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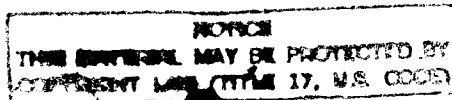
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Diocletian's Price Edict and Second Coinage Reform in the Light of Recent Discoveries

LAWRENCE H. COPE

FEW numismatic problems engender such fascination as do Diocletian's enigmatic coinage reforms of A.D. 294 and 301—the latter being closely associated with extraordinary attempts, possibly from the beginning of the new tax year, to legislate for the control of the maximum prices which could be paid for an enormous list of basic commodities, manufactured goods and luxuries, and services, in the face of recent price rises really governed by economic laws involving the supply of money in the light of normal market demands.

The facts are that Diocletian's seemingly brilliant reorganization of the defences of the Empire—involving the introduction of a tetrarchic government and an apparent doubling of the size of the Roman army—proved to be a costly affair beyond the real resources of the Empire. The new system could only be maintained, therefore, by an increase in the quantity of money in circulation, essentially as army pay in the form of coins of low intrinsic worth compared with their nominal values; and this was followed by a dramatic increase in market prices due, presumably, to the fact that too much money began to chase too few goods and services.

Diocletian could have balanced his books by suitable high increases in taxation (and he did revise the tax system); but he must have feared the consequent opposition and unpopularity in much the same way that modern governments do. The result was that the inflation gathered pace. Diocletian then attempted to place a strict artificial restraint upon rising prices by legislation containing the threat of severe penalty.

The extent of Diocletian's conviction that such measures could be forced to work is revealed by the permanence which he attached to the *Edictum de maximis pretiis rerum venalium* by having it laboriously engraved in its entirety and displayed on buildings in important market-places. The epigraphic evidence now shows that the monetary system was also revised at about the same time; but this double-pronged effort was doomed to failure. People were unwilling to sell at the decreed maximum prices. The flow of new money continued, and goods and services soon acquired revised values in accordance with the laws of supply and demand.

When Th. Mommsen and H. Bluemner published their work entitled *Der Maximaltarif des Diocletian*, in 1893, they had to be content with only thirty-five recorded epigraphic fragments. By 1940 E. R. Graser was able to consider only sixty fragments—many of which

confirmed parts of the already established text. As in other fields of numismatic science there has been substantial escalation, within the last decade or so, in the new information brought to light by archaeologists—albeit in this case aided by a fortuitous earthquake of 30 March 1970. Thus, in 1971 S. Lauffer was able to publish a rigorous fundamental study based on 126 fragments; but the most vital items relevant to the metal prices, and the denominational values of the coinage, still remained enigmatic. Marta Giacchero,¹ acutely aware of the importance of the 1970 discoveries at Aphrodisias, in Caria, and of the 1971/2 finds at Aezani, in Phrygia, boldly delayed the completion of her present publications until the new material could be properly incorporated in what is now the most complete review possible of the text of the Price Edict. Her work comprises a comparison and parallel reconstruction of the fragmentary Latin and Greek texts, based on 132 pieces—three of which have not been listed previously. The result is an almost entire Latin and Greek text of the Edict, with the items set out in their original numerical order. These feature in the first volume, together with an index of the fragments; a complete Italian translation; and comments on the coinage reform of 1 September A.D. 301 relevant to the published Edicts of 20 November and 9 December of the same year on the prices and the application of a matching revised monetary system.

The second volume of Marta Giacchero's work contains 130 photographs of the Latin and Greek inscriptions incised towards the end of A.D. 301 and early in 302; synoptic tables of the disposition of the inscriptions in the reconstructed text; and useful maps showing the locations of individual finds. It is noteworthy that the latter are concentrated essentially in Greece, Crete, and Asia Minor—deep in Diocletian's own administrative territories; and this matches my own observation, based on silver assays of the follis coinage minted in the east and west both before and after the Edict, that Maximian—despite his official inclusion in the inscription preambles—was by no means a willing party to its universal application or to its economic implications: the intrinsic worths of the seemingly parallel follis coinages which were minted after the Edict became widely different in the eastern and western dominions, due to differences in the silver fineness standards of the argentiferous bronzes then used.

A third volume, in preparation, will be keenly awaited by historians, for in it Marta Giacchero intends to reach the heart of Diocletian's policies in their historical and social and economic interpretations, and in the influence that they had on the common people who were subjected to the Edict and its economic consequences.

To numismatists the matter of most fundamental importance is the clear evidence which the Aezani fragments, in particular, provide, for the maximum prices of gold, silver, and copper, in their various available metallurgical forms and qualities. It is on these—in conjunction with known compositions of the coinage alloys—that we can at last base those calculations of intrinsic worths which are essential to an understanding of the enigmatic denominational relationships which pertained both before and after the Edict of A.D. 301. Unfortunately it is in this very matter of the application of results that Marta Giacchero's work is weakest; for—even with the fundamental data at her fingertips—she reiterates, quite uncritically, the denominational system (starting with a 2 denarii piece, despite the necessity for a single working unit shown by her own reconstruction of the tables) which Erism, Reynolds, and Crawford published in 1971, with the assertion that 'All previous schemes have to be rejected . . . since they were based primarily on comparisons of metal content, an unreliable method . . .' On the contrary; in ignorance of

¹ M. Giacchero, *Edictum Diocletiani et Collegarum de pretiis rerum venalium* I and II (Genoa, 1974), pp. viii+313; 95 plates.

real facts we have no more accurate method with which to compare denominational relationships than one which is based upon the virgin metal values and the consequent coinage intrinsic-worth relationships calculated from their metallurgical alloy compositions. This is particularly so where the precious metals, gold and silver, are substantially involved, for, although we may not know the actual over-valuations placed on bullion minted into coin, at any one time, no Emperor could have completely disregarded the comparative market values of both gold and silver bullion when determining the official relative denominational values of coins containing them. The sad monetary history of the early fourth century bears abundant testimony to the fact that Emperors were able to attribute only a limited range of nominal values and interdenominational relationships to either the precious metal or base-metal coinages. They found themselves just as bound by the economic laws governing intrinsic worths and marketability as anyone else.

Furthermore, Erism, Reynolds, and Crawford are not consistent in their stated disregard of metal content, for they bring a postulated 10:1 gold:silver relationship into their argument, and select Bingen's somewhat hallowed (but now obviously incorrect) maximum value of 99,000 d per libra for gold for a seemingly satisfactory comparison with an estimated silver price of 9,600 d per libra.

The certain epigraphic evidence now established turns Bingen's expressed wish into reality, and provides positive evidence for the maximum bullion prices of refined gold and silver, as 72,000 d, and 6,000 d per libra, respectively. This corresponds with a true intrinsic ratio of 12:1 for the pure metals—although the coinage relationships could have been rather different, depending upon the different over-valuations placed, respectively, on minted gold and silver, and the degree of fineness of the silver coinage and that in argentiferous bronze.

In the case of the principal follis coinage—which I have shown to be in reality a silver denomination, considerably debased but strictly controlled—the value of the considerable proportion of copper used in it cannot be entirely discounted. For copper the Edict provides several values, which leaves us with the metallurgical decision as to which of the alternative available qualities were likely to have been used in alloying, and also for the essentially plain copper pieces of lowest denomination. The often-used value of one-hundredth of that for silver, which is undoubtedly reasonable for the later fourth century A.D., is seen now to be too high for use in calculations of the coinage worths in A.D. 301; and, in any case, Giacchero loses available accuracy in her intrinsic-worth calculations in several ways. First, she quotes some out-dated and uncertain analyses with respect to the silver proportions in the argentiferous follis coinage alloys pertinent to the period of the Edict; secondly, she neglects to observe that the most recent metallurgical research on the nominal weights of all the reformed pieces shows them to have been

made to definite libra weight-fractions; thirdly, she does not distinguish between orichalcum (brass) and unalloyed copper, but selects the price of orichalcum (which was never used in fourth-century Roman coinage) as the one to be used in calculating the worth of the small laureates and the (silver-free) post-reform radiates. My own analyses of the radiate coins reveal that a fairly low-grade copper was used; so, given the choice of selecting from Section 15 of the Edict (DE AERA[MENTO]), the maximum prices per libra are given as: orichalcum 100 d; Cyprian copper 75 d; ductile? copper 60 d; common? copper 50 d; and a missing (presumably lower) grade—perhaps of raw unrefined copper—at an undecipherable (lower) price. On the combined epigraphic and scientific evidences we cannot therefore choose a metal value for the radiates of A.D. 294–300 of more than 50 d per libra. Even assuming that they were minted at the pre-reform standard of 84 per libra (c. 3.87 gm.—rather than c. 3 gm.) we can only attribute to them a generous maximum *metal* value of 0.6 d each. Similarly, even taking Giachero's preferred weight of 1.3 gm. for the smaller laureate, we cannot attribute to it a metal value of more than 0.2 d—compared with her estimate of 0.4 d. A much greater and more significant error, however, is in her estimation of the total value of the post-second reform XX·I Diocletianic follis as only 3 d—when its silver content alone would have been worth 6.51 d—and her consequent proposition of its enormous over-valuation by 570 per cent (as a 20 d piece); and she is certainly doubly incorrect in remarking that the Aphrodisias inscription has *established* that the radiate coin was worth 5 d, compared with a metal worth of only 1 d. Its silver content alone exceeded that, by at least three times.

In reality the eastern XX·I follis was minted in argentiferous bronze, at thirty-two coins per libra, with a nominal silver content of 3.47 per cent. Thus, to its silver bullion content, worth 6.51 d per coin at the Edict price of 6,000 d per libra, must be added, say, 1.88 d for the copper (of, perhaps, the 60 d per libra quality). Even ignoring the significant alloying proportions of tin and lead—since these are not mentioned in any of the Edict prices despite the fact that tin must have been then, as it is today, a semi-precious metal worth several times as much as copper—the raw material cost of each eastern follis would have been at least 8.39 d, and it could not possibly have been the viable piece that it was for the next six or seven years without a denominational value set at at least 10 d. A denominational value of 20 d, after A.D. 301, would have been high but not unreasonable—but with such a denominational value being not necessarily based on the interpretation often given for the XX·I markings which, it must be remembered, were also present on enormous quantities of the much lighter XX·I antoniniani of A.D. 275–94 still in circulation or held in hoards. To have the same meaning the marking would have to apply to the alloy composition, and not to a denominational value. By applying the now known Edict metal prices to these

pre-A.D. 294 reform antoniniani we can derive a contemporaneous intrinsic worth of 3.19 d each, and thereby prove that they could well have served in a post-301 coinage system as the essential 4-d pieces required for so many of the items in the Price list. It is significant that, with this obvious need, no eastern follis fractions were minted until after Diocletian's abdication in May 305; so the old antoniniani must have been brought again into the revised monetary system of A.D. 301, while the silver-free post-reform radiates of A.D. 295/299 would have sufficed as the essential 2 d pieces for many of the cheapest items listed in the Edict, and the little laureates could have continued to function as 1 d pieces.

The one positive denominational value known in consequence of the finding of the Aphrodisias inscriptions is the silver *nummus argenteus* of 100 d. We do not yet know the actual intended fineness of this coin, but it is certainly high. If it is assumed to be of pure silver then the 96 pieces minted from each libra would have had a denominational value of 9,600 d against a maximum bullion cost of 6,000 d—representing quite a high over-valuation, of 60 per cent. Diocletian would have had, therefore, the alternative of converting each libra of his silver into 96 *nummi argentii*, or into 28.8 librae of XX-I alloy folles worth only 9,216 d if 10 d pieces. But, if the folles were indeed 'stretched' to bear a 20 d valuation—by virtue of their impressive size and silver content and surface silver coating—as was most probable, the denominational minted worth produced from 1 libra of silver could have been increased to 18,432 d, and the incentive for producing *nummi argentii* would have diminished in favour of minting folles, as indeed it did.

It is a long time since L. C. West reviewed the statistical distribution of the Princes mentioned in the Edict, using the limited data then available; but Giacchero's work now presents more than 1,200 known prices, ranging from 1 d to 150,000 d, which are worthy of a revised statistical analysis², and this reveals the Roman propensity for preferred denominational numbers—which had to be a practical match to a relevant and current monetary system. West's concept of the necessity for a post-Edict 4 d piece is not only endorsed by the additional statistics, but it is given stronger support by the frequency with which many odd and even numbers of items are listed for a standard maximum price of 4 d. Below values of 10 d the Roman thinking behind the Edict is clearly in twos—with a very dominant value of 4 d, and with 8 d as the next most frequent price. The statistical evidence for a 5 d unit is almost negligible, for there is only one occurrence compared with 94 for a 4 d unit. The necessity for a continuing unit piece is plainly demonstrated by the small number of nevertheless important items (such as animal fodder) priced at 1, 3, 5, and 13 d; while the usefulness of a double (as well as an essential 4 d) unit is obvious from the frequent occurrence of prices of 2, 4, 6, 8, 10, 12, 14, 16, 18, 24, and 36 d. In the tens and hundreds the thinking is clearly in round

² L. H. Cope, in *SM* XXVII (1977).

number multiples of 20 and 100, with few selected intermediate values; and such items could easily be bought with either folles or argentii. In the thousands and tens of thousands the thinking is again in multiples of ten, with the occasional appearance of half and quarter thousand intermediate values. With reference to the price of gold, the bullion price of 72,000 d maximum is one of only two instances of the use of this value in the Edict; and when we look for the frequency of prices which might indicate the denominational value of the gold aureus (and its known multiple pieces in the post-301 era) there is now strong statistical evidence for its being a 1,500 d piece—corresponding to a not unreasonable current over-valuation of 25 per cent. Even the seemingly odd $1\frac{1}{2}$ aureus piece value, of 2,250 d, is then represented by an exceptionally high frequency of eight items at this level of values; and the two highest prices in the Edict (135,000 and 150,000 d) are also readily accommodated by 90 and 100 aurei, respectively, of 1,500 d denominational value. The only other contender for the aureus value (since it must have exceeded its bullion value of 1,200 d) is 1,250 d; but the detailed examination of such a denominational value amongst the quoted prices is less statistically impressive than for a value of 1,500 d.

In conclusion, Giaccherio's work looks as if it will stand for a long time as the now nearly complete text of the Diocletianic Price Edict; and it leads fundamentally towards a much better understanding of the revised coinage system which was intended to be used in conjunction with it. But because she does not properly or fully exploit the numismatic evidence which she has assembled, it would be useful to reconstruct an immediate post-Edict denominational system in the eastern half of the Empire, which is consistent with the revealed facts, and other ancient evidence, used in conjunction with the latest results of metallurgical research on the coinage, as follows:

*The denominations of Diocletian's reformed
coinage of 1 September A.D. 301*

Coin type	Coin weight (grammes)	Calculated intrinsic worth (denarii)	Denominational value (denarii)
1. Small copper laureate, of 14-mm. die diameter	c. 1.3	0.2	1
2a. Post A.D. 294 copper radiate, of 21-mm. die diameter	c. 3	0.6	2
2b. Large Cyzicene copper radiate, of 24.5-mm. die diameter	c. 6	1.2	4

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Coin type	Coin weight (grammes)	Calculated intrinsic worth (denarii)	Denominational value (denarii)
3. Pre-reform XX-I radiate antoninianus of argentiferous bronze	3.87 (1/84 libra)	3.19	4 (revalued, after devaluation)*
4. XX-I eastern follis in argen- tiferous bronze, c. 25 mm.	10.16 (1/32 libra)	8.39	20
5. Nummus argenteus, in high- quality silver	3.39 (1/96 libra)	62.5	100
6. Gold aureus	5.42 (1/60 libra)	1,200	1,500

* Judged to have been devalued to 2 d, early in A.D. 294, on the evidence of the Rylands Papyrus (P. Ryl. Gk. 607), and so hoarded in great quantity between 294 and 301 in view of its intrinsic worth being much in excess of the reduced nominal value—hence its having a real doubling potential (*geminata potentia*) in A.D. 301 to bring it back into circulation as a fractional piece ($\frac{1}{2}$ th) of the new XX-I follis.

It is to be emphasized that—despite the seeming universality of the Edict and its associated coinage reform—this complete coinage system could have operated successfully only in the eastern dominions under Diocletian's control, and then, perhaps for only a short while following the promulgations of the Edict and its associated coinage reform.

It is noteworthy that the western follis, after A.D. 301, became standardized at a much lower fineness and intrinsic worth, compatible with it being (in the west) only a 10 d denomination. In such a form it could have existed (without distinguishing marks) alongside Diocletian's new XX-I follis, at one-half of the denominational value. That the western follis did serve as a universal 10 d piece is speculative, although reasonable on the basis of a calculated intrinsic worth of a little more than 5 d, with the prices of silver and copper ruling at the time of the Edict. What is more probable is that a growing political and economic division between east and west was intensified by Diocletian's apparently unilateral action, for after A.D. 301 the eastern and western folles coinages began to develop along quite different metallurgical and metrological lines throughout the succeeding years of tetrarchic government. Further consideration needs now to be given to the coinage of the post Edict era—and especially to the earlier coinage system of A.D. 294–301 in the light of the more detailed information deduced for the reform of A.D. 301.