REVIEWS


The unusual area from which H. Bertil A. Petersson has chosen the subject of his doctoral dissertation, Anglo-Saxon coinage from the 970s to 1066, is linked to an honourable tradition of Swedish research. As early as 1708 Nils Keder published a work on Anglo-Saxon coins. In 1829 Bror Emil Hildebrand of Lund defended his dissertation Numismata Anglo-Saxonica. Hildebrand’s catalogue of the Anglo-Saxon collection in the Royal Coin Cabinet in Stockholm (1846, revised edition 1881) is among the classical works of Swedish coin research and is still indispensable as a work of reference. The interest of Swedish researchers in Anglo-Saxon coins arises from the contents of our Viking-era silver hoards. Within the present frontiers of Sweden more than 600 coin-hoards from the Viking Age have been found. Together they contain, at a low estimate, 150,000 coins. Of these about 40,000 are English, the remainder mainly German and Arabic. In the British Isles coin finds from the Viking Age are rare. Anyone wishing to study English coins from the period 970–1066 should have recourse to the Royal Coin Cabinet in Stockholm, which contains the finest collection of coins of this kind.

For the last two decades the formidable task of classifying and publishing all coins in the Swedish Viking era treasure finds has been in progress at the Royal Coin Cabinet in Stockholm. The work, which is being paid for by the Swedish Humanistic Research Council, is being carried on in close collaboration with foreign specialists, among them the Irish scholar Michael Dolley, who is often cited in the book under review. This research project must be regarded as the prime reason for the great breakthrough of the 1950s and 1960s for Anglo-Saxon coin research in England. When Petersson was collecting his material the processing of English coins in the Swedish finds was already fairly far advanced. Most of the finds had been classified and a considerable proportion of the coins had been weighed, and this must have considerably facilitated the collection of material. Petersson is at pains to refer to the results of the British research, while at the same time he scarcely even indicates the connection with the research project in progress at the Royal Coin Cabinet. No doubt this omission is connected with Petersson’s lack of interest in the coin-hoards as a whole, as also for material research. ‘It is not the coins as artefacts and objects for material research, but as components in a monetary system that are of greatest interest’ (p. 9).

Two circumstances are characteristic of Anglo-Saxon minting during the period covered by the dissertation; it seems that the coins were ‘legal tender’ for only a limited time and coins of an equal nominal value, which may be presumed to have been valid for the same time, vary greatly in weight. The dissertation is concerned almost exclusively with the problems connected with these two facts. For anyone dealing with material having these characteristics it is natural to lean on Sture Bolin’s State and Currency in the Roman Empire to 300 A.D. (Lund, 1958), especially the chapter entitled ‘Laws Governing the Minting and Melting Down of Coins’. Petersson’s dissertation can be regarded as an attempt to apply to Anglo-Saxon coins the laws which Bolin sought to lay down for the Roman currency. In the Roman empire, too, there were in simultaneous circulation coins which were of similar value despite the fact that their silver content differed. According to Bolin the reason why the bad coins did not, in accordance with Gresham’s law, drive out the good is that the Roman denarius was overvalued at a rate fixed by the state, and thus had a value greater than the value of its metal content. Bolin formulates a general law: ‘charge-free coins cannot have a varying metallic value and coins of varying metallic value cannot be charge-free’. This charge, or overvaluation, was a source of revenue for the state. In principle this overvaluation can be of any size, but it must be at least large enough for it to be unprofitable to melt down the heavier coins. Thus the lowest conceivable overvaluation is equal to the difference between the heaviest coin and the average weight.

If we knew the price of silver per unit of weight, we should, of course, immediately be able to

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calculate the overvaluation of a coin with a given nominal value, a given weight and a given standard of fineness. But it is only very seldom that data on the price of silver have been preserved from early times. Bolin considers, however, that it is possible to calculate the degree of overvaluation merely by studying the weight variations of the coins. In conformity with this, Petersson has framed his thesis as a study of coin-weights and overvaluation of coins in England from the 970s to 1066.

Until only a few years ago the weight of Anglo-Saxon coins was, like the theoretical basis of the Anglo-Saxon weight system, an almost wholly neglected field of research. The only forerunner of Petersson's dissertation is a short paper by the English researcher Veronica Butler, published in 1961. Butler's investigation takes account of the weights of about 2,000 coins and deals only with the period up to the death of Cnut in 1035. The material collected by Petersson is far greater, consisting of no fewer than 34,707 individual weighings, which moreover cover the whole period up to the Norman Conquest. The weighings do not come only from the collection in Stockholm; the author has also collected material from a large number of other museums within and outside Scandinavia. Petersson's work can therefore be described as a pioneering contribution. This description applies to the processing of the coin weights as a whole. So far as this reviewer is aware, never before in the field of numismatics has so large a body of statistical material concerning coin weights been treated with so comprehensive a mathematical and statistical apparatus as in Petersson's dissertation.

But at the same time Anglo-Saxon Currency cannot be regarded as an altogether independent work, inasmuch as the author, without any lengthy discussion, broadly accepts and takes as his basis two main groups of premises. One of these consists of the latest results of English research concerning Anglo-Saxon coins. The other group consists of the laws for overvaluation of coins which Bolin puts forward in State and Currency. In both of these groups, and not least in the second, there is a strong element of hypothesis which can be questioned. But if on a number of points the premises can be suspected of being incorrect, what value can then be ascribed to the conclusions, however impressive may be the sheer quantity of assembled facts, the perfection of the technical apparatus, and the elegance of the suggested solutions? The question is interesting from the point of view of methodology and is of great importance from a practical point of view. It is scarcely possible for anyone, in the few years which are usually available to the writer of a dissertation, to master alone so complicated a subject as Anglo-Saxon coinage from Edgar to William the Conqueror. The subject lies in the border area between three different disciplines, namely history, numismatics, and archaeology, and also calls for a knowledge of mathematics, statistics, and economics. If one does not choose to take the risk, like Petersson, of relying on authorities, there remain in the reviewer's opinion only two possibilities. Either the task must be severely circumscribed or it must be undertaken within the framework of a well-organized teamwork—if this is practicable.

In Petersson's case it would seem that these considerations lack relevance. Basing himself on his own hypothesis that the English coins were overvalued by one-third in relation to their silver value (according to Bolin the Roman denarius was overvalued by one-quarter) Petersson considers that he has created a model for explaining the striking circumstance that coins within one and the same period of validity have markedly varying weights. A long series of mathematical operations all seem to him unambiguously to confirm the hypothesis that the Anglo-Saxon coins were overvalued by precisely one-third. The two fundamental groups of premises, the latest results of English research and Bolin's laws, must then also be correct at least in broad outline. Thus there is no occasion to examine the authorities more closely; the mathematical formulae have opened a way to historical knowledge.

Source material. The primary source material consists of the extant coins. Each coin presents a large number of objectively recordable elements. Petersson has concentrated his collecting activities on some of the most important elements: coin type, place of minting, weight. In some cases it was also possible to record the silver content. Petersson has collected data from nearly thirty different museums and other collections. Unfortunately we are not told how many of these collections were visited by the author personally. It is generally known that museum scales are often of antiquated type and that moreover they are often badly adjusted. Petersson devotes much space to a discussion of the representativity of the material, but does not touch on the obvious source of error inherent in the mere fact that different persons have weighed the coins and that different scales have been used.

The distribution of the coins by museums is
described in summary form on pp. 269 ff. For Sweden the total number of coins is 22,475 (i.e. more than half of all the Anglo-Saxon coins found in Sweden) but the total is given without detailed specification. It would have been interesting to know how the coins not derived from the Hildebrand catalogue (the coins in this catalogue lack data as to provenance) are distributed by provinces. Information in note 156, p. 286, provides a possibility of checking the material from Skåne. In the note it is stated that the coins found in Skåne constitute less than 2.8 per cent (or about 1,100 coins) of the total material of 40,466 coins. But Skåne is one of the richest provinces as regards treasure finds outside Gotland. In all, the finds in Skåne have yielded more than 8,000 Anglo-Saxon coins or about one-fifth of all Anglo-Saxon coins found within the present boundaries of Sweden. Unfortunately it is the case that a large proportion of the Anglo-Saxon coins in the Scanian finds have been dispersed: many exist, without provenance, in the Hildebrand catalogue, others have been exchanged with foreign collections, some have been melted down. Broadly speaking, all that is available for closer study are the four finds mentioned on pp. 270 and 272. But one of these finds, the treasure from Igelösa churchyard, exhibited in the Historiska Museum, Lund, alone contains about 1,800 Anglo-Saxon coins, the majority very well preserved. This accords poorly with Petersson’s statement that only about 1,100 coins could be registered for Skåne.

From the total material of 40,466 coins Petersson excludes nearly 6,000. This is a quite high figure. On page 69 we are told very briefly which groups have been removed: Irish and Scandinavian imitations, coins which have been halved, are corroded, fragmentary, pierced, or damaged in other ways, coins with loops or other devices for suspension, coins with an uncertain place of minting, and all coins which are ‘obviously worn’. We are not told how many of the coins so removed belong to this or that group. It would have been particularly interesting to know how large the last group is. This is obviously the one most difficult to define, for how is the line to be drawn between coins which are so ‘obviously worn’ that they must be excluded from the investigation and coins which are not so ‘obviously worn’ that they have to be excluded? Here Petersson has fallen a victim to a phenomenon extremely common in material research, namely impressionism. But even if impressionistic modes of expression often still occur in material research, it is comparatively seldom that we find examples of deficient reporting of the geographical distribution of the material or the number of objects excluded.

Representativity of source material. On p. 25 Petersson declares that he regards his material as a sample drawn from a population consisting of all coins minted and circulated in England during the period covered by the dissertation. And on p. 69 he states that all the source material, which after the above-mentioned exclusions consists of 34,707 coins, ‘can be regarded as a random sample from the coin supply that once existed and which is thus the statistical population’. But the material comes from hoards. It is therefore not by any means a question of a random selection. On the contrary it is a selection from stocks of coins which people may have made for quite special purposes, both at the time of depositing and before. For example, it is conceivable that the heaviest coins were sorted out and do not occur in our hoards. But it is also conceivable that heavy coins in particular tended to be deposited. In England the heavy Long-Cross coins (p. 110) show a tendency to dominate the small hoards from the time of Æthelred. Petersson scarcely comments at all on the idea which has sometimes been put forward that part of the enormous output of coins under Æthelred and Cnut was occasioned by danegeld and heregeld and was in part intended to be paid direct to the Vikings. If that was the case, then of course large parts of Petersson’s material are in no way samples of the coins circulating in England. Ten of our coin hoards are undoubtedly in a statistical sense a sample of a population consisting of all hoards hitherto found or still buried in the earth, but in the reviewer’s opinion these hoards do not constitute a random sample of the stock of coins once circulating in England. Nor, for this reason, is it possible uncritically to apply the statistical rule cited on p. 25 that an average of the sample is at the same time an average of the population.

Hypotheses on the minting in England. The interpretation of the Anglo-Saxon coinage depends upon the contents of the currency reform which is referred to in the title of the dissertation. This is considered to have meant that all coins in circulation had at regular intervals to be handed into the state for exchange. The only written source is an obscure reference in a work from the thirteenth century (p. 11). This item gives no information as to the contents of the currency reform, only a dating to 975. An exchange of coins (quando moneta vertebatur) is mentioned
in Domesday Book, which was compiled in the 1080s but in part reflects earlier conditions. Finally, there is a provision in Edgar’s law (p. 265) that there shall only be one coinage in the kingdom. But the same prescription is to be found already in Ælfric’s Glastrey decrees from c. 930. Petersson, however, firmly asserts that Dolley and Metcalf have ‘made it clear’ on the basis of coins and coin finds that a currency reform really took place under Edgar. But the existing material of coins and coin finds is difficult to interpret. Of thirty-three finds from England deposited during the period c. 975–1075, fifteen according to Dolley and Metcalf contain practically only one type of coin—i.e. the finds have precisely the appearance they would be expected to have in an area with recurrent withdrawals of coins. However, some of these finds are partly dispersed, others have been reconstructed, and most are quite small. The general tendency seems rather to be that the larger a find is, the more types are represented in it. The finds adduced by Dolley and Metcalf seem not to provide a wholly convincing basis for an assumption as to regular coin exchanges. As an alternative it would be possible to conceive of a gradual development which began under Æthelstan and which can be followed especially clearly from the beginning of Edgar’s reign, when the number of coin types becomes smaller, the number of mintage places gradually increases for each type, and the name of the place of minting is consistently stated on the coins. Evidently the control of the coinage was tightened up from the 970s onwards and it is also obvious that different coin types succeeded one another. The question is whether or not the sources permit significantly more detailed conclusions than these.

After Petersson has associated himself with the main theme of recent English research, that regular coin withdrawals took place from the beginning of Edgar’s reign, he devotes himself to a very stimulating and convincing criticism of certain questions of detail, including among other things the minting in Wilton and Salisbury and the dating of the very similar coin types First Hand, Second Hand, and Benediction Hand. As already mentioned, the written sources give no information either on the existence of the regular mintage periods or on their duration. The duration must be purely a matter of construction. The number of years in the reign are divided by the number of types. Dolley, who dates the reform to 973, obtains six-year periods. Petersson, who prefers a dating to 975 and combines two of Dolley’s types into one, gets seven-year periods. One wishes that Petersson had checked his new division into periods against certain historically known facts. For there exists a possibility of verification which for this period is almost unique. The battle at Holy River between Cnut on the one hand and the Svear and the Norwegians on the other is, as is well known, referred to in three sources that are independent from one another: Cnut’s letter on his way home from Rome in 1027, the Anglo-Saxon Chronicle, and Ottar Svartes Knutssdrapa. In the letter Cnut calls himself ‘King of part of the Svear’, a title which is confirmed by the inscription on a coin struck at Sigtuna by the moneyer Thorin, active under Anund Jakob. This coin is now known in seven specimens, struck with several different dies and with inscriptions of excellent quality. The inscription, which runs CVN TT REX SP (eorum), can no longer be dismissed as the result of a wrong engraving: it must refer to the same event as the other three sources. The coin types are partly inspired by the English coin type which Petersson calls Circled Short Cross. According to Petersson’s chronology this coin type began to be struck in 1031. Dolley, on the other hand, assigns the coin type to the period 1029–35. Cnut’s sovereignty over Sweden cannot have lasted long, and moreover the rex sp coins have close affinities with the earlier minting of Anund Jakob. Even Dolley’s dating of the coins’ prototype would seem to be late, and Petersson’s is decidedly too late. But if Circled Short Cross, as would be reasonable, was dated to 1026 or 1027 the whole postulate of a scheme with mintage periods of equal length from the 970s onwards would collapse. This example has been adduced in order to show that the dating of the Anglo-Saxon minting periods and the determination of their lengths has an arbitrary aspect even in the most favourable cases.

Methodological hypotheses. A feature of central importance for the form of the dissertation is the ‘mathematical method’ which is presented on pp. 29 ff. The discussion of metrological and statistical methods is of a rather elementary character and is probably intended in part to enlighten readers unfamiliar with these subjects. The basic features of the mathematical method are, as mentioned, taken from Sture Bolin. Petersson, however, is responsible for certain additions and improvements, e.g. the expansion of Bolin’s general law on pp. 47 f. or the formulae for the calculation of overvaluation on p. 99. Bolin’s work State and Currency has had a very mixed reception. While some have hailed it as
'fundamental' and 'masterly', others have subjected it to sharp criticism, considering it to be based purely on hypotheses with too many unknown factors and accusing the author of playing with mathematical formulae without sufficient contact with the concrete material. Most critical of all is the American specialist on the numismatics of antiquity, T. V. Buttery. This author's criticism is particularly worth taking into account, inasmuch as it meets Bolin on his own ground, that of algebraic formulae. It is true that Petersson discusses Buttery, but he does not do so in any very penetrating way. One asks oneself whether it would not have been a better way of tackling the subject if Petersson had omitted the whole of the algebraic exercise in the chapter on the 'mathematical method' in favour of a discussion of the presumption itself, namely the thesis that coins having a silver value exceeding the nominal value must necessarily be melted down. The essential mathematical basis already exists in Bolin. A fundamental question connected with this, which should have been discussed in detail, is whether it is possible at all to calculate the overvaluation solely on the basis of the weight. One misses also a discussion of the question whether so great an overvaluation as one-third is really reasonable.

Most people would agree that there must have been some form of profit in all minting, a minting tax, otherwise the operations would have been run at a loss. Certain data on the amount of the minting dues have been preserved. Of particular relevance are the accounts for the minting in London, which are known from the end of the thirteenth century. In 1280 the dues for minting one pound in pennies amounted to about 7 per cent. Rather less than 5 per cent represented tax to the king and the remainder was intended to cover the cost of minting. So far as the reviewer is aware, there is no written evidence that the built-in tax was ever as large as one-third.

It would appear that Petersson has been so firmly convinced of the reliability of Bolin's mathematical method that he has never seriously considered whether there may not be other explanations of the phenomenon that coins with different weights could circulate at the same time. There is an interesting source from the end of the twelfth century, the Dialogus de Scaccario, adduced by Petersson on p. 168. In this source there is described, with many concrete details, how coins coming into the Exchequer from the sheriffs all over the country are both counted and weighed. If the coins exceed a certain number to the pound they are on average too light and the payment is rejected. If such a provision existed already in Anglo-Saxon times it should have been sufficient to protect the heaviest coins from being melted down. People would not dare to remove the heaviest coins, or to be more exact they took out exactly as much as was permitted, according to the Dialogus de Scaccario six pennies to the pound or 2·5 per cent. A prescription that the coins should both be counted and weighed means that the overvaluation is entirely detached from the maximum weight (the maximum weight is one of the central concepts of the 'mathematical method'). The overvaluation can theoretically be at any level. The whole becomes a question of the power of the state or of the prevailing confidence in the state. It is probable, however, that the overvaluation was at somewhere about the level indicated by the more recent sources.

There are certain people who play an important part in Petersson's dissertation; these are the 'private individuals' who are assumed to be in the habit of handing in silver to the mint. One might say that the whole of the Bolin/Petersson mathematical method sets out to prevent these people from making profits at the cost of the state. The silver value of the heaviest coins may not exceed the nominal value of the coins for then the private persons will melt them down, i.e. Gresham's law comes into play. But were there in reality private people who were in a position to hand over silver to the mint for minting? T. V. Buttery doubts whether such persons existed and Dolley, who among other things assumes that the king owned the mines, says in Anglo-Saxon Coins, p. 155: 'Private persons therefore, had little chance of acquiring any quantity of silver to jeopardize the royal monopoly.' But if there were no private people who could hand in silver to the mint the main foundation for the Bolin/Petersson method disappears. Petersson's mathematical agility and the improvements he has made in the method as such are unfortunately of only secondary interest in relation to the main problem: Does the 'mathematical method' lead us forward to the most probable interpretation of the material?

Application and Interpretation. The principal section of the book is entitled 'Examination and Interpretation'. The Bolin/Petersson mathematical method is here applied to the collected source material of 34,707 weight data, sorted into 28 types and 23 period types (the latter term is new—Petersson shows great courage in trying to improve on the old nomenclature). The statistical material is presented in an exemplary way, partly
in the form of sixteen histograms which show the percentage distribution and partly in the form of thirty-eight frequency tables.

Peterson begins by expressing the weight variation of the different types in such a way that he calculates the weight of the lightest coin as a percentage of that of the heaviest but then passes on to replace the heaviest and the lightest coin with ‘the class limits to which, without interruption, the weights of the coins rise and fall’ (p. 94).

The values vary from 28·4 to 77·6 per cent. Petersson finds that the mint-types are divided into three classes. In the first ten types on the list the lightest coin would constitute about two-thirds of the heaviest, in the following fifteen about half, and in the last three about one-third. The values which arise at a ‘natural’ or ‘maximum’ variation if the overvaluation is one-third are 66·7 and 33·3 per cent respectively. In his introductory chapter Petersson puts the question: ‘Was the

Such a curtailment is rather subjective. How large a proportion of the weight variation can be cut off depends among other things on what width of the class is chosen. In addition there is the fact that the numbers of coins in the different types vary greatly: the fewer coins there are in the type the more gaps are shown by the weight variation and the greater is the intervention implied by the curtailment. It should be added that in any application of the ‘mathematical method’ it is of determinative importance for the results which coins are taken to represent the maximum and minimum values.

On p. 94 there is presented a table showing the minimum weight of the twenty-eight types expressed as a percentage of the maximum weight. Anglo-Saxon penny overvalued, and if so, by how much?’ On p. 95 he considers he can indicate the answer: ‘According to Bolin’s Laws . . . the minimum weight is \( \frac{3}{4} \) and \( \frac{1}{2} \), respectively, of the maximum weight. Already the examination of the material so far carried out has thus indicated the existence of an overvalue and its approximate size in the Anglo-Saxon currency.’

The present reviewer, however, is unable to see that the types on p. 94 fall naturally into three classes. On the contrary, indeed, they constitute a continuous sequence, and form a normal distribution with many values around the median value, which is 54·2, and the extremes have values which lie at about the same distance from the median value. Moreover, there is a clear
connection between the weight variation and the number of coins in the type, namely in the sense that the greater the number of coins of a type which are preserved, the greater is the weight variation. If all types are plotted in a system of coordinates where one axis represents the weight variation and the other the number of coins, a very clear picture is obtained (see Figure). One can contrast with each other coin types represented by more than 1,000 specimens and by less than 1,000 specimens. Type no. 22, Expanding Cross, has been divided into the two component parts which were distinguished already by Hildebrand (p. 128 and Table 32). In those types which have more than 1,000 specimens the lightest coin is always less than 50 per cent of the heaviest. But in the types which have fewer than 1,000 coins the lightest coin is always more than 50 per cent of the heaviest. The only exception is type no. 21, Short Cross, where the value is as low as 36-0 per cent, although the number of coins is only 512. This is no accident: Short Cross with its extremely small and thick coins is a generally divergent type (see Plate II, no. 21). The types with more than 1,000 coins are Quatrefoil (4,840), Annulate Cross (4,827), Long Cross (4,071), Last Small Cross (3,565), Crux (3,209), Circled Short Cross (2,871), Ornamental Cross (1,613), and Fleur-de-lis (1,326). These are Ethelred's last four types, Cnut's three types and Harald Harefoot's only type, that is to say the types that belong to the period c. 990-1040 and are to the largest extent represented in danegeld and heregeld. One might therefore see a connection not only between the weight variation and the number of coins in the type, but also between the weight variation and the other external circumstances in which the coin type came into existence.

There is another aspect which may possibly explain part of the weight variations, and that is the minting technique. There were no rolling mills and consequently the silver sheeting had to be hammered out. As a result there arose unevennesses, whether the sheeting was thick or thin. Unevennesses in the sheeting must result in larger relative weight variations in regard to thin sheeting than in regard to thick sheeting. To measure the variation in thickness presents insurmountable technical difficulties. On the other hand, one can arrive at a thickness index by dividing the weight by the diameter. Since the number of coins minted must also affect the weight variation, as we have just seen, it is necessary to restrict the comparison to types with more or less equal issues. It proves that both in the types which have less than 250 coins and in those which have 250–500 coins a low thickness gives a greater weight variation and a higher thickness gives a smaller weight variation.

The connections which can thus be shown, both between the weight variation and the number of coins and between the weight variation and the thickness of the sheeting, make it less probable that there was also a direct connection between the weight variation and the overvaluation.

The overvaluation is not determined by the fact of fixing a maximum and a minimum weight. One must also determine and decide for oneself whether, in Bolin's terminology, one wishes to interpret the variation as 'maximum' or as 'natural'. If one chooses the first alternative this means one conceives of the overvaluation as being so small that the whole scope for the weight variation has been utilized. If, on the contrary, one interprets the same maximum and minimum value as a natural variation, this means that one thinks of the overvaluation as having been so large that only half the scope for the weight variation was utilized. Thus the figures in Table 40, cols. 12 and 14, must mean alternative proposals for interpretation. For example, for Reform Small Cross the overvaluation is 14-5 per cent if one considers the variation to have been maximal, and 29-1 per cent if the variation is assumed to have been 'natural'. But it should be emphasized that it is only the percentage 14-5 which is based on strong foundations. On the presumption adopted by Bolin and Petersson, namely that private persons could exchange silver bars for coins at the mint, and on several other presumptions (inter alia that the rule referred to in the Dialogus de Scaccario about both counting and weighing coins was not followed), the overvaluation cannot have been less than 14-5 per cent, since this would have involved a risk that the heaviest coins would be melted down. But the overvaluation with the presumed 'natural' variation is not so firmly grounded. One can conceive of any percentage between 14-5 and 100 just as readily as of the percentage 29-1. Petersson's way out of this dilemma is simply to assume that the variation was 'natural' and that the overvaluation amounted to one-third or 33-3 per cent. And he proceeds to examine how large a proportion of the quantity of coins within each type falls within the limits of the 'natural' variation. These percentages are given in Table 41, col. 9, and amount usually to 95 per cent or over.

On the histograms Petersson marks the 'natural' variation with broken lines. But there is often a space between the greater part of the quantity of
coins in the type and the limits for the 'natural' variation. This means that the limits of the variation could have been drawn more closely without any large percentage of the quantity of coins thereby falling beyond the limits. One misses a discussion of how much closer the variation limits could have been drawn for each type, without a risk of more than, for example, 10 per cent of the coins falling outside it. Petersson's thesis that the overvaluation was 33·3 per cent and that the weight variation was 'natural' is of course conceivable, since the variation of the coin types is so relatively closely associated with the limits which these assumptions give. But inasmuch as the weight variation has proved to have a connection with entirely different factors, such as the number of coins in the type, or the thickness of the sheeting, the field is open, in the reviewer's opinion, for conceiving of an overvaluation of an entirely different size. The excess value may have been less, theoretically it may also have been greater.

An important point of departure for the study of the weight variation within the individual types, is the period type Small Cross, which is unique in that it was struck by three successive kings, Edgar, Edward, and Ethelred, according to Petersson's chronology during the course of a seven-year period. Thus the inner relative chronology of the type is clear and it is easy to establish that the average weight gradually falls. This agrees with one of Petersson's central hypotheses (pp. 49 ff.), which is to the effect that the purchasing power of the coins of chronologically limited type must have diminished during the course of the period of validity. The state would have drawn the obvious conclusion from this and gradually issued an increasing number of coins against silver handed in to the mint, although with constantly diminishing weight. Petersson, however, seeks to carry through the idea of a gradual diminution of weight, even in the study of the histograms of the subtypes. In the histogram Fig. 1 on Normal Small Cross (p. 179), Petersson seeks to distinguish four chronologically consecutive, gradually diminishing average weights—these are the four staples from right to left. But the absolute number of coins entering into these maxima is small. In unlucky cases it would not need more than five coins to be wrongly weighed for three of the four maxima to disappear—a possibility which can be compared with what has been indicated above regarding the chance of wrong weighing.

According to Petersson it is not possible to find any other typological elements than the weight in which these presumed mintings would differ from one another (p. 103). In the reviewer's opinion, on the contrary, the presumed successive mintings cannot be proved with the aid of the Bolin/Petersson mathematical method. The only way of proving the hypothesis would be to study other elements which are independent of the weight, but nevertheless change in parallel with it, e.g. the die axis or details in the form of the coin design.

It is interesting to study by comparison how Petersson proceeds when it is a matter of distinguishing the weight diminution in one of the large types, e.g. Helmet/Ornamental Cross, Fig. 6 (p. 184). Like several of the large types this one has only one clear 'peak'. None the less, Petersson assumes that the type consists of several mint series with different average weights. The reason given is that the distribution shows a normal skewness. But this negative skewness is characteristic of many of the types and the simplest explanation is a melting down of the heaviest coins, while at the same time the left-hand part of the histogram is reinforced as a result of the wearing of the coins.

After Petersson has analysed in detail all the coin types, and within each type has found confirmation of the hypotheses concerning an overvaluation of one-third and a gradual diminution of weight, he takes on the formidable task of examining the weight variation for 1,104 coins with identical dies. It proves that these coins agree much more closely in weight than do the coins which only belong to the same type, but are not from identical dies. From this Petersson draws the conclusion that the weight variation within the types must be intentional. Thus at each minting occasion coins of very uniform weight would have been struck.

The evidence, however, shows certain weaknesses. Of the 1,104 coins only 123 belong to Edgar, Edward, and Ethelred. Thus any value as evidence possessed by the coins with identical dies relates mainly to the period after Ethelred. Moreover, the two coins struck with the same dies are probably not representative of the weight variation in the whole quantity of coins from a single minting occasion, but only for a short section of this, since the dies soon became worn out and had to be replaced by new ones. In addition, there is the fact that the coins which can be distinguished as dieduplicates are probably not fully representative of all the coins struck with these dies. Owing to the wear on the dies we can now only distinguish such coins as were actually struck in very close connection with one another. With this there arises the possibility that the close
correspondence in the weight of the coins from identical dies is in fact due to the fact that they were made from the same delivery of silver sheeting and under other similar technical preconditions for similar weight.

With the support of the close correspondence of the weight of the coins from identical dies, which Petersson considers to show that the weight variation within the types is intentional, he proceeds to examine the weight variation within different geographical areas. In his study of the Hand type (pp. 150 f.) Petersson distinguishes no fewer than six consecutive average weights. The picture is further complicated by the presumption that not all mint areas went over from the subtype First Hand to Second Hand at the same time. Petersson’s notion that it is possible in detail to follow the development, even within the smaller geographical areas, is fascinating, but it must be pointed out that these inquiries have a strongly hypothetical element. Even where Petersson divides the material into geographical areas, he is so pre-occupied by his thesis of a gradual diminution of weight that he does not discuss the question whether the weight differences between different districts may not be mainly geographically and not chronologically determined.

Petersson divides England into ten areas (map, p. 90). A close study of Tables 8–38 shows that certain adjacent areas have a considerable mutual agreement with regard to weight variation. There is another division of Anglo-Saxon England which perhaps would be more relevant, the old division into Wessex, Mercia, and the Danelaw which is referred to in Cnut’s laws, in William I’s law, and in several other documents. Petersson’s area 9 corresponds to Mercia, areas 3, 7, and 8 to Wessex, and areas 10, 6, 5, 4, and 2 to the Danelaw. London, area 1, should be treated separately and in fact Petersson does this. If this simplified division is compared with the weight variation we get an interesting picture. It proves that Mercia all along is minting heavy coins; in all types except Facing Small Cross the average value for Mercia is above the average for the whole kingdom, and in six types Mercia has the highest average value. In Wessex the average value also is above the average in the majority of types up to Edward the Confessor’s Trefoil. Winchester has the greatest average weight in the kingdom in five types. The Danelaw, on the other hand, is below the average value in the majority of types up to Edward the Confessor, when the Danelaw begins to strike heavy coins. London has light coins almost throughout, just as Mercia has heavy coins. In view of the administrative differences between these areas—the sources often speak of Mercia’s laws, the West Saxons’ laws, and the Danes’ laws—it would be natural to suppose that the weight differences between the areas are mainly geographical (i.e. administrative or traditional) and are not chronologically determined. In Sweden there is an interesting parallel phenomenon. The medieval minting there follows three different geographically conditioned coin calculation systems. In Svealand there were 192 pennies to the mark, in Götaland 384, and on Gotland 288.

Finally, Petersson also essays the task, almost insoluble at present owing to inadequate technical resources, of determining the silver content of the coins. Petersson has himself, using an elementary method, analysed about 600 coins—previously only a few content analyses have been performed on Anglo-Saxon coins. From this deficient material Petersson considers that he can draw the conclusion that coins produced at the same time not only have a closely corresponding weight, but also show a tendency to have the same silver content. This is an important observation. If the silver content is constant this factor need not be represented in the mathematical formulae for the calculation of the excess value—not in fact is the silver content represented in the formulae for the Bolin/Petersson method. Petersson’s investigation of the silver content is a praiseworthy initiative but is of a very preliminary character.

It is extremely interesting and stimulating to read Petersson’s examination and interpretation of the 34,707 coins covered by the investigation, but many fundamental questions seem to be unanswered. Is it possible to study the overvaluation without a knowledge of the silver price, and must we not also know more in detail about the silver content of the coins? The reviewer’s hypothesis is that while the Anglo-Saxon coins were certainly overvalued the amount by which they were overvalued is still unknown. The general agreement of the material with the algebraic formulae for one-third overvaluation may be due to the fact that the overvaluation of one-third implies a fairly wide limit. The connection which may be observed between the weight variations, on the one hand, and a series of other phenomena, the number of coins, the thickness of the sheeting, geographical distribution and political conditions, on the other, seems to indicate that the weight variation need not necessarily have any connection.
with the degree of the overvaluation. The two groups of premises on which Petersson has based his dissertation, the hypotheses on the minting in England, and, above all, the methodological key hypothesis, the 'mathematical method' inspired by Bolin, call for further examination.

The researcher who has the courage and imagination to leave well-trodden paths and to grapple with difficult and important borderline subjects will always run the risk of being exposed to criticism to a greater extent than other researchers. This is profoundly unjust—for it is of course precisely these fearless researchers, those who dare to take risks, who keep the discussion going and thereby carry research forward. The foregoing critical scrutiny of Anglo-Saxon Currency is concerned mainly with the premises of the investigation and only to a minor extent with Bertil Petersson's own work. Within its own terms of reference Anglo-Saxon Currency stands out as an excellent investigation, conducted with exceptional consistency and energy, of a body of material bristling with contradictions and difficulties of interpretation.

BRITA MALMER


Cnut, known justifiably in Scandinavia as Cnut the Great, like many a king after him who numbered England amongst his dominions, chose to live there for most of his regnant life, so it is not at first sight inevitable that we should look to his native Denmark for a gigantic corpus of his extant coins. Such, however, the latest publication in the Sylloge of Coins of the British Isles bids us do; three thick volumes have been need to encompass the Cnut coins in the National Museum of Denmark—one whole volume is devoted to the mints of Lincoln and London alone. The total number of coins here published exceeds by a couple of hundred the largest catalogue which has hitherto appeared, though it must be remembered that when the Swedish hoard-coins are at last added to Hildebrand's compilation the balance will be more than redressed.

To say that the arrangement of these volumes is traditional is to say that it is controversial. It looks backward to the pioneering work of the old master B. E. Hildebrand rather than to present-day undertakings as exemplified by the other volumes in this series. As with the Æthelred volumes published in 1966 the order is mint-moneyer-type rather than mint-type-moneyer as followed by the Sylloges of British collections. Each arrangement has its own advantages according to the particular use one is wishing to make of the material. The employment of Hildebrand numbers for identification is an established Scandinavian practice. It offers a useful shorthand providing an instant record of both legends which is valuable when the condition of the coin has not given a good photograph. The disadvantage is that such identification is ambiguous. It is safe only so long as it is understood that it is 'the same' as its BEH counterpart only in so far as it has identical legends—one is not to understand that it is the same coin, i.e. a duplicate, from the same dies. In some cases the latter may very well be true, for the introductory material dealing with provenances does suggest that the coins which have reached the Danish collection via exchange with Stockholm may well have been Kungliga Myntkabinetets duplicates but even in these cases the Stockholm authorities could have been mistaken, since in the nineteenth century the niceties of die-identity were scarcely perceived.

There is some difference of opinion upon which coin-types in the name of Cnut may be properly included in the body of his Anglo-Saxon coins. Dr. Galster, following Hildebrand, includes all the types A–K in these volumes, but the editors point out in a note that recent research this side of the North Sea would prefer to see eliminated all but the three types, E, G, and H, as substantive types minted in England during Cnut's lifetime. To some extent the problem is the same as with the Scandinavian imitations of Æthelred's coins, but with the added complication that Cnut had the undoubted right to strike coins in his Scandinavian possessions, and almost certainly did so at Lund, which name is also the commonest abbreviation for his English mint at London. Hildebrand decided on the criterion that types in which some at least of the coins name Cnut as king of the English rather than as king of the Danes can be included as English types, but even so his remarks on his types A–D and their variations have a doubting tone which has been reinforced more recently by the discovery of a very high degree of die-linking among just these doubtful coins. Some indeed were already claimed long ago by Hauberg for his great work on the Danish series.
Also included in these volumes on Cnut are those types which though undoubtedly struck in England may not belong to his reign. It has been convincingly suggested that types I and K were struck after his death, either memorially in his name, or with Cnut as a hypochoristic abbreviation for the name of the reigning king Harthacnut. That this latter idea is by no means impossible can be shown by the analogy of the moneyers' signatures Cnut and Harthacnut at Lincoln which appear two and two in four known die-combinations all with the same obverse die, strongly implying that they are one and the same. One of these coins is no. 1653 in the Copenhagen sylloge, with the signature Harthacnut, but the Cnut moneyer's signature is known only from the British Museum and two English private collections.

Until there can be agreement on such problems of attribution the best compromise has probably been reached here: to give us all the coins and then to indicate which of them must be approached with caution. The great fascination of these volumes is to consider how wonderfully well their bulk of material will complement the existing record. The most cursory glance through their pages, with the constantly reiterated footnotes: moneyer not recorded by Hildebrand for this type—for this reign, even—variant not recorded in Hildebrand—must set one anticipating satisfactions to come when their riches are collated into one's own researches. The appearance of these volumes has been long awaited, and our gratitude to Dr. Galster and to the editors, is mixed with hopefulness that we may soon see the completion of the Anglo-Saxon series.

V. J. S.


In this Christmas-pudding of a book Little Jack Horner may put his thumb and pull out innumerable plums of variable soundness. Since greedy Little Jack lurks within us all, it must be admitted that it has a certain seductiveness, despite its slipshod writing and its wretched little sketches. To its credit, it is well supplied with references, while the maps, though they add or correct nothing, are often nearer than their originals, which are always indicated. It should hardly be necessary to warn experienced numismatists against its seductions: they will find the 'plums', the loosely connected notes, seldom more than one page long, of which the book is concocted, either elementary to the point of childishness or, when they can be assessed by special knowledge, both uncritical and oddly balanced. Where a numismatist's fresh curiosity is aroused he must always check the reference. The thousands, however, who style themselves archaeologists may be in greater peril: if they are not deterred by yet another elementary exposition of stratigraphy, they may glut themselves too readily on a mixture laced with all their subtler acquired tastes, from pedestal-urns to medieval brooches.

There is a section called 'Coins and the Scientist', where the author attempts what only a master in scientific disciplines, including statistics, can do, namely, to 'make science easy'. He only shows himself turgid, yet 'blasted with science', and makes the simple recognition that *sou* equals *solidus* into a portentous piece of research. Then, after 'Classical Coins and the Prehistorian', he moves into Northern Europe and Britain in particular, and stays there. His background knowledge of Greek numismatics is weak and full of wonderment—e.g. he does not realize that *siglos* and *shekel* are cognate words. On Celtic coins he is most at home: his reading is wider, his understanding of the general issues better, but even here there is nothing original and no real synthesis. He merely retails the numismatic theories of others, in what is regarded as an 'archaeological' rather than an 'historical' province. And that is 'coins and archaeology'. The longest and most laboured portion is on Roman Britain alone—a most insular allocation, which might yet be used for a study of social and economic archaeology. Instead, all the old myths and contentions reappear: Carausius (with medieval Scottish chroniclers as a valid source about him!); the possibility of barbarous imitations in the late fifth and early sixth centuries (surely we know enough about early Saxon archaeology to scoff that one at last). Professor Thomas on late Roman Cornwall and Miss Robertson on Scotland are worth popularizing. On 'Coins and Medieval Britain' Mr. Laing is out of his depth again. Not only does he fail to see, for instance, on Sutton Hoo, that Dr. Kent's present views have shifted from those of 'Kent 1961', and that the two should not be mentioned together without a warning, or that all that bears the Eastern emperor's name is not simply 'Byzantine', but his whole acquaintance with medieval archaeology seems slight. Pottery may be of supreme importance in pre-architectural archaeology; the medieval archaeologist would rather date his pots by his
buildings, yet it is not so exceptional to date both by coins. Stray silver coins are as common on medieval sites as on Roman, and jettons, which Mr. Laing does not mention, are very good 'zone fossils', as cosmopolitan as Roman bronze. How imprecise does he think medieval numismatics must be, if the purpose of the classification of Short Cross or Edwardian pennies is simply to assign them to reigns? To be fair, he must know better, but his presentation of countless, ill-sorted, magpie-gathered citations could well produce this and many similar deductions in his readers. And if anybody was ever so foolish as to date the whole of Wessex scratch-marked pottery by one coin-find, this should have been made an example of how not to use coin-evidence. If such a book was to be written, with such an eager and uncritical readership to hand, it should have been a much more responsible one, or none at all.

S. E. R.

Coins, Tokens and Medals of the East Riding of Yorkshire. By PHILIP WHITTING. Purey Cust Chambers, York, YO1 2EJ: East Yorkshire Local History Society, 1969. [4], 80 pp., 16 plates. (East Yorkshire local history series, no. 25.)

Mr. Whitting has well discharged a numismatic obligation to local historians in putting at their service the results of research and lists of the coins from Hedon and Hull, the tokens of the seventeenth, eighteenth, nineteenth, and twentieth centuries, medals, and finds from the East Riding, drawn not only from published works (and these include such a difficult compilation as Batty) but also from personal contacts and the material collected in the Hull museums.

He is especially to be congratulated in view of the unavailability of specimens, and the intrusion of the spurious Memoirs and Correspondence of Alderman Thomas Johnson. Because of these difficulties, however, which affect the seventeenth-century tokens in particular, one did need to know in all cases Mr. Whitting's sources of information and illustration; and one must say that his section on the tokens of the seventeenth century, reflecting no doubt the lack of work in this field, is not as authoritative as it should have been. Greater caution was required in introducing the name of Ramage, who died in 1662, a date earlier than on any of the dated tokens; the private issues were prohibited in 1672 as well as 1674 (p. 20); a misreading of Ogilby's Britannia has diverted the Hull to Beverley road via Anlaby. One is grateful above all, however, that Mr. Whitting has out-faced the embarrassingly bad condition of many of the specimens to provide the much-needed photographic illustrations.

R. H. T.


It is regrettable, if understandable, that this booklet includes eighteenth- and nineteenth-century tokens, for the single section devoted to them unbalances a work that is essentially about those of the seventeenth century. Mr. Berry has an expert knowledge of the economic position in that century of the trades and occupations of token issuers, a talent for lively detail, and a deep knowledge of one county; thus, one is very interested to learn that a token was issued by a Baptist bookseller and publisher of Aylesbury, Stephen Dagnall. It was an excellent idea to form a gazetteer of tokens and museums, and indicate the classes of contemporary record; even though these tend to local history rather than numismatics, the history of the tokens will ultimately have to be written out of knowledge of local conditions.

One must draw attention to the excessive number of printing errors, especially in the spelling of names. More substantially, the mention of dies on page 14 must mean punches; Conder is a catalogue of eighteenth-century tokens only, and not the first of those; and is the Taunton device of T and tun so very weak when one recalls that a name for T is Tau? Nevertheless, in very modest format Mr. Berry has provided us with a work fit to stand beside Mathias's English Trade Tokens for the later periods, as the best introduction to seventeenth-century tokens.

R. H. T.

Specious Tokens and those Struck for General Circulation 1784–1804. By R. C. BELL, M.B., F.R.C.S. Published by Corbitt & Hunter Ltd. Newcastle upon Tyne, 1968. xvii, 257 pp., illustrated. 60s.

This is the fourth book from Mr. Bell in the series of eighteenth- and nineteenth-century tokens. The format follows closely the attractive pattern already established and, once again, the author has produced a most readable book containing a wealth of fascinating information which has hitherto not been generally available.
Mr. Bell continues the scheme adopted in his earlier books in which he breaks these series of tokens into manageable groups. The present one is taken largely from the eighteenth-century series and for it he revives the term 'specious', 'specious' tokens being those which bear an original design and simulate a genuine commercial coin. They were produced to mislead collectors, and the author warns that it may be difficult to be sure whether a particular piece is specious or genuine. Each token is illustrated by photographic illustrations, mostly of a high quality. References are given to Dalton and Hamer numbers: the tokens are each described carefully and clearly and, where known, the names of diesinkers are given together with an estimate of the rarity of each piece. There follows, in each case, a potpourri of notes which are often similar to those that R. T. Samuel wrote in his long series of articles in the Bazaar, Exchange and Mart published in the 1880s.

Specious Tokens etc. will undoubtedly be of considerable value to coin-collectors who are beginning to explore the delights of this fascinating series. The information Mr. Bell packs in leads the reader into a feast of highways and byways which illustrate effectively the atmosphere of the times.

It may not be unfair to say, however, that some numismatists will be less delighted. Nowhere in the author's introduction could your reviewer find out what was the purpose of the book. Nor is there any clear acknowledgement by Mr. Bell of his indebtedness to Pye who above all of his contemporaries noticed the 'specious' and 'spurious' issues. It is probably the only half-hearted acknowledgement of his sources that reduces the value of this as a serious numismatic study. Moreover, what notes there are appear to be haphazardly selected. Taking the broadest view, it can be argued of course that as these tokens derive from the grass-roots of British life, any little bits of information are pertinent. The difficulty comes in seeing that there must be a boundary somewhere between the relevant and the irrelevant. Why does the author give over two pages to Sir Bevois (Peter Kempson no. 8) and only a few lines on, say, the Bath Association (Peter Kempson no. 1)? Your reviewer thought it was a pity, too, that there is no table of contents anywhere. It would highlight that aspect of the book from which there is an important lesson to be gained. It is most refreshing to find a move here to clustering tokens round manufacturers. Other studies that begin from this base may well prove more fruitful than those that simply see tokens as illustrations of a social and economic situation. Mr. Bell foresees the serious numismatic work that lies ahead.

D. R. D. EDMUNDS

OTHER LIBRARY ACCESSIONS, AND PERIODICAL LITERATURE (APART FROM THIS JOURNAL, COINS AND ITS ANNUAL, THE NUMISMATIC CHRONICLE, SPINK'S NUMISMATIC CIRCULAR, AND SEABY'S COIN AND MEDAL BULLETIN)

General

*Bibliographie numismatique, supplément: ordres et décorations. Ivo SUETENS. Bruxelles: Cercle d'études numismatiques, 1969. 147 pp. (Travaux, 4.)

Celtic


The Coins. DEREK ALLEN. In Early Celtic art: an exhibition sponsored by the Edinburgh Festival Society and arranged by the Arts Council of Great Britain in association with the Royal Scottish Museum... 1970, pp. 35–9, plate.


Europe


*New light on the pre-1760 Coney Street (York) find of coins of the Duurstede mint. MICHAEL DOLLEY. In *Jaarboek voor Muntpenningkunde*, 52/53 (1e gedeelte), 1965/6, pp. 1-7. Identifies some of the supposedly English silver pennies as denarii of Louis the Pious and Lothaire I in Leeds and the British Museum, dates the deposit 850-70, and argues against any English silver content.*

A denier of Charles the Bald from Preshute. HUGH SHORTT. In *Wiltshire Archaeological and Natural History Magazine*, 64, 1969, pp. 51-5, pl. II.


*Olav Kyfes' myntreform. KOLBJÖRN SKAARE. In *Nordisk Numismatisk Arsskrift*, 1969, pp. 21-36; summary, p. 36. The reduced Norwegian penny is reattributed to Magnus Barefoot (1093-1103) as a halfpenny, by means of a piece whose obverse derives from the PAXS type of William I.*

England


*Sylloge of coins of the British Isles, 13–[15]: Royal Collection of Coins and Medals, National Museum, Copenhagen, Part IIIA–[c]: Anglo-Saxon coins: Cnut. GEORG GALSTER. 1970. 3 vols. (158 plates).*


*Fynd av utländska mynt från brytningen mellan den förhistoriska perioden och medeltid i Finland. PEKKA SARVAS. In Nordisk Numismatisk Arsskrift, 1968, pp. 78-86; summary, p. 87. Four grave finds include two pennies of Stephen type I and a 'Tealby' penny.

*Two Wiltshire coin-hoards of the time of Stephen. C. E. BLUNT and F. ELMORE JONES. In Wiltshire Archaeological and Natural History Magazine, 64, 1969, pp. 65-70, pl. II. Winterslow and Latton finds.

*Coins, tokens and medals of the East Riding of Yorkshire. PHILIP WHITTING. York, 1969. 80 pp., 16 plates. (East Yorkshire local history series, no. 25.)


Ireland


*A very late 14th or early 15th century coin-hoard from near Roscrea. MICHAEL DOLLEY and W. A. SEABY. Ibid., pp. 71-3.


British Commonwealth

The silver currency output of the Mughal Empire and prices in India during the 16th and 17th centuries. AZIZA HASAN. In Indian Economic and Social History Review, 6 (1), 1969.


Tokens


* Works asterisked have been added to the library by exchange, purchase, or donation. The librarian acknowledges with gratitude those donations also which would be out of place in this list.