece is indicated by the total of 121 prices fixed at levels of 10, 30, 50 and 70 dc. Consideration of the intrinsic worth of the argentiferous bronze XX. I follis

of eastern mintage ⁵, in relation to that of the *argenteus*, shows that it could not have been made and tariffed viably at a denominational value of less than a seventh to an eighth of that of the current silver piece. This vitiates a 10 dc piece and makes it appear that we should attribute a value of 20 dc to the large eastern follis of post A.D. 301, as being both intrinsically and statistically valid.

The Price Edict contains a large representation of items priced at 100 dc – as would befit the existence of a *denarius argenteus* having a value of 100 *denarii communes*; then between 100 and 1000 dc the price intervals reveal the thinking to be mainly in multiples of one hundred but with a few items at prices matching half and quarter hundreds. Such thinking persists with the prices listed in the thousands and tens of thousands of *denarii* (where payments were likely to have been made, more conveniently, in gold pieces); and this concept is repeated with prices in the 100 000 to 150 000 dc range – where the limit is drawn.

The maximum price of refined silver bullion – which is substantially different from any consideration of silver as coin – was set at 6000 dc per libra. Presumably this was the maximum price which the Roman state itself was prepared to pay for it; but even if it did, it converted each libra of silver into 96 *argentei* having a total denominational value of 9600 dc – which represents an extremely high over-valuation of 60 %, or more if the silver bullion cost less or if some small alloy addition was used in minting. Remarkable though this might seem, the evidence seems irrefutable, and it is in harmony with the traditional numismatic view of the high over-valuation which must have been placed also on the silver-bearing outwardly-silvered bronze follis.

Gold bullion was fixed at a maximum price of 72 000 dc per libra, and it represents one of only two items set at this unusual price level in a realm of decimal high values. Since the Diocletianic aureus was minted at 60 to the libra, this set at least a bullion value of up to 1200 dc on each gold coin; and so we must seek some denominational value above this for a viable gold piece. Statistically, the two contending prices in the Edict are 1250 dc, and 1500 dc, based on prices which could be representative of the purchasing power of the pieces themselves or of their known fractional and multiple pieces. The evidence for a denominational value of 1250 dc is slender, in that it could be hardly justified by the small margin which it would leave for the cost of minting plus even a small over-valuation as coin. But the ease with which gold coin could be officially regarded as bullion (and was, not many years later) would match a much lower over-valuation than could be given to the contemporaneous token silver and argentiferous bronze coinage.

In Table I there are 92 instances of prices of 1250 dc and its multiples, compared with 105 instances pertaining to 1500 dc. This statistical comparison is close, but it widens in favour of the aureus being a 1500 dc piece when the 12 items whose prices are multiples of both 1250 and 1500 are subtracted; and the acceptance of a value of 1500 dc for the aureus would bring in an additional 9 items which, at 750 dc, would be purchasable with a half-aureus piece. Even the seemingly odd price of 135 000 dc then becomes explicable – as 90 aurei; and the highest price in the list (150 000 dc) becomes simply a concept of the purchasing power of 100 aurei.

The price of copper, in the Edict, is interesting in that it was set at 75, 60, or 50 *denarii* per libra, according to metallurgical quality. It is also interesting to note that «aurichalcum» was more expensive, at 100 dc per libra, as might be expected. Although orichalcum was not used for any of the imperial coinage of

⁵ L. H. Cope, *The Argentiferous Bronze Alloys of the Large Tetrarchic Folles of A.D. 294–307*. NC, 1968.

that era, it was no doubt in demand for domestic and ornamental purposes. The most expensive copper was that of Cyprian origin – so the Edict provides literary evidence that the mines in Cyprus were still in production, even though coin analyses show that sulphide contaminated coppers from a different source were introduced during the early part of Trajan's reign. The author's analyses of the copper radiate coinage of A.D. 294–301⁶ show that they were made from quite low-grade coppers – perhaps even of the common 50 dc per libra quality – but possessing, nevertheless, determinable intrinsic worth. Strangely, the Price Edict contains no mention of tin – which was used in substantial proportions in the follis coinage, and must have had then (as now) a semi-precious metal value. Nor is lead mentioned; although in this case it would have been the cheapest of the alloying materials used. To some extent the lead and tin worths in the argentiferous leaded tin-bronze follis alloys would have partly compensated for each other, and then been eclipsed by the value of the very much higher proportion of copper present. So, for the purpose of intrinsic worth calculations, the argentiferous coinages can be treated as simple copper-silver alloys, with an assumed copper value of 60 dc per libra; and the silver-free copper coinage can be treated as having been made from the cheaper variety of copper priced at 50 dc per libra.

The resultant reconstruction of the denominations of Diocletian's reformed eastern coinage of the immediate post-Edict period, based on all the present scientific and epigraphical evidence is now given in Table II. It is emphasised that – despite the seeming universality of the Edict – this complete coinage system would have operated successfully only in the eastern dominions under Diocletian's control, and then, perhaps, for only a short period after the promulgation. Further consideration needs now to be given to the earlier coinage system of A.D. 294–301; and the substantial differences in intrinsic worths which separated the eastern and western folles in the post-Edict period also necessitate separate consideration of the denominational value of the large western follis, which could have then served, even universally, as a 10 dc piece.

Table I *Diocletian's Price Edict*

The Frequency of Occurrence of the Different Prices

Prices in <i>denarii communes</i>	Number of occurrences	Prices in <i>denarii communes</i>	Number of occurrences
1	2	20	39
2	26	22	2
3	1	24	21
4	94	25	21
5	1	26	1
6	33	30	33
8	36	32	1
10	25	35	4
12	34	36	2
13	1	40	32
14	9	45	1
15	4	50	57
16	32	60	26
18	7	64	1

⁶ L. H. Cope, *The Metallurgical Development of the Roman Imperial Coinage during the first five centuries A.D.*, Doctoral Thesis, Council for National Academic Awards, and Liverpool Polytechnic, 1974.

Prices in <i>denarii communes</i>	Number of occurrences	Prices in <i>denarii communes</i>	Number of occurrences
70	6	3 500	9
75	20	4 000	14
80	14	4 500	8
100	56	5 000	17
116	1	5 250	1
120	8	5 500	2
125	4	6 000	11
144	1	6 500	3
150	29	7 000	9
175	9	7 500	6
200	38	8 000	9
240	1	8 500	1
250	24	9 000	4
260	1	10 000	12
275	4	11 000	1
300	19	12 000	8
350	4	12 500	2
400	23	13 000	1
450	3	15 000	6
500	24	16 000	1
600	25	19 000	1
700	4	20 000	6
720	1	22 000	3
750	9	23 000	2
800	11	25 000	4
820	1	30 000	3
840	1	31 000	1
960	1	32 000	3
1 000	22	34 000	1
1 200	7	36 000	4
1 250	14	40 000	2
1 300	1	44 000	1
1 400	1	45 000	1
1 500	16	46 000	1
1 600	2	48 000	1
1 750	10	50 000	3
1 800	1	55 000	1
2 000	17	60 000	1
2 100	1	72 000	2
2 250	10	75 000	1
2 300	1	100 000	3
2 500	18	125 000	2
2 750	2	135 000	1
3 000	17	150 000	2
3 250	1		

Table II *The Denominations of Diocletian's reformed Coinage of 1 September A.D. 301*

Coin Type	Coin Weight * (grams)	Calculated Intrinsic Worth (<i>denarii communes</i>)	Denominational Value (<i>denarii communes</i>)
1. Small copper laureate, of 14 mm die diameter	c. 1,3	0,2	1
2. a Post A.D. 294 copper radiate, of 21 mm die diameter	c. 3	0,6	2

Coin Type	Coin Weight * (grams)	Calculated Intrinsic Worth (<i>denarii communes</i>)	Denominational Value (<i>denarii communes</i>)
2. b Large Cyzicene copper radiate, of 24,5 mm die diameter	c. 6	1,2	4
3. Pre-reform XX.I radiate antoninianus of argentiferous bronze	3,87 ($\frac{1}{84}$ libra)	3,19	4 (re-valued, after devaluation)
4. XX.I eastern follis in argentiferous bronze, c. 25 mm	10,16 ($\frac{1}{32}$ libra)	8,39	20
5. Nummus argenteus, in high quality silver	3,39 ($\frac{1}{96}$ libra)	62,5	100
6. Gold aureus	5,42 ($\frac{1}{60}$ libra)	1200	1500

* Theoretical weights, in grams, are based on the assumption of a Roman libra of 325 grams for this period.

NOTE SUR LE MONNAYAGE DE L'EVECHE DE GENEVE

Colin Martin

L'histoire du monnayage des évêques de Genève est encore à écrire; plusieurs historiens ont déjà préparé le terrain. A la suite de la trouvaille faite en 1843 à Saint-Pierre-hors-les-murs de Rome, Ed. Mallet publia les monnaies de Genève, décrites par G. di San Quintino dans les Mémoires de l'académie de Turin, de 1846 (MDG t. V, 1847). Il s'agissait de deux deniers et d'une obole de l'évêque Conrad (début XI^e siècle).



1



2

La trouvaille du Pas-de-l'Echelle, signalée par Auguste Ladé (BNS XI. 1892, 46 ss.) a été portée à la connaissance des historiens et des numismates grâce à sa publication, parue en 1895, sous les auspices de notre Société, dont A. Ladé était alors vice-président. La trouvaille comportait un millier de deniers frappés au nom de