COIN HOARDS IN THE ROMAN EMPIRE: A LONG-RANGE PERSPECTIVE. SOME PRELIMINARY OBSERVATIONS

Abstract: This paper draws on data from two projects, the British Museum/Leicester Hoards project, which gathered records of 3,223 hoards of Iron Age and Roman coins from Britain, and the Oxford Coin Hoards of the Roman Empire project, which is gathering data on Roman coin hoards from across the Roman Empire, to make long-range comparisons of hoarding across different parts of the Empire by century. It adopts a broad-brush approach as the Oxford project is still adding data. The paper sets out the number of hoards recorded from each country from the reign of Augustus to the end of the fifth century and it shows that Luxembourg, followed by England and Israel have the highest number of coin hoards; it then considers the various factors governing the recovery and recording of hoards and the method of discovery of finds, before examining the chronological distribution of hoarding over the first to fifth centuries. Overall, the third century saw the highest proportion of coin hoards, followed by the fourth century, but there are very wide differences between the hoarding patterns of different countries. Hoards from beyond the frontier are also considered. A final section compares hoarding patterns with single finds of gold coins and suggests avenues for further research.

Keywords: *hoard; coin; Roman.*

Roger Bland
formerly the British Museum London
roger.bland@btinternet.com

This paper has grown out two research projects.[1] The first, funded by the Arts and Humanities Research Council, studied coin hoards from Iron Age and Roman Britain, and was a collaboration between the British Museum and the University of Leicester, with Professors Colin Haselgrove and David Mattingly and Dr Jeremy

[1] I am very grateful to Professor Chris Howgego of the Oxford Coin Hoards of the Roman Empire project for access to the data of the Coin Hoards of the Roman Empire project before it is completed and to Dr Marguerite Spoerri and Dr Cristian Gazdac for advice on the data.

Taylor. The Research Assistants on the project were Dr Eleanor Ghey at the British Museum and Dr Adrian Chadwick and Dr Adam Rogers at the University of Leicester. The project gathered data on 3,223 Iron Age and Roman coin hoards from Britain, updating the work of Robertson;[2] these data are now available online at: https://finds.org.uk/database/hoards. One volume arising from the project was published in 2018:[3] this included a discussion of coin hoards from the end of Iron Age period to the fifth century, together with a summary list of the hoards; a second volume will be published in 2020.[4] This paper in part draws on chapter 9 of that volume, although it also takes the discussion further with a more detailed analysis of hoards by century and by region.

The second project is the Oxford Coin Hoards of the Roman Empire project (CHRE), which is gathering data on hoards from across the Roman Empire and beyond. The CHRE project (https://chre.ashmus.ox.ac.uk/), is collecting information about hoards of all coinages in use in the Roman Empire between approximately 30 BC and AD 400, and makes it possible to compare the British pattern of hoarding with that of the rest of the Empire. The project, which started in 2013, is still in progress and currently (as of May 2019) has a database of 9,616 hoards from the Roman world (plus 2,636 single gold coins and 160 groups of coins which are not regarded as hoards: these are excluded from analysis below).

The aim of this paper is to examine the density of hoarding in the different countries that make up what was the Roman Empire and to look at broad trends through time from the reign of Augustus to the end of the fifth century.[5] In some ways this mirrors the study of single finds of gold coins based on data gathered by J. P. Callu and X. Loriot and their collaborators[6] and summarised in Bland and Loriot.[7]

At the time of writing the CHRE project has gathered summary information on most hoards from within the Empire, although more will be added, especially those beyond the frontier. Therefore the figures below are provisional and will be subject to correction once data-gathering is complete. Those hoards from outside the Empire that are on the CHRE database are excluded from analysis, as are the hoards recorded by this project from Scotland and ten from England north of Hadrian's Wall. Hoards of Iron Age coins from Britain recorded by this project are also excluded, as these are not recorded by CHRE, as are Roman hoards that close after 491. It is, in fact, possible that the fifth century is under-represented in the analyses in this paper because it is stated on the project website that the remit of CHRE is to record hoards down to about 400, but in fact it has records of 256 fifth-century hoards and, where these have been checked against other corpora of coin hoards, it seems that all available fifth-century deposits are included.

DENSITY OF HOARDING

In table 1 the number of hoards currently recorded by CHRE from each country within the Empire is shown, together with the area of the country and the number of square kilometres (km^2) per hoard. Fig. 1 presents the results graphically.

It is clear from this that Britain is exceptionally rich in Roman coin hoards, but not uniquely so, as the Grand Duchy of Luxembourg has a greater quantity per km^2 than England and Wales. Luxembourg covers only a very small area (2,586 km^2) and 84 Roman coin hoards are known from it. This high number would seem to reflect, at least in part, the work of one scholar, Raymond Weiller, formerly curator of coins at the National Museum in Luxembourg, who published five volumes of coin finds from the Grand Duchy.[8] Of course analysing

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[2] ROBERTSON 2000.

[3] BLAND 2018.

[4] BLAND *ET ALII* forthcoming.

[5] In a similar way to HOBBS 2006, who, however, had a different time-frame and a different focus.

[6] CALLU/LORIOT 1990; BRENOT/LORIOT 1992.

[7] BLAND/LORIOT 2010, 16–27.

[8] WEILLER 1972, 1977, 1983, 1990 and 1996.

Table 1. Number of Roman coin hoards on CHRE database by country (for Germany, Hungary and the Netherlands only hoards from within the Roman Empire are included).

Country	No. of hoards	Area (km²)	Km² per hoard
Luxembourg	84	2,586	30.8
England (south of Hadrian's Wall) and Wales	3,219	149,361	46.4
Israel	347	20,073	57.8
Belgium	395	30,510	77.2
Bulgaria	861	110,994	128.9
Netherlands (within Empire)	139	18,778	135.1
Switzerland	304	41,450	136.3
Slovenia	103	20,273	196.8
France	1,938	551,695	284.7
Hungary (within Empire)	105	36,615	348.7
Austria	186	83,858	450.8
Germany (within Empire)	78	47,705	611.6
Greece	214	131,940	616.5
Lebanon	15	10,452	696.8
Italy	388	301,338	776.6
Croatia	62	56,594	912.8
Romania	240	238,397	993.3
Portugal	91	91,658	1007.2
Serbia	63	77,453	1229.4
Cyprus	5	9,251	1850.2
Macedonia	13	25,713	1977.9
Spain	218	498,468	2286.6
Slovakia	21	49,036	2335.0
Syria	72	185,180	2571.9
Tunisia	46	163,610	3556.7
Bosnia	10	51,129	5112.9
Egypt	180	1,001,449	5563.6
Turkey	137	783,562	5719.4
Jordan	12	89,342	7445.2
Albania	3	28,748	9582.7
Montenegro	1	13,812	13812.0
Morocco	19	446,550	23502.6
Algeria	99	2,381,741	24058.0
Libya	27	1,759,540	65168.1

hoard density on a country-wide scale hides great variations between different regions: for example, the Isle of Wight in Britain contains 45 hoards from an area of 384 km², a totally exceptional density of 8.53 km² per hoard.

It is likely that a long history of recording coin finds, together with a more liberal tradition towards amateurs, including those who use metal detectors, may account for the relatively high numbers of hoards recorded from Belgium and the Netherlands. In Switzerland there is an organisation charged with the recording of coin finds (Inventar der Fundmünzen der Schweiz, https://www.
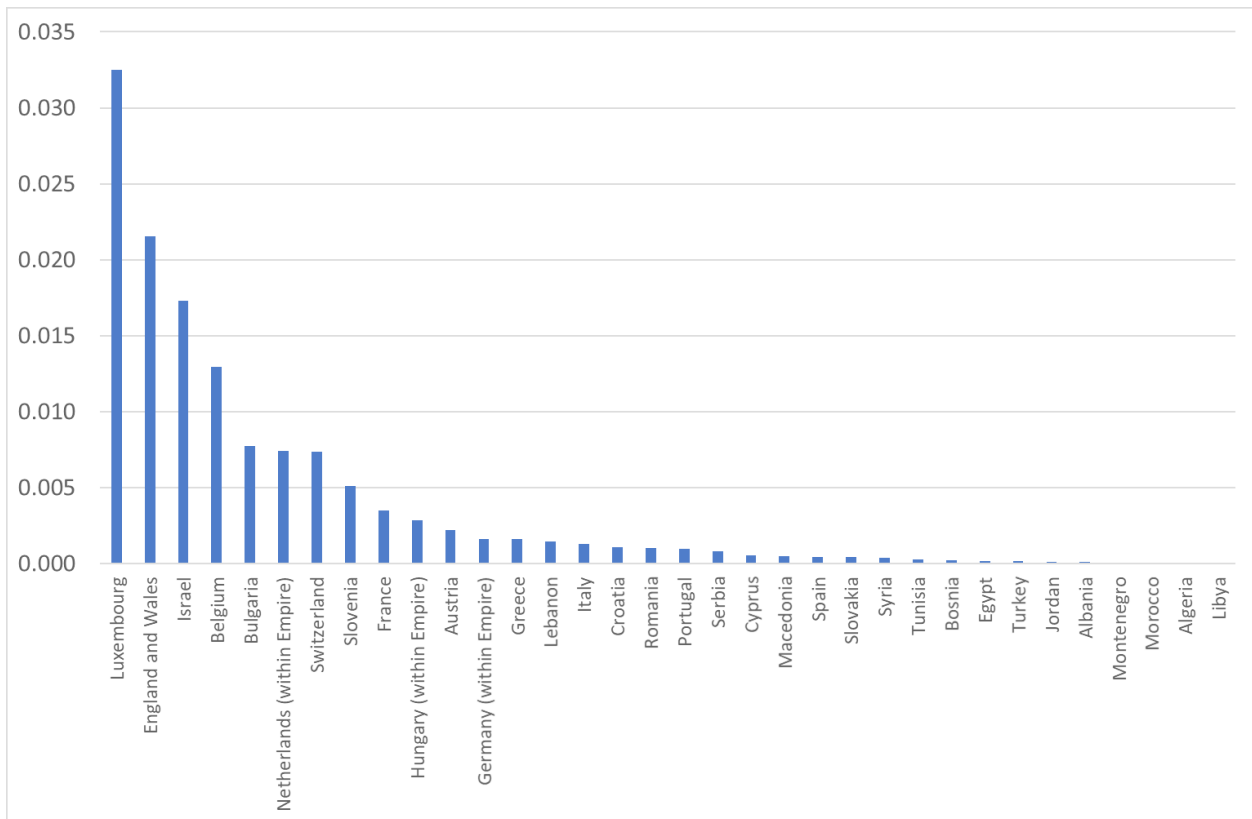
Fig. 1. Density of hoards by country per km^2.

muenzfunde.ch), founded in 1992.

The high number of hoards recorded from Israel may partly reflect the fact that there are many scholars and collectors in that densely-populated country, but there are probably additional factors: for example, 77 of the 347 hoards can be connected with the First and Second Jewish revolts in 66–73 and 132–6 respectively. The high density of hoards recorded from Bulgaria is less easy to explain, but 79% of the hoards from that country date to the third century, a time of almost continual warfare in the area, and only 3% from the fourth (table 3a). This suggests that in this case at least historical factors are likely to be at play. By contrast, it seems likely that finds from the countries around the Mediterranean (both to the north, Spain and Italy and especially in North Africa and the Middle East apart from Israel) are significantly under-reported, not least because unrecorded hoards of coins from these countries regularly appear on the coin market. This is, however, difficult to quantify. Another factor that needs to be considered is the length of time during which

countries were under Roman occupation, as this varies. The Mediterranean countries came under Roman occupation in the Republican period, Britain not until AD 43 and Dacia not until 106, while Dacia was abandoned in 274–5, while other provinces remained under Roman rule into the fifth century.

FACTORS GOVERNING THE DISCOVERY AND RECORDING OF HOARDS

It needs always to be borne in mind that we are only able to study a subset of the hoards that were originally deposited: an unquantifiable proportion – quite probably the majority – were recovered by the original owner, or by someone acting under instruction from the owner and we have no information about those (see also Bland *et alii*, forthcoming, chapter 3).

We also need to ask to what extent the figures for the total number of hoards recorded from a country or an area represent the ancient pattern of hoard deposition and to what extent are there other factors?

In a study of the factors behind the recording of finds on the PAS database Dr Katherine Robbins identified seven stages of collection bias.[9] These are:

1. Not all objects in a single body of material culture will be lost or buried in a particular time or place;
2. Of those that are buried, not all will be preserved;
3. Of those artefacts that are preserved, not all will survive to the present;
4. Of those that survive, not all will be exposed where a collector may see them;
5. Of those that are exposed to the collector, not all will be recovered.
6. Of those artefacts recovered by an amateur collector, not all will be reported to a professional body;
7. Of those that are reported, not all will be recorded in a professional dataset.

These factors apply to coin hoards:

1. The history of antiquarian and archaeological research in source countries:[10] before the development of archaeological research in eighteenth century, all finds were chance finds. Since the eighteenth and, especially, the nineteenth century hoards have been found in the course of archaeological excavations; and since 1972 hoards have increasingly been recovered by amateurs searching with metal detectors (see below).
2. The likelihood of the discovery of hoards being noted in relevant numismatic or archaeological literature rather than immediately broken up and sold in trade without any record. This primarily depends on the existence of museums or an archaeological service to which finds can be reported, the willingness of finders to report them and of staff able to record such discoveries.
3. The history of development in the source countries that would lead to the discovery of hoards: for example, in Britain and other western European

⁹ ROBBINS 2013, 55–7.
¹⁰ BLAND 2018, 1–6; BLAND/LORIOT 2010, 4–7.

countries the expansion of building work and infrastructure development during the industrial revolution led to many hoards being discovered from the eighteenth century onwards, whereas in less developed countries, such as those of the Middle East or North Africa, this development work started later.

In last fifty years legislation governing metal detecting has played a key role in determining the number of hoards being uncovered and recorded: see next section.
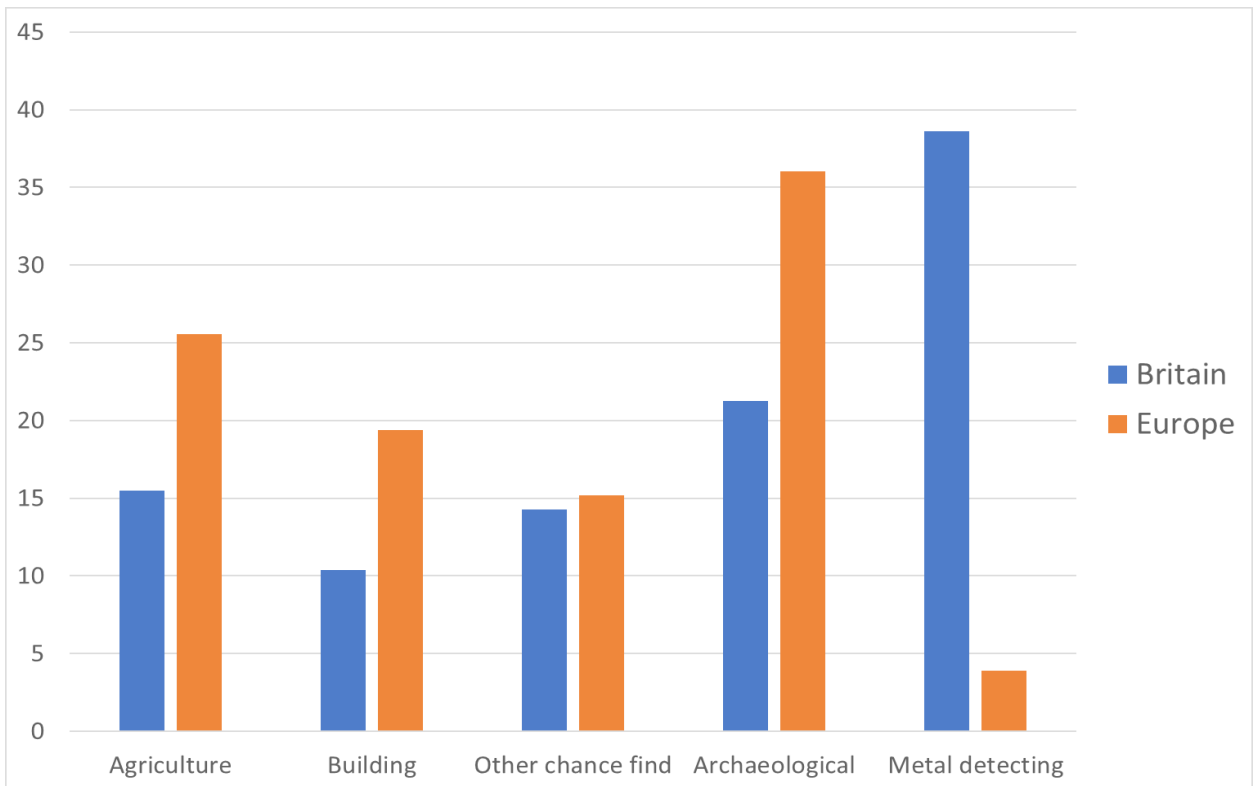
METHOD OF DISCOVERY

In order to understand the differences between the British hoards and those from the rest of Europe, it is necessary to examine how they were discovered. This is summarised in table 2 and Fig. 2.

The main difference between the British hoards and those from elsewhere is the very

Table 2. Method of discovery of (a) hoards from Britain and (b) those from elsewhere on CHRE database

	Britain	Elsewhere
Agriculture	15.49	25.56
Building	10.36	19.37
Other chance find	14.28	15.19
Archaeological	21.25	36.01
Metal detecting	38.62	3.88
Total	2,654	2,680

high proportion of British hoards that have been discovered through metal detecting. The popularity of metal detecting since it first started in the early 1970s, and the introduction of the Portable Antiquities Scheme (PAS) in England and Wales in 1997 together with the changes brought in by the Treasure Act 1996 have all led to a huge increase in the number of hoards being reported (fig. 3). Some 50 new Roman coin hoards are recorded from Britain every year, along with many addenda to previously-discovered hoards. This number is much lower in other countries, in the majority of which metal detecting is not legal, or only permitted under tightly controlled conditions,

Fig. 2. Method of discovery of coin hoards from Britain and elsewhere compared.
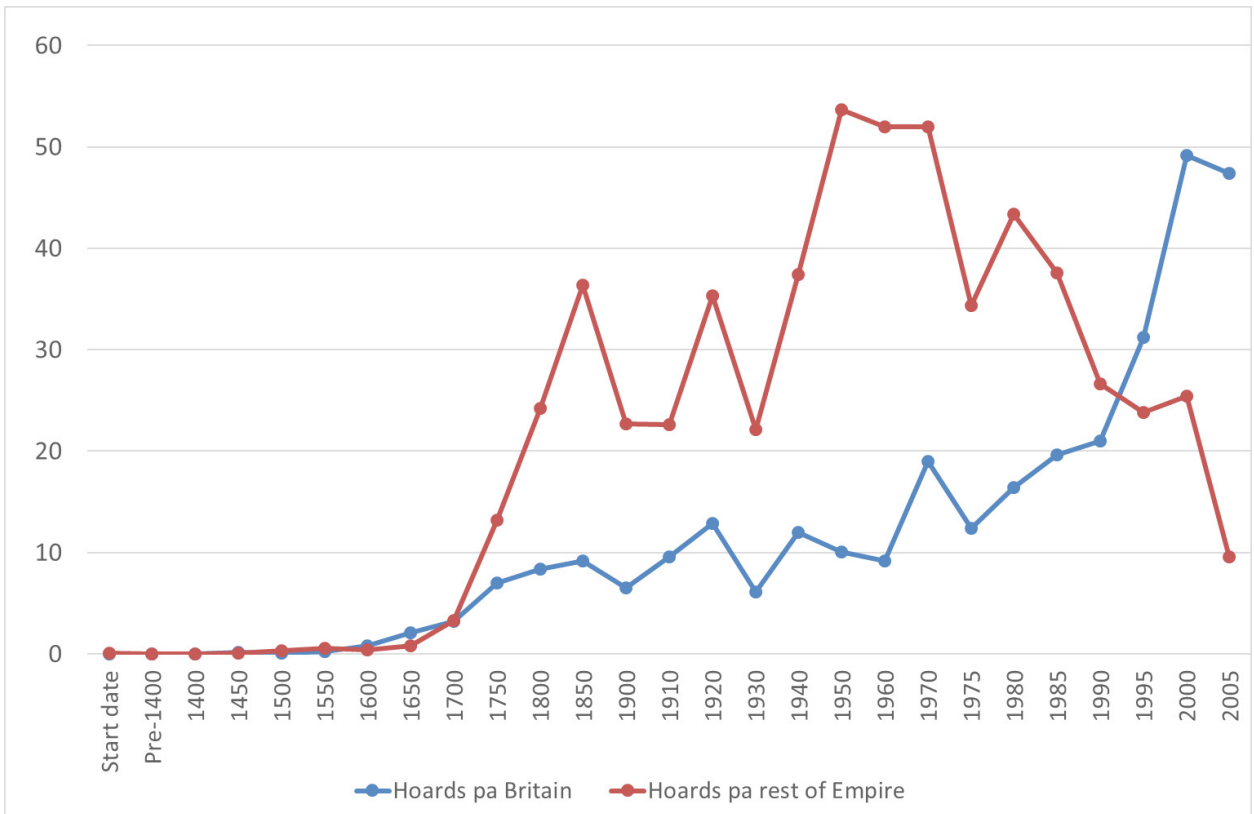
Fig. 3. Number of hoards reported each year (hoards per annum) from Britain (blue line) and elsewhere (red line).

although, as noted above, that position is now changing in certain other Northern European countries such as Denmark, the Netherlands, and parts of Germany and Belgium.

CHRONOLOGICAL DISTRIBUTION: SURVEY BY COUNTRY

The dataset of the CHRE allows comparisons to be made between hoarding patterns in different parts of the Empire that would not previously have been possible. Tables 3a and 3b show the percentages of hoards closing with coins of the first five centuries AD by century. There are also 183 hoards on the CHRE database with terminal dates in the first century BC, but these are excluded from the current analysis, which is only concerned with Roman imperial hoards and excludes those that consist exclusively of Celtic coins. The first century covers hoards that close with issues of Augustus (27 BC –

AD 14) to Nerva (96–8); the second century with coins of Trajan (98–117) to Commodus (180–92); the third from Pertinax (192) to the reform of Diocletian (*c*.294–6 or, in the case of Britain, Allectus (293–6); the fourth century from the Diocletian's reform to Honorius (393–423), while the fifth century extends from Constantine III (407–11) to the reform of Anastasius in 491.

Table 3a includes those hoards from within the Roman Empire and, in the case of present-day countries whose frontiers straddle the Roman frontier such as Britain, Germany, the Netherlands and Hungary the hoards from those areas outside the Roman frontier are excluded. In order to facilitate analysis of the data some countries from which only a few hoards have been recorded have been grouped together, such as Spain and Portugal; the five countries of the former Yugoslavia (Slovenia, Croatia, Serbia, Montenegro, Macedonia), while the countries of North Africa have been

Table 3a. Analysis of Roman hoards within the Empire on CHRE database by region and by century (percentages)

Country/countries	No. of hoards	Percentages				
		1st cent.	2nd cent.	3rd cent.	4th cent.	5th cent.
England & Wales	2,579	*15.90*	*14.77*	*31.72*	*37.50*	*0.12*
Belgium & Luxembourg	431	*3.25*	*15.08*	*66.13*	*14.85*	*0.70*
Netherlands (within Empire)	113	*17.70*	*15.04*	37.17	25.66	4.42
France	1,603	*7.17*	*12.16*	*61.95*	*17.72*	*1.00*
Germany (within Empire)	76	*6.58*	*6.58*	*53.95*	*27.63*	*5.26*
Switzerland	231	*14.29*	17.75	38.53	27.71	1.73
Austria	169	*4.14*	*18.93*	*42.60*	*32.54*	*1.78*
Hungary (within Empire)	97	*2.06*	*10.31*	*60.82*	*24.74*	*2.06*
Former Yugoslavia	248	8.47	19.35	43.55	25.40	3.23
Romania	235	8.94	24.68	48.51	14.89	2.98
Bulgaria	800	*2.38*	*11.13*	*79.50*	*2.75*	*4.25*
Greece	212	*9.91*	*16.04*	*59.91*	*14.15*	*0.00*
Italy	355	*43.10*	*10.14*	*25.07*	*13.24*	*8.45*
Spain & Portugal	296	24.66	10.81	51.35	9.46	3.72
Morocco, Algeria, Tunisia	156	*4.49*	*10.90*	*41.67*	*28.21*	*14.74*
Egypt & Libya	179	*12.85*	*20.67*	*50.28*	*15.08*	*1.12*
Turkey	112	*15.18*	*7.14*	*52.68*	*18.75*	*6.25*
Cyprus, Israel, Jordan, Lebanon, Syria	376	*25.80*	*24.73*	*24.20*	*19.68*	*5.59*
Overall	**8,268**	**12.80**	**14.49**	**47.53**	**22.97**	**2.21**

Table 3b. Analysis of Roman hoards beyond the Empire on CHRE database by region and by century (percentages)

Countries	No. of hoards	1st cent.	2nd cent.	3rd cent.	4th cent.	5th cent.
West (Ireland & Scotland)	86	5.81	53.49	19.77	16.28	2.33
North (Ger, Net, Den, Swe)	262	6.11	14.89	45.04	15.65	17.94
North East (Hung, Cz, Slov, PL, Rus, Ukr)	252	4.37	32.14	38.89	14.68	9.52
East (Arm, Azerb, Geo, Iraq, Ind)	7	0.00	0.00	71.43	28.57	0.00
Overall	**603**	**5.31**	**27.53**	**39.47**	**15.59**	**12.11**

combined into a western group (Morocco, Algeria and Tunisia) and an eastern (Libya and Egypt), and Cyprus, Israel, Jordan, Lebanon, Syria have also been combined.

Table 3b includes 603 hoards of Roman coins from beyond the frontier grouped in four main categories: (a) Ireland and Scotland; (b) those parts of Germany and the Netherlands outside the frontier, Denmark and Sweden; (c) the countries to the north and north-east of the Danubian frontier: Hungary (beyond the frontier), the Czech Republic, Slovakia, Poland, Russia and the Ukraine and lastly (d)

countries to the east of the frontier: Armenia, Azerbaijan, Georgia, Iraq and India.

I should stress here that this survey is very provisional: data gathering in the CHRE project is still continuing and, of course new hoards are discovered all the time. On the other hand, the database of the CHRE has now reached a point where a provisional analysis such as this can be undertaken. It would, without doubt, be interesting to carry out more fine-grained analyses of hoards closing in particular periods. What follows is, intentionally, a broad-brush approach which is
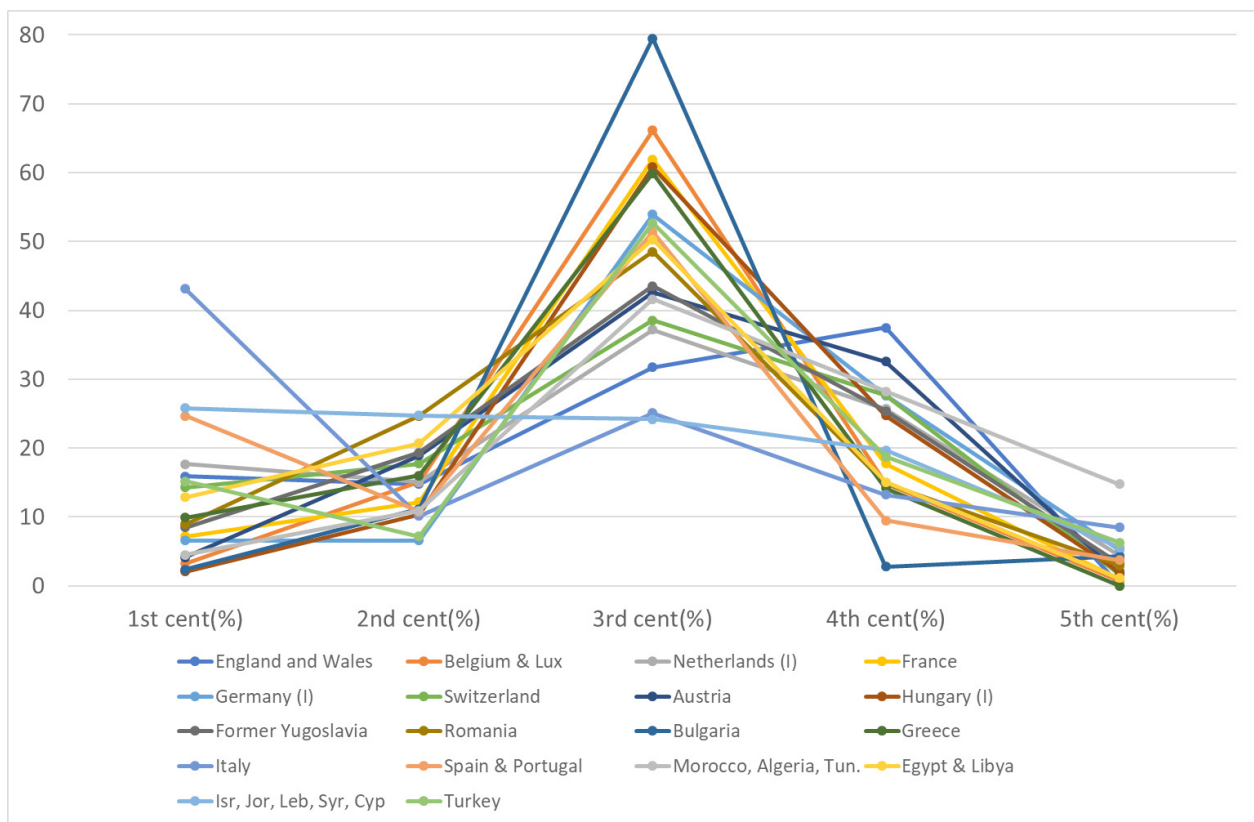
Fig. 4. Analysis of hoards from each country or group by century (percentage of total number of hoards from each country by century)
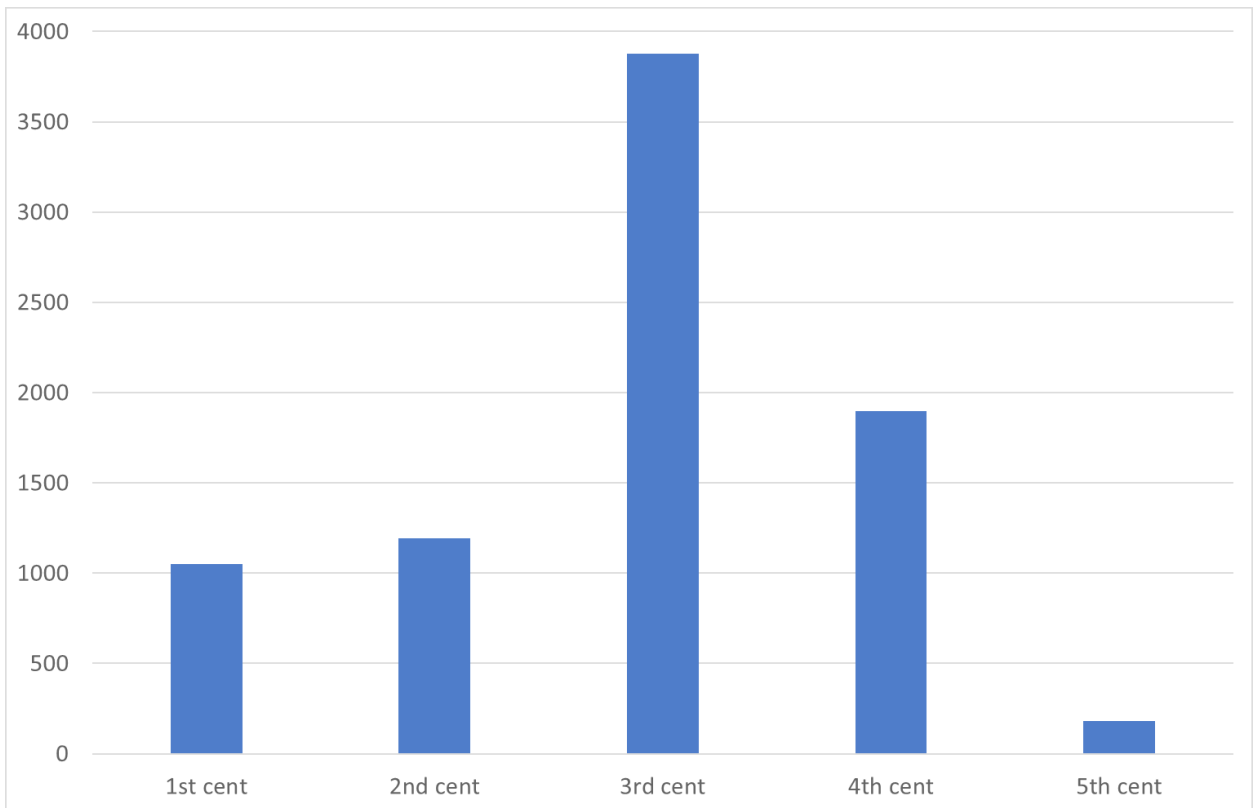
Fig. 5a. Number of hoards by century: all hoards from within Empire (n: 8,268)
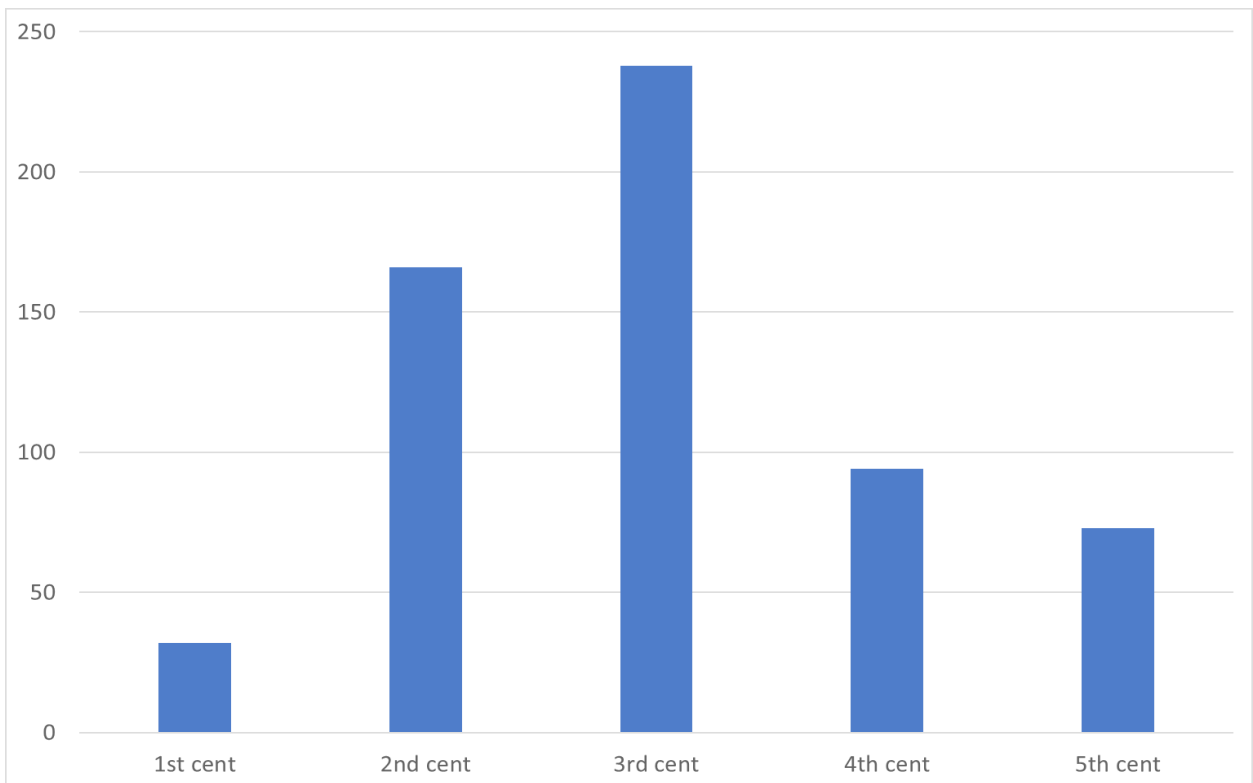
Fig. 5b. Number of hoards by century: all hoards from outside Empire (n: 603)

intended to suggest avenues for more detailed investigation.

DISCUSSION

This dataset does, I suggest, offer rich
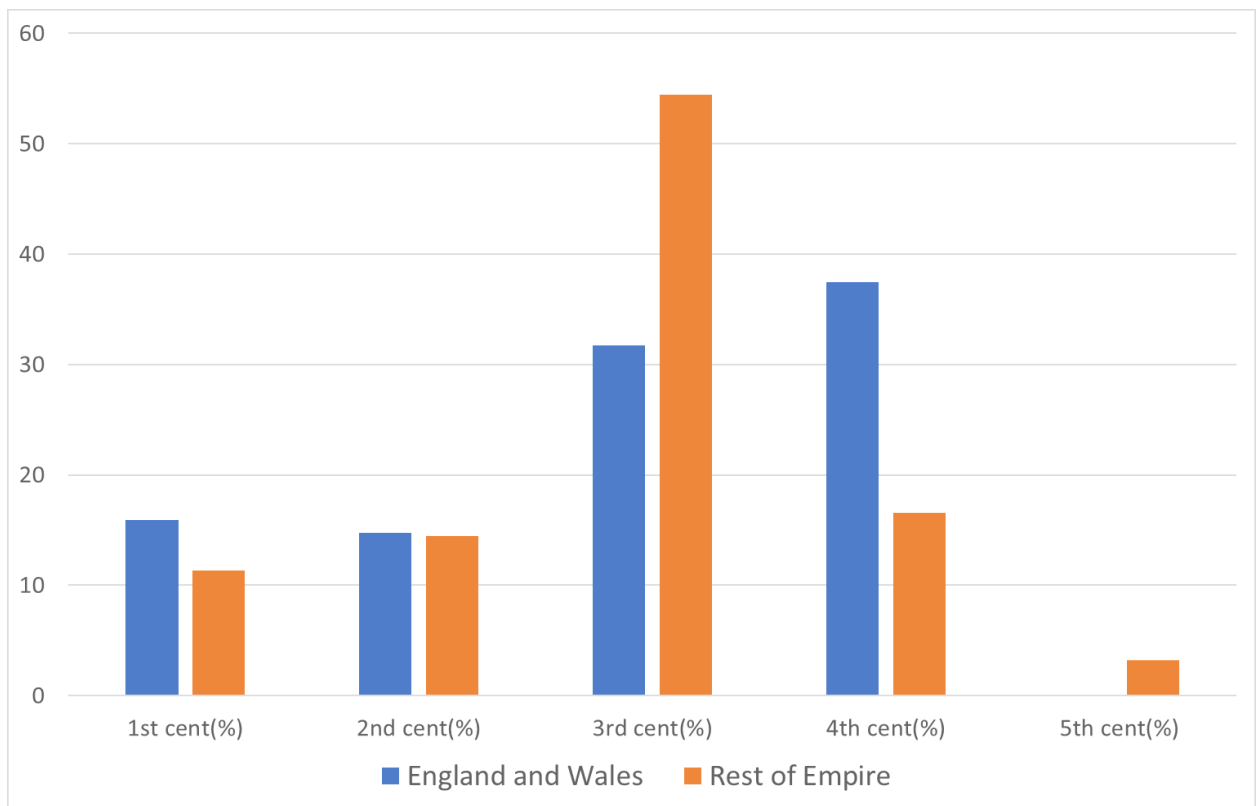
Fig. 6. Comparison of hoards from England and Wales with the rest of the Empire, expressed as percentages
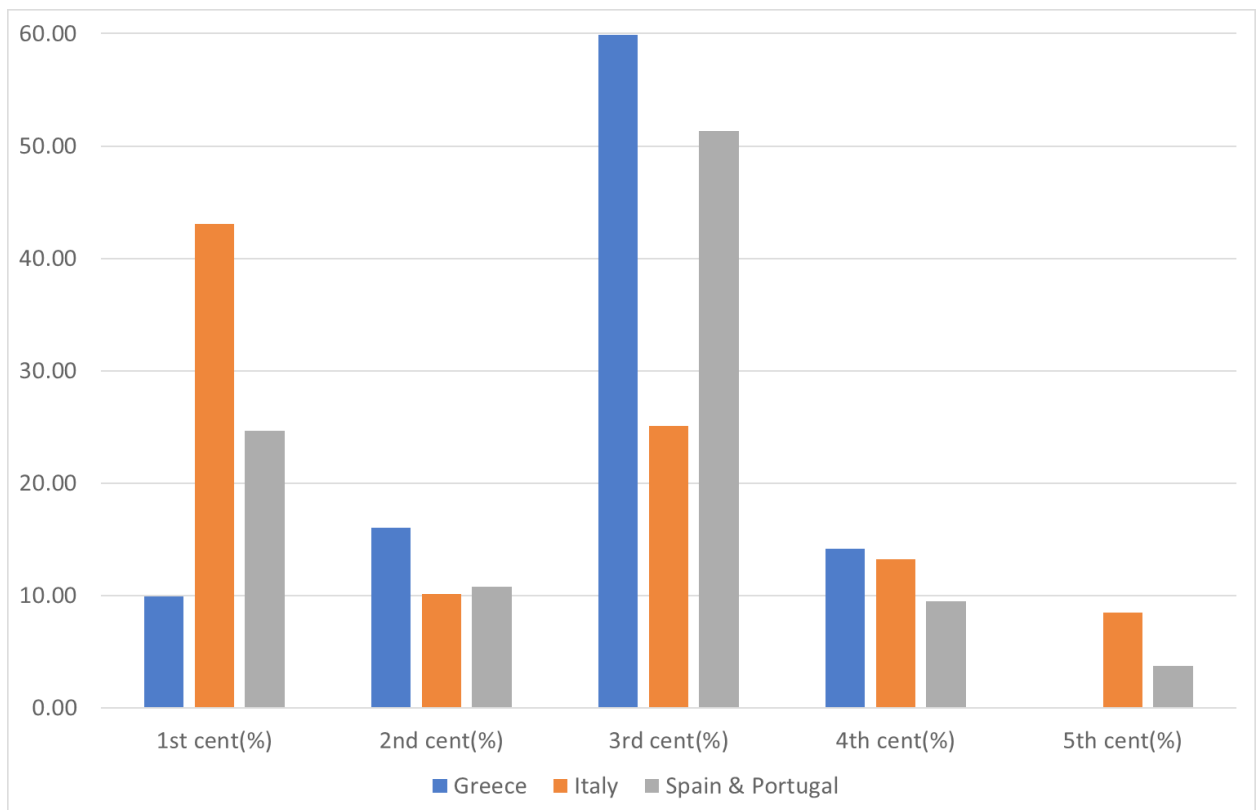
Fig. 7. Comparison of hoards from Greece (n: 212), Italy (355) and Spain & Portugal (296), expressed as percentages

scope for comparing the patterns of individual countries with each other and for examining how a country or region departs from the overall average. Fig. 4 shows the data for each of the 18 countries or groups of countries in Table 3a and it can be seen that there are wide variations. For example, the percentage of third-century hoards varies from 79.5% for Bulgaria to 24.2% for Cyprus, Israel, Jordan, Lebanon, Syria and 25% for Italy. However, fig. 4 contains too many lines to enable meaningful analysis.

The overall patterns of the 8,268 hoards known from within the Empire and the 603 from beyond the frontier are shown in figs. 5a and 5b. Third-century hoards are dominant in the group from the Empire (3,879 hoards), followed by the fourth century (1,899), with roughly equal numbers of first (1,049) and second (1,194) century hoards, and only a few from the fifth (183), Among the smaller group of hoards from beyond the frontier (603), there is a gradual increase in the number of hoards between the first and third centuries, which is still dominant but not as dominant as in the imperial group, and then a falling off in the fourth and fifth centuries, with the fifth century making a much stronger showing than within the Empire.

Any individual country can be compared against the overall mean, so fig. 6 compares the pattern from England and Wales with that of the rest of the Empire, or against neighbouring countries, and fig. 7 compares the patterns from Greece, Italy and the Iberian Peninsula.

These sorts of comparisons can show whether the hoards from a particular country depart from the mean – in the case of fig. 6, it is apparent that England and Wales have fewer than average third-century hoards and more fourth-century ones: in fact England and Wales have a higher proportion of fourth-century hoards than any other country in the Empire. Fig. 7 shows differences between the hoarding patterns from the Mediterranean countries of Greece, Italy and the Iberian Peninsula: Greece is lower than the other

countries in the first century, slightly higher in the second and markedly higher in the third. In the fourth century the three countries are fairly close, with the Iberian Peninsula the lowest and then Spain has very hoards from the fifth century. Italy is strong in the first century and low in the third, while Spain lies in between.

How these variations should be interpreted is another matter. If it is thought that the deposition (and non-recovery) of hoards is generally a reflection of external invasions or internal unrest, then England and Wales were peaceful in the third century, but not the fourth, while Greece and the Iberian Peninsula both experienced turbulence between 200 and 300. In *Iron Age and Roman Coin Hoards from Britain*,[11] it is argued that a much higher proportion of coin hoards from Britain were deposited for other reasons – either for votive purposes, or as foundation deposits – than has normally been admitted. That said, when one considers the proportion of third century hoards from Bulgaria (79.5% of all hoards from that country close in the third century) and that most of them close before 251, when Trajan Decius was defeated and killed by the Goths at the battle of Abrittus, it is difficult to deny in that case there probably was a link between the high incidence of hoarding and known historical events. More fine-grained chronological analysis of the hoards would certainly be worthwhile, but at present many of the records can only be attributed to a century.

COMPARISON WITH
SINGLE FINDS OF GOLD COINS

In a study of single finds of gold coins,[12] based on a dataset of 3,610 specimens from across the western Empire, a similar comparison was made between the chronological distribution of coins from different provinces.[13] Of course, it needs to be stressed that these data are not directly comparable with hoards. Unless the theory

[11] BLAND *ET ALII*, forthcoming.
[12] BLAND/LORIOT 2010, 20–21, table 7.
[13] BLAND/LORIOT 2010, 16–27.
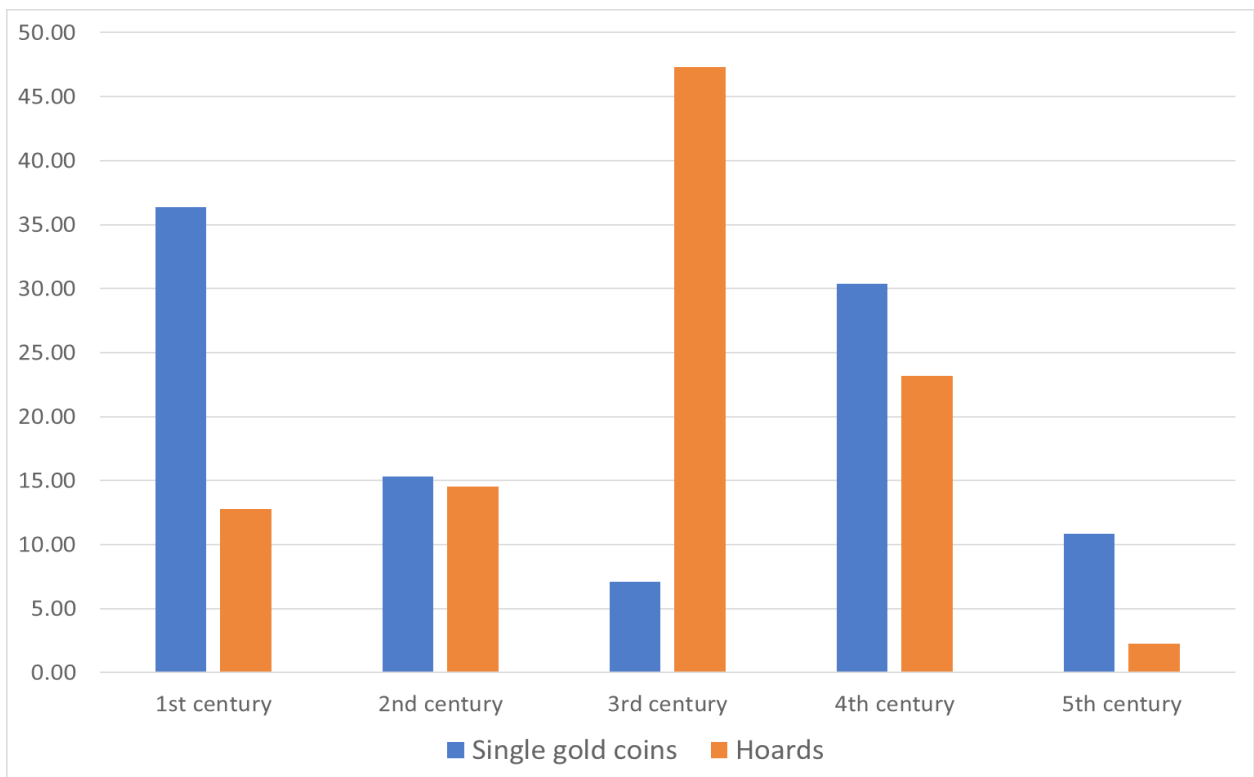
Fig. 8. Comparison of single finds of gold coins and hoards from across the Empire (percentages of total)
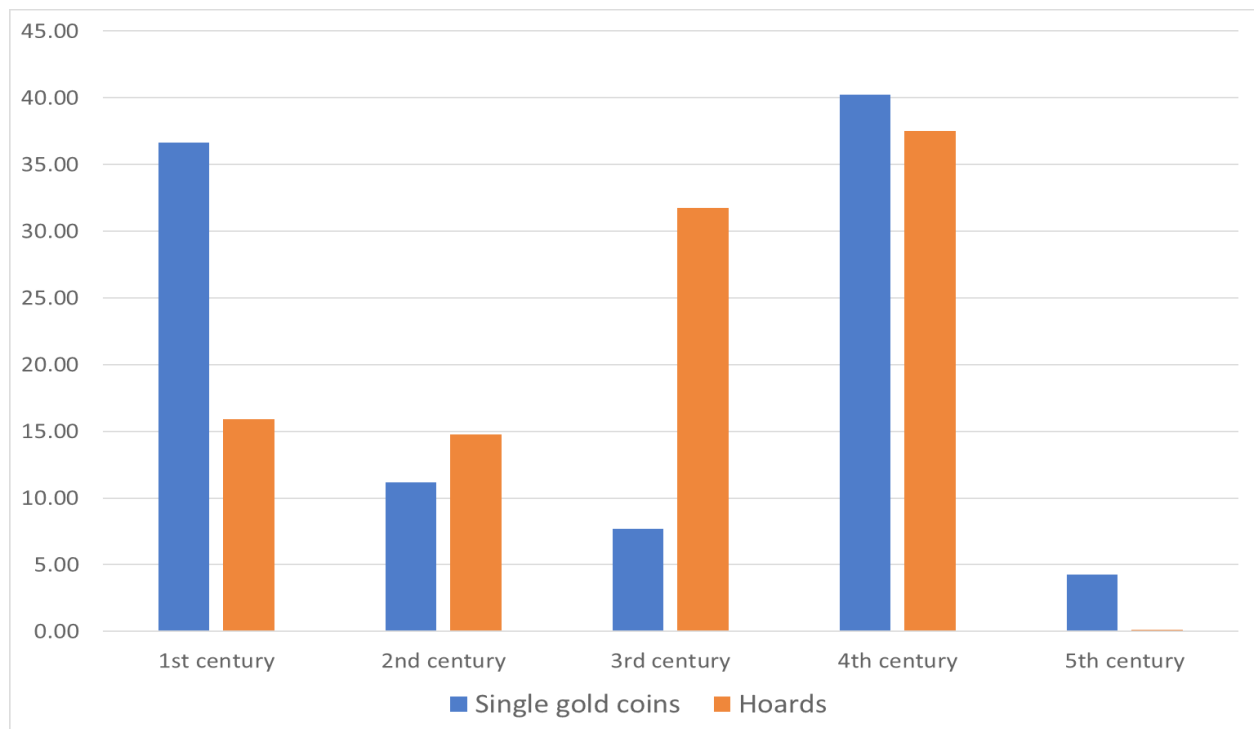
Fig. 9. Comparison of single finds of gold coins and hoards from Britain (percentages of total)

that single finds of gold coins were deliberately deposited in the same way as hoards is accepted, then the single finds of *aurei* and *solidi* are presumably for the most part stray losses, although the four *aurei* among the 12,615 coins placed in the sacred spring at Bath,[14] or the four *aurei* among the some 13,500 coins in Coventina's Well on Hadrian's

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[14] WALKER 1988.

Wall[15] must have been deliberately added to those large watery deposits.[16] It is generally assumed that the pattern of gold coin loss represents the volume of production of these coins,[17] whereas analysis of coin hoards by the date of the latest coin in them measures acts of deliberate deposition – a different type of metric.[18] Nonetheless, there is still an interest in comparing the two sets of data.

A comparison between the complete datasets shows substantial differences (fig. 8): in the first century gold coins are much more common than hoards; the two datasets converge in the second century but diverge very widely in the third, when there is a peak of hoarding, but very few gold coins, while in the fourth and fifth centuries gold coins are proportionately more numerous than hoards.

A comparison between the pattern of single finds of gold coins from Britain and hoards shows interesting similarities, with the striking difference that single gold coins are proportionately much more common in the first century and rare in the third (fig. 9). In both cases, the fourth century is dominant.

CONCLUSION

Overall the dataset of the CHRE shows that hoards from the third century are dominant – they account for 47.5% of all hoards from within the Empire and 39.5% of hoards from outside. This has implications for our understanding of the so-called 'third-century crisis' for which the many hoards of the period have frequently been cited as evidence. Under this interpretation, those areas with the highest number of third-century coin hoards were most affected by external invasions (or internal unrest). Certainly, this seems to have been the case with Bulgaria, which has the highest proportion of third-century hoards. Can we also infer that those regions with the lowest number of hoards of this period, Italy and the countries of the East, enjoyed tranquillity? Large parts of the eastern provinces were affected by Shapur's invasions in the middle of the century.[19]

Be that as it may, the wide variations between individual countries and areas merit more detailed analysis, both by assigning the hoards to shorter chronological periods (reigns or Reece periods) and by mapping the hoards. This brief survey shows the potential of the data gathered by the CHRE project to enrich our understanding of coin hoarding across the Roman Empire and beyond. More detailed analyses of the hoards will undoubtedly be worthwhile as the data gathering is completed.

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[15] ALLASON-JONES/MACKAY 1985.
[16] BLAND 2020; BLAND *ET ALII* forthcoming, chapter 5.
[17] BLAND/LORIOT 2010, 107–110.
[18] BLAND 2018, 7–23.
[19] POTTER 2004; DRINKWATER 2008.

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