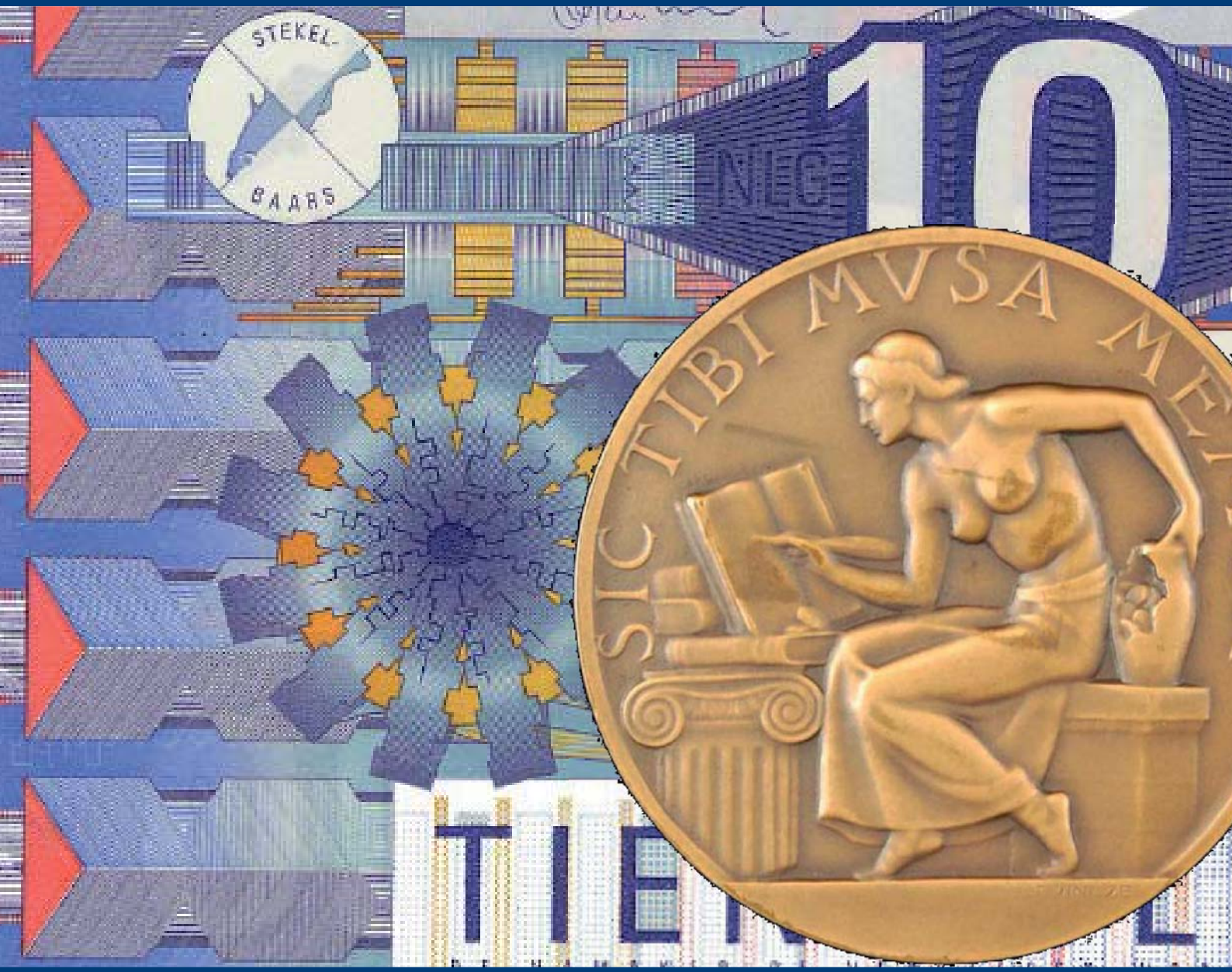
The British Museum and the Future of UK Numismatics



Proceedings of a conference held to mark the 150th anniversary of the British Museum's Department of Coins and Medals, 2011

Edited by Barrie Cook

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Foreword

Barrie Cook, Curator of Medieval and Early Modern Coins, British Museum

This volume records the events of a day, the papers given at a conference held at the British Museum on 18 February 2011. The purpose of the conference was to commemorate the 150th anniversary of the British Museum's Department of Coins and Medals, to think about its history, to reflect on its current activities and to plan for its future. In his welcome to the (coincidentally) about 150 participants, Neil MacGregor, Director of the British Museum, commented on the Museum's 'absolutely inexhaustible capacity for finding birthdays to celebrate'. Since arriving as Director, Neil has presided over the 250th anniversary of its founding in 1753 and the 250th anniversary of its opening to the public in 1759.

A strong case could be made to rank this anniversary, commemorating events in 1861, as the third most significant date in the Museum's history. This would not be because of the founding of the Department of Coins and Medals (although Neil was happy to record his conversion, since his arrival at the Museum, to the view that 'all history depended on coins and medals and that the whole Enlightenment project was founded on small round objects, carefully gathered and studied'). All anniversaries are really just snapshots of longer processes, but the decisions made in 1860–61 were symptoms and consequences of the way the Museum was developing in the 19th century, transforming from an institution most notable for its books and manuscripts (material now in the British Library) and its natural curiosities and wonders (material now in the Natural History Museum) into one fundamentally concerned with the works of humanity; with the question of what objects from the past, and indeed from the present, can tell us about human history in the broadest sense.

In 1860, with the retirement of Edward Hawkins, Keeper of the Department of Antiquities for 35 years, the Trustees and management of the Museum reviewed the role of this increasingly huge and unwieldy department, which was continuing to absorb new material at a staggering rate. They also took stock of the implications of the new museum developments in South Kensington. The outcome came in November 1860, when the Trustees agreed to divide the single Department of Antiquities into four: three independent departments (Coins and Medals, Greek and Roman Antiquities and Oriental Antiquities, the latter holding antiquities from ancient Egypt and the Middle East), and a fourth, British and Medieval Antiquities and Ethnography, subordinate to the Keeper of Oriental Antiquities. After a few months of no doubt hectic activity and upheaval barely evident in the spare and composed records of the period, the chosen keepers of the newly-created departments took up their separate duties in February 1861.

A century and a half later, it seems appropriate to take stock of the history, the role and the future of the Department of Coins and Medals, which, along with the Department of Greece and Rome, has survived the intervening period in pretty much the same form. In Britain, certainly, it has been the museum curator and the amateur scholar between them, harmoniously utilising both private and museum collections, who have promoted the development and study of numismatics – the investigation of medals, coins and related monetary objects. University-based academics have played a relatively lesser part, though far from insignificant. As a result the major museum coin collections and the curators who maintain them have tended to have a disproportionate impact on the subject and this shows little sign of changing.

Throughout 2010, therefore, a small group within the department devised the anniversary events: the current Keeper of Coins and Medals, Philip Attwood, along with Janet Larkin, Helen Wang, Gareth Williams, Amelia Dowler and I. The lion's share of the practical organising of the conference was done by Janet Larkin, who deserves special thanks. The day was made possible thanks to financial support from the E.S.G. Robinson Charitable Trust and the UK Numismatic Trust. The Robinson Charitable Trust commemorates the legacy of Sir Stanley Robinson, a former Keeper of the Department of Coins and Medals, and its support has also assisted in the production of this volume. On the day, and the weeks leading up to it, the whole department was thoroughly involved in the organisation. Amanda Gregory, Henry Flynn, Ben Alsop, Tom Hockenhull, Elvina Noel, Keith Lowe and Mary Hinton worked to ensure the day ran successfully. Vesta Curtis, Sam Moorhead, Helen Wang and Amelia Dowler each chaired one of the four sessions.

The main aspect of the day that cannot be adequately recorded in this volume was, of course, the audience. The organising group's nagging worry that no-one would come proved spectacularly misplaced and the conference venue was filled to capacity: indeed, a larger space would easily have been filled. Numismatic novices and retired veterans rubbed shoulders, exchanged stories and made contacts. Especially welcome were members of what became referenced throughout the day as the Coins and Medals diaspora: former colleagues, some retired but others now scattered throughout the Museum and indeed well beyond. The sense of legacy was clear, with there still being a living memory of figures such as John Walker, Michael Dolley and Joan Martin, while many people well-remembered the former Keepers Kenneth Jenkins, Robert Carson and John Kent. As someone who joined the department in the 1980s, and with so many of my early colleagues present, perhaps the most poignant memory for us was of Nicholas Lowick and Martin Price, who each died relatively young, with so much still to contribute.

All of the speakers, whose contributions provide the main body of this volume, as they did on the day, well deserve the thanks of the department as a whole and of me as editor.

Despite the very short period of preparation available, the first contribution was received within 48 hours of the conference's conclusion. We all felt that this swiftness of production was vital, to preserve the memory of the day, and also that the papers should largely preserve the tone and personality of the speakers on that occasion, although some contributors have usefully expanded their papers or included material left out on the day for reasons of time. The editing process was supported by Philip Attwood, who read through all the papers, and by Richard Abdy, who assisted with images. Josephine Turquet, the managing editor of the British Museum Research Publications Series, has worked with many members of the department before and her contribution and support are always deeply appreciated.

Part I

The Role of the British Museum

The British Museum and Numismatics Past and Present[1]

Andrew Burnett, Deputy Director, British Museum

The neglect of numismatics in Britain until the 18th century

The study of numismatics started in the Italian Renaissance. The earliest person to use the study of coins was Petrarch, who in the 14th century was aware of both their historical value and their moral force: they could tell things about ancient Rome (the main interest at the time) and they could encourage leaders to behave like Roman emperors.

During the 15th century we hear of the formation of big collections of coins, such as that of the Barbo or Medici families, and they influence art, whether architecture like the Certosa di Pavia (**Pl. 1**) or painting. An interest in coins as a source for the past took on a new energy, like many branches of study, with the invention of printing, and some very early books are devoted to coinage, for example Guillaume Budé's *De asse et partibus eius* (1514) and Andrea Fulvio's *Illustrium Imagines* (1510). By the 1550s Goltzius could record his visits to 977 collections, while Christian Dekesel has recorded 1,148 books for the 16th century and an astonishing 2,825 for the 17th.[2]

Britain initially participated in this surge of interest. Thomas More (1478–1535) wrote a poem about coin collecting and his friend Cuthbert Tunstall, Bishop of London and Durham (1474–1559) was a well known collector (and gardener) who published a commentary on Budé's work in 1522. However, after this promising start, interest in coins seems to have dwindled in Britain during the 16th century. The 977 collections that Goltzius visited were all in Italy, Germany, France and the Low Countries. Little was published in Britain, as Dekesel's account of 16th-century numismatic publications makes clear: Britain accounts for a miserable 13 books out of a total of 1,148.

A similar pattern continued in the 17th century, despite the foundation of collections by Sir Robert Cotton (1570–1631)[3] or Henry, Prince of Wales (1594–1612). In Dekesel's inventory for the century we find only 10 truly numismatic books (his Category 1) from Britain,[4] compared with 130 from France or 170 from Germany. At the very end of the century, Obadiah Walker and John Evelyn published their *The Greek and Roman History Illustrated by Coins & Medals* (1692) and *Numismata. A Discourse of Medals, Antient and* Modern (1697), but, in my view: 'both [books] were written in old age, both ramble and are derivative. Neither seems to have any revelations or new insights into the subject they treat'.[5] Why numismatics should have been so neglected in Britain is unclear. Perhaps religion? Perhaps the civil war? Perhaps fashion?

A faltering start: the 18th century (1753–1807)

The picture did not change greatly in the 18th century. In his authoritative survey of earlier writing on Greek and Roman numismatics, published in 1792 at the very end of the century, Eckhel listed more than 50 great books,[6] but only three of them were British.[7]

In the 18th century, however, two important factors at least laid the foundations for the future. The first was a growing interest taken in the subject by the Society of Antiquaries. The absence of a good treatment of the English coinage was a matter of concern to the antiquarians of the early 18th century, and the somewhat sorry tale of the efforts to publish an authoritative account of English coinage has been told by H. Pagan.[8] The project was eventually entrusted by the Society of Antiquaries to Martin Folkes (1690–1754), and *The Table of English Gold Coins* was published in 1736. It was essentially a book of illustrations, but its successor, *A Table of English Silver Coins from the Norman Period to the Present Time*, which appeared a decade later, in 1745, was, in contrast, an authoritative account of the subject, but one without illustrations. A plan was then drawn up to produce a supplementary volume to provide the missing illustrations, but this was not finished by Folkes' death in 1754.



Plate 1 Detail from the wall frieze of the Certosa di Pavia, late 15th century



Plate 2 Terracotta portrait bust of Sir Hans Sloane (1660–1753) by Michael Rysbrack (1694–1770)

The second event was the foundation of the British Museum in 1753, but its foundation did not in itself lead to any sea change.[9] The nucleus of the Museum's collection was the enormous and diverse quantity of material that Sloane had collected over his long life (**Pl. 2**).[10]

He was not famous as a collector of coins: the strength of his collection was its natural history specimens. The other largest categories were his ethnographic material and his books, and, although there were relatively few antiquities, nevertheless he did have a very extensive collection of coins. They were catalogued in 10 folio volumes 'of the Coins and Medals of different Countries, Antient and Modern'.[11] We also learn that 'In the Iron, and the Ten Wooden Chests deposited in the Bank are Contained all the Medals and Coins in General.' Unfortunately the catalogue does not survive, but Marion Archibald has pieced together what can be known.[12] Our level of ignorance is, however, so great that we don't even know how many coins he had – we have two figures, one clearly a mistake for the correct one: 23,000 (probably correct) or 32,000. This, together with the Cotton collection of English coins, created in the 17th century, formed the nucleus of the Museum's original collection.[13]

In 1757, four years after its foundation, the museum appointed to its staff the Rev. Andrew Gifford (1700–84), and he was to become its first numismatist (**Pl. 3**). We know little of his achievements during the 27 years he worked here and it would be a mistake to think he was interested solely in coins. Indeed his portrait shows him holding not coins, but a manuscript. The only serious numismatic publication which we can attribute to Gifford was the completion of Martin Folkes' *Table of English Silver Coins*. When finally published in 1763 by



Plate 3 Prints of the Rev. Andrew Gifford, made by Richard Houston, after John Russell, 1774 and Richard Southgate, by Thomas Trotter, 1795



Plate 4 Medal of Taylor Combe, by William Taylor, after Benedetto Pistrucci, 1826

the Society of Antiquaries, almost a decade after Folkes' death, Gifford had completed the additional 26 plates, and had also added descriptions of some 700 coins, including those in the British Museum. In Pagan's judgment, 'in its final form, it is as much Gifford's monument as Folkes's'. Gifford also spent much time on identifying and sorting out (with some help) the two main foundation collections of many thousands of coins which had both arrived at the BM in considerable confusion.[14] We can give him a good mark as a curator!

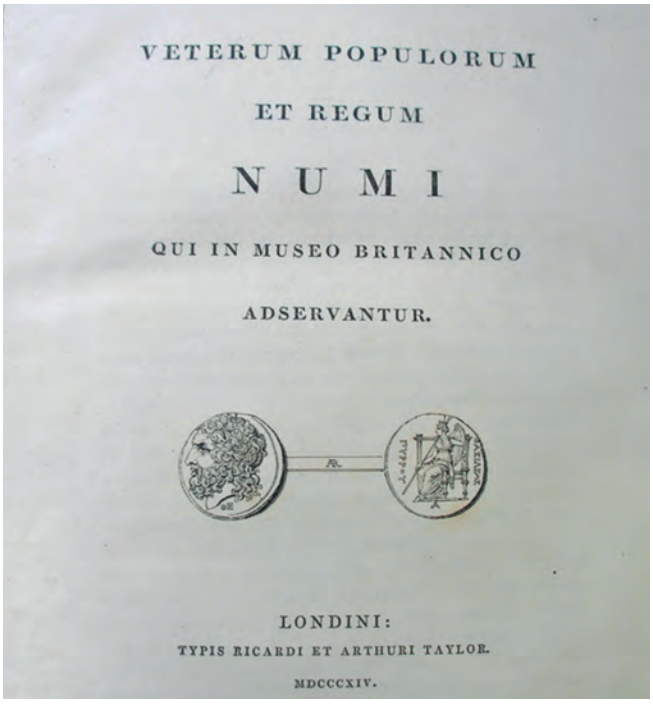
Gifford died in 1784, and was succeeded at the Museum by another clergyman, the Rev. Richard Southgate (1729–95), who was assistant librarian until his death in 1795 (**Pl. 3**). He too is supposed to have worked on the English coinage, especially the Anglo-Saxon coinage, but he seems to have published nothing at all.[15] A catalogue of his *Museum Southgatianum* was published in the year of his death, together with a brief account of his life which makes it clear that he was lazy and liked an easy life.[16]

The Department of Antiquities (1807–61): first steps

The first 50 years of the museum's existence were not, then, distinguished by their numismatic excellence, and Britain still lagged behind. But it was the appointment of Taylor Combe (**Pl. 4**) to the museum in 1803 that heralded a new energy and intellectual approach, though not one that was to match the achievements of the later 19th century. Taylor's father was Charles Combe (1743–1817), the doctor who produced the very extensive manuscript *Catalogue of the several Series of Modern Medals and Coins* of King George III's collection (1771), the *Index nummorum omnium imperatorum, Augustorum et Caesarum, qui … ex aere magni moduli, signabantur* (1773); and, above all, the catalogue of William Hunter's Greek coins, *Nummorum veterum populorum et urbium, qui in museo Gulielmi Hunter asservantur, descriptio figuris illustrata* (1782), a book praised by Eckhel for the learning, brilliance and accuracy of its text, as well as for its plates.[17] The influence on his son Taylor Combe (1774–1826) is obvious. Important, also, must have been the influence of Joseph Planta, the man who had previously been in charge of the Museum's Department of Manuscripts, and who was appointed as Principal Librarian (the equivalent of Director) in 1799. His reign, which lasted until 1827, has been described as 'one of the most significant in the history of the Museum'.[18]

Coins moved rapidly from Manuscripts to the Department of Natural and Artificial Productions (in 1803), and then only four years later, in 1807, to a new Department of Antiquities which was created by Planta to include antiquities, coins and medals, under the charge of the newly arrived Combe, who was appointed at the urging of the great collector Charles Townley.[19] The range of antiquities grew under his influence: the enormous collection of Charles Townley's classical antiquities, the Bassae temple, the Salt collections of Egyptian antiquities, the Assyrian collections of C.J. Rich, and most famously the Parthenon marbles from Lord Elgin. As I have previously observed, 'the transformation of the Museum from what was mainly a library into a museum of antiquities was the work of a numismatist!'[20] It was a period also of substantial numismatic acquisition: the most significant were the collections of Tyssen in 1802 (English), of Roberts (Anglo-Gallic) in 1810, of Townley in 1814, of Banks in 1818,[21] of Payne Knight in 1824 (Greek), of King George III in 1823,[22] and of C.J. Rich in 1825 (oriental), to be followed by the Pembroke (1848) and Campana (1846) collections.

Planta had encouraged the publication of the Museum's collections and in Taylor Combe he found a ready follower. Combe published *A Description of the Collection of Ancient Terracottas* (London 1810) and the first four volumes in the


VETERUM POPULORUM

ET REGUM

NUMI

QUI IN MUSEO BRITANNICO

ADSERVANTUR.

LONDINI:

TYPIS RICARDI ET ARTHURI TAYLOR.

MDCCCXIV.

Plate 5 Title page of Combe's *Veterum populorum et regum numi…*, 1814

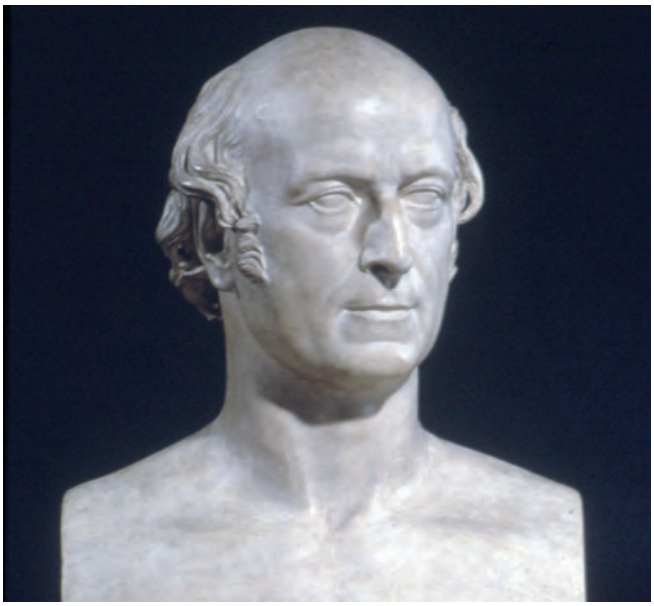


Plate 6 Bust of Edward Hawkins, by Richard Cockle Lucas, 1851

Description of the Collection of Ancient Marbles (from 1816). He also devoted some of his energies to publishing the coin collection: he published the Museum's first coin catalogue, *Veterum populorum et regum numi qui in Museo Britannico adservantur*, in 1814 (**Pl. 5**). His other major numismatic work, the *Description of the Anglo-Gallic Coins in the British Museum* was published in the year of his regrettably early death in 1826, at the age of only 52.

It was Charles and Taylor Combe who brought to Britain the continental tradition of numismatic scholarship and especially, in the case of Taylor, the influence of Eckhel. Charles Combe's catalogue of Hunter's coins had listed them alphabetically, whereas Taylor, writing later in his Museum catalogue of 1814, preferred the geographical arrangement of Eckhel. He explicitly acknowledged the change that had by then come over the subject, and stated that he was following Eckhel's system (*juxta systema Eckhelianum*). It was the Combes who laid the foundations for the astonishing development of the collections and of numismatic scholarship that transformed the British Museum into the centre of numismatics that it became in the 19th century.[23]

The focus that Combe had brought to numismatics – and everything else! – was continued by his successor Edward Hawkins (**Pl. 6**). Hawkins had joined the museum in 1825 and was appointed Keeper on Combe's death, a post he held for 35 years until his retirement in 1860. Like Combe, many of Hawkins' achievements lay outside numismatics – the acquisition for the museum of Layard's Assyrian and Babylonian collections, of the extraordinary material from Lycia and the establishment of a collection of prehistoric, Roman and medieval artefacts from Britain[24] – the last greatly improved by the changes in the law of Treasure Trove that took place in 1838;[25] despite its many deficiencies it struggled along as Britain's law of antiquities for over 150 years until the reform of 1996. The Cuerdale hoard was an early success in 1840 and was only one of a very long series of British hoards acquired in whole or part by the Museum, right down to the present day.

Hawkins had a keen personal interest in coins and, especially, medals, and published many articles and two important books: the *Silver Coins of England* (1841; 2nd edn, 1877; 3rd edn, 1887) which remained the standard work on the subject for almost a century; and the controversial catalogue of British historical medals, the *Numismata Britannica*, whose publication was halted by the Trustees in 1852 because of its explicitly anti-catholic sentiments.[26] The revised volume was published after his death in 1885 and remains today the standard work on the subject.

4. The creation of the Department and 50 golden years of *British Museum Catalogues* (1861–1914)

During the first half of the century the size and scope of the Department of Antiquities had grown exponentially, so on Hawkins' retirement in 1860 it was decided to divide it into three independent sections:

The Department of Greek and Roman Antiquities;
The Department of Coins and Medals;
The Department of Oriental Antiquities (Egyptian, Assyrian etc. material).

A fourth department, of British and Mediaeval Antiquities and Ethnography, sat, a little uncomfortably, subordinate to the Keeper of Oriental Antiquities.

The first Keeper of Coins and Medals was W.S. Vaux, who held office from 1861 until his unfortunate handling of the young Madden affair in 1868 and his resignation in 1870.[27] He does not seem to have contributed anything of great note to numismatics and was succeeded by R.S. Poole, who held the Keepership for 23 years until 1893 (**Pl. 7**). It was in his reign that



Plate 7 Wall plaque of Reginald Stuart Poole, by Sir George Frampton, 1896

the famous series of *British Museum Catalogues* (*BMC*) were inaugurated, most famously but not exclusively of Greek coins, the basis of the department's international reputation for over a century. Poole is supposed to have been rather lazy, although he produced two volumes himself and seems in some sense to have supervised the whole project, always appearing as its editor; the charge also seems unfair in the light of his similar role in relation to the extensive series of Oriental and Indian catalogues.

The energy behind the Greek catalogue seems to have come from the young Barclay Head, who had joined the department in 1864, straight from school, and he remained there for 42 years, being Keeper for the last 13. He has rightly been described as 'the best Greek numismatist this country has produced',[28] and a good account of him has been written by Keith Rutter (albeit in a rather inaccessible place).[29] Quite apart from his other publications like *The Coinage of Syracuse* (1874) or the great *Historia Numorum* (1887), he produced an astonishing 11 volumes of *BMC*.

Others were enlisted for the project: Warwick Wroth (6 volumes), Percy Gardner (3 volumes) and then the torch was taken up by the next generation, including George Hill (6 volumes). The series finally came to end (not to completion) with the last volume, by Stanley Robinson.[30]

If the jewel in the crown of the *BMC* was the Greek catalogue, the concept was by no means confined to that series. 11 volumes of the Oriental and the 3 of the Indian catalogue of coins, all written by the brilliant Arabist Stanley Lane-Poole appeared between 1875 and 1892; another was published by E.J. Rapson in 1908. Wroth, in addition to his work on the Greek catalogue, turned his hand to the Byzantine coinage and his three volume catalogue appeared in 1908–11. English coins saw the publication of two volumes of Anglo-Saxon coins in 1887 and 1893 by Francis Keary and subsequently H.A. Grueber and in 1910 the latter published the 3-volume catalogue of Roman Republican coinage. This was based on the work of Count de Salis (**Pl. 8**), a Swiss collector who worked in the BM for a decade (1859–69), having won an agreement to have free access to the collection in return for donating his own coins. Grueber too worked with his colleague A.W. Franks to achieve the eventual publication of Hawkins' abortive medal project and the gigantic *Medallic Illustrations* was printed in several volumes of text and plates between 1904 and 1911.

All in all, it was an astonishingly prolific period of publication, one that was well matched by acquisitions, which poured in at an astonishing rate. Many smaller acquisitions were made, and the more substantial and important collections included:

De Salis 1861
Wigan 1864, 1872
Woodhouse 1866
Duc de Blacas 1867
Freudenthal 1870
Bank of England 1877
India Office 1882
Cunningham 1888, 1893
Montagu 1896
Parkes Weber 1906
Hamburger 1908



Plate 8 Medal of Count de Salis, by Fritz Ulysse Landry, 1871

Despite these enormous successes, it is a little surprising that the department seems sometimes to have been working somewhat in isolation. It would be easy to exaggerate this, but I can give a couple of examples. The first concerns Republican coins, where there is little mark of the Mommsen-Borghesi revolution and its insistence of the cardinal importance of hoard evidence for arranging the coins. De Salis, as encapsulated in Grueber's publication, relied more on art and style, no doubt under the influence of his 'colleague' Barclay Head. A second, later, example concerns the work of the Vienna school of Roman numismatics, which had little influence in Britain until its principles were embraced only after half a century by John Kent in first *Late Roman Bronze Coinage* and later, *Roman Imperial Coinage vol.* VIII. In fact the goals of the Viennese *Aufbau* and its more recent successor, *Moneta Imperii Romani*, are quite similar to those of *Roman Imperial Coinage (*i.e. *RIC*) from the Anglo-Saxon tradition, as can easily be seen by comparing the recent *RIC* 2.1 (2nd edn) for the Flavian period with the most recent *MIR*, covering the reign of Trajan.

The interwar and post-war years: from *BMC* to *Corpus* (1914–*c.* 1975)

Cataloguing continued in the inter-war years, and volumes continued to appear: George Brooke on Norman coins (1916), John Allan on Gupta coins (1914), Stanley Robinson on Cyrenaica (1927) and the first volume of the 'Muhammadan' (Islamic) catalogue by John Walker (1942). But generally the pace was slower, except for the astonishing achievements by Harold Mattingly on Roman imperial coins. Some ten years after the Grueber/de Salis catalogue of Republican coins Harold Mattingly initiated the catalogue of Roman coins; together with '*BMC Greek*', this seems to me to be one of the great achievements of the department and Museum. He produced four enormous volumes in only 17 years between 1923 and 1940, and a fifth was published posthumously, 10 years later after the war, in 1950. The post-war generation spent much time recovering from the problems of the war (**Pl. 9a, b**) – the rebuilding of the department and coping with the backlog of acquisitions – but continued to make substantial additions to the catalogue series, like Carson's sixth volume of *BMC Roman coins* (1962).



Plate 9a The Coin Room in the aftermath of the incendiary bombing of 10 May 1941



Plate 9b Coin Room staff, 1947: top row – P.V. Hill, J. Axtell, E.A. Keyte, A. Cox, G. Buck, J. Walker, J. Nimmo, C.A. Waterhouse; bottom row – E.S.G. Robinson, J. Allan, H. Mattingly



Plate 10 Painting of Sir George Hill, by James Gunn

An achievement of at least the same scale as Mattingly's was George Hill's great *Corpus of Italian Medals of the Renaissance before Cellini* (1930) (**Pl. 10**). As well as its exemplary scholarship, it was, as its title signifies a different sort of publication, a gathering together of all surviving specimens known to the author. A similar shift was taking place for the study of Roman coins, though in a different way: Mattingly's inauguration in 1923 of the *Roman Imperial Coinage* series of volumes had a similar aim, to allow the historical reconstruction of the coinage, rather than 'just' a listing of the contents of one museum. He did not attempt a corpus, rightly judging that a type catalogue was sufficient, and the continuing success of the volumes today justifies his judgment.

Going back to the late 19th century there had been a debate about the best form of cataloguing, especially in Britain, Germany and France. Although the debate was tinged by nationalistic considerations, the British *Catalogue*, the German *Corpus* and its French equivalent the *Receuil général*, all had their supporters and each had its own advantages and disadvantages. Mattingly's hybrid type-corpus proved to be of enduring value and it has shaped and been adapted by many of the more influential subsequent undertakings. Much the same was true of Greek and other coins. Robinson's *BMC Cyrenaica* was much more than a mere list of BM coins; he gathered together and analysed much more material to offer a historical overview of Cyrenaican coinage. The same is true again of John Allan's 1936 *Catalogue of Coins of Ancient India*, used as much for its introductory material as for its lists of coins. The Spanish and Punic volumes of the Greek catalogue, promised by Kenneth Jenkins, never appeared, partly at least because, I think, the limits of the format were now discouraging. The *BMC* had by now had its day: something more or something less was now needed. Something more were the type-corpora like *RIC*, whose influence as a concept is clear from Martin Price's *Coinage in the name of Alexander the* Great (1991), the series *Roman Provincial Coinage* (1992–) or the nascent third edition of *Historia Numorum* (2001–). Something less was the simpler format of the *Sylloge Nummorum Graecorum* series founded in 1931 by Stanley Robinson (**Pl. 11**) as a British Academy project, one that is now international in scope and enormous in scale – over 200 volumes had been produced by 2007.[31] A similar format was also adopted for other series, notably the *Sylloge of Coins of the British Isles* (from 1958).

Once again, there are some missed opportunities. In retrospect, the most substantial seems to me to lie in the field of scientific analysis. Despite the early establishment at the BM of a scientific laboratory, the modern and systematic application of scientific studies and measurement to numismatics was invented in the 1970s in Oxford, and saw its first great product with the publication of Hall & Metcalf in 1972. Subsequently, the topic has also been embraced by the BM, not least through its role in the Royal Numismatic Society and especially through the persons of Andrew Oddy and Marion Archibald. There have been notable successes, e.g. in the investigation of the Merovingian coinage and its importance for understanding Sutton Hoo, but there might perhaps have been more major applications of the technique at the BM.

Part of a greater undertaking (*c.* 1975–today)

It seems to me that it was about 1975 that the department started to change its character and direction. There are several aspects, and I want to mention five.



Plate 11 Medal of Sir Stanley Robinson, by Paul Vincze, 1952

First, the department has been part of a much greater and more international field of study. *RIC*, *RPC* and *SNG* are all now international projects, as their scope is now too great for any one individual or institution. The project to publish the great Scandinavian coin hoards of the Viking Age, involving Scandinavian, English, German and Dutch scholars including Dolley from the BM, saw its first volume appear in the long series of *Corpus Nummorum Saeculorum IX–XI qui in Suecia reperti sunt* in 1975. Numismatics is carried out in many other centres, not just in Britain but across the world, and scholars collaborate in a way that seemed impossible a hundred years ago. International Numismatic Congresses, though initiated in 1901, have been held regularly only since 1953, and the 'information revolution' of the last 20 years is transforming the way in which scholars can collaborate and share information. International projects are now the norm, although they need big institutions like the BM to 'own' them or they will falter; the international system of 'governance', if that is how the International Numismatic Commission can be characterised, is simply not strong enough. That I think is my main conclusion; it is not enough for the department to provide excellence, but we must, as in the 19th and 20th centuries, provide leadership, though leadership in the 21st century should a different character, and focus on initiating, rather than dominating, partnerships with other institutions across the world.

Second, the subject matter has changed in nature, from studying just coins to studying coin finds. The growing popularity of the metal detector led to an enormous increase in the museum's role in relation to coins finds. The department had always seen itself as having a duty to publish hoards, and has done so copiously and admirably, as a consequence of its operation of the law of Treasure Trove and (since 1997) Treasure. Hoards, sometimes of an enormous size, have just seemed to pour in, and they still do. Because of the volume of work, the department for many years stood back from coping with the masses of individual Roman finds, whether they came from archaeological excavations or casual metal detector finds. The role for dealing with excavations passed in the 1970s to scholars outside the BM,[32] while casual finds were not really recorded for many years. The example of working in a responsible manner with metal detectorists, set by Tony Gregory in Norfolk from the 1980s, became too important to ignore, and after the successful reform of the law of Treasure, the championing of the Portable Antiquities Scheme since the late 1990s has filled that void. But this is a very different and nationally collaborative scheme, one whose ambition could not have been imagined, or, before the invention of the computer and internet, realised.

The changing emphasis from production to use of coinage is also part of the larger, continuing shift from coins to money. The Museum's Director, David Wilson, encouraged the study of paper money by establishing a post responsible for the area and a different approach also became evident in the department with exhibitions such as *Money: from cowrie shells to credit cards* in 1986 and *As Good as Gold* in 1987. 'At last,' wrote Wilson, 'the department broke away from the study of myriads of little round things – and did so willingly – although the taxonomic work continued'.[33] The current Money in Africa project seems to me to be a good example of the same shift in the department's academic work, but it would be easy to exaggerate the scale of the shift or indeed the extent to which it would ever be desirable.

Taxonomic work has continued and should continue, but the shift to money was the key to the department's success in the new field of what we would nowadays call public engagement. To take only one example: the display of coins and medals had always played a part in the Museum,[34] but a new enthusiasm for public display is evident from the 1970s; as well as the banknote and Money exhibitions, a comprehensive exhibition on the art of the medal also took place in 1979. The Department acquired its new space for regular temporary exhibitions during the rebuilding of the 1980s, and the HSBC Money Gallery was triumphantly opened in 1997.

The fifth and final, significant recent change has been the way the department has grasped the opportunity offered by the internet. It provides an extraordinary opportunity for numismatics, as it enables vast amounts of data to be made available to anyone who wants it, scholar and collector alike. The department has been a stalwart contributor to the BM's remarkable Collections Online project: in February 2011 records of 402,271 were available as were 90,982 images. Apart from the American Numismatic Society, other museums have been slow to take up the opportunity: the Berlin database has fewer pieces online altogether than the BM's Roman Republican holdings alone. Of particular note are the two online catalogues, for Roman Republican coins and for English Banknotes; a new concept of a catalogue that has a continually changing date of publication and can theoretically never get out of date (depending on the energy of the staff!!).

A verdict of history cannot be passed by a contemporary, and future generations alone will be able to pass reliable judgment on the current state of the department. Yet it seems to me to be very successful, and to have built effectively on the past. The department has, as I hope to have shown, regularly re-invented itself in response to changing circumstances, and that is why, I am sure, it has continued to exist for such a long time: how many other departments in academic or public institutions can look forward, now, to their 200th anniversary?

Notes

1 The only 'histories' as such of the department are the short articles by Walker 1953 and by Carson 1974. There is much to be gleaned from Miller 1973 and Wilson 2002. See also Burnett 2004a. There are also many excellent articles in the online *Oxford Dictionary of National Biography*, which should be consulted for most of the individuals mentioned above. I am especially grateful to Marion Archibald for her comments on and improvements to this article.

2 Dekesel 1997 and 2003.

3 Archibald (2006) touches on other collectors in England in the 16th century e.g. Robert Aske, goldsmith (fl. 1561–83) whose Iron Age coins were used by William Camden to illustrate the 3rd edition of *Britannia* in 1590; William Cecil, Lord Burghley, d. 1598, Elizabeth I's secretary; Sir Simonds D'Ewes (1567–1631), and Cotton himself who had amassed a comprehensive collection by 1606. When Peiresc visited Cotton in London in 1606 he also visited other collectors.

4 Other collectors in Britain include John Sharp (1645–1714), Archbishop of York and author of *Observations on the coinage of England with his letter to Mr Thoresby, 1698/9* (published only in 1785).

5 Burnett 2005, 56.

6 Eckhel, 1792–8, vol. 1, clxx.

7 (1) Nicola Haym's engravings of coins in the collection of the Earl of Pembroke, in the five part work *Numismata Antiqua in tres partes divisa collegit olim et aeri incidi vivens curavit Thomas*

Pembrokchiae et Montis Gomerici comes (1746). The fifth part (the index) is by Joseph Ames and has copperplate notes signed by Haym. See Dekesel and Dekesel-De Ruyck, forthcoming, no. P242; (2) F. Wise, *Nummorum antiquorum scriniis Bodleianis reconditorum Catalogus, cum commentario, tabulis aeneis, et appendice* (Oxford, 1750); (3) C. Combe, *Nummorum veterum populorum et urbium, qui in museo Gulielmi Hunter asservatur, descriptio, figuris illustrata* (London, 1782).

8 Pagan 2003; Folkes is also the subject of a study by C. Dekesel, as yet unpublished. See also Pagan's article in Dekesel forthcoming.
9 Burnett 2004b.
10 MacGregor 1994.
11 As they are described in the Museum's minute book for 2 February 1754.
12 Archibald 1994.
13 Other acquisitions were also made. One of the most important in the 18th century was the Cracherode collection, bequeathed by him on his death in 1799, and still the most important source for Roman gold coins in the collection today.
14 Every page of the Pegge inventory of the Cotton collection of 1748 is meticulously and thoughtfully annotated by Gifford ticking off all the items as he found them, noting which coins he had not found and which extra ones he had come across.
15 Wilson 2002, 42.
16 *Museum Southgatianum* 1795.
17 *Museum Southgatianum* 1795, clxx: 'Illustre hoc opus continet partem thesauri numismatici quem Hunterus artis anatomicae aevo suo facile princeps coemptis ingenti sumptu plurimis museis, quae in prooemio recensentur, ad prodigium auxit. Numorum catalogus a Combio erudite, nitide, et adcurate contextus est subjectis ad calcem rariorum aut anecdotorum copiosis tabulis aeneis'.
18 Wilson 2002, 58.
19 Miller 1973, 99.
20 Burnett 2004a.
21 The collection of coins and medals collected by Sir Joseph Banks' sister and wife, Sarah and Dorothea.
22 Burnett 2003b.
23 See Burnett 2004a.
24 Like the Lewis chessmen acquired in 1832.
25 Wilson 2002, 104.
26 It was of course subsequently revised by A. Franks and H.A. Grueber as Hawkins 1885.
27 Wilson 2002, 179
28 Hill 1988.
29 Rutter 2004.
30 For details of these publications, see 'Numismatic publications of the British Museum', below.
31 *Compte rendu CIN* 51, 2004, 59–68.
32 Such as Richard Reece and John Casey; however, the department remained very engaged with medieval coins from excavations as the many works by Marion Archibald and colleagues demonstrates: see Cook *et al.* 2006.
33 Wilson 2002, 308.
34 Some at least were displayed in Montagu House as James Malcolm's description of the museum in 1803 mentions them displayed in frames, both large and small (Wilson 2002, 61). The *Synopsis of the Contents of the British Museum* (regularly revised, often more than once a year since the early 19th century) describes the display originally in Room 11 of the Gallery floor of old Montagu House, and later in the Medal Room of the new Smirke building, a display which does not seem to have changed much, being always divided in three sections (ancient, modern, medals), although specimens from newly acquired collections may have been added (e.g. of King George). Medals were also displayed in the King's Library, after its opening to the public, and extensive guides to the English and Italian medals were published by Grueber and Keary, in 1881. After the First World War, the Coins and Medals Gallery was opened in 1922 in the old Waddesdon Bequest Room (Wilson 2002, 213). There was no display after the Second World War, although a long-lived 'temporary display' opened in the late 1970s – see Kent 1978.

The British Museum and the UK Numismatic Community

Past Experience and Future Possibilities

Nick Mayhew, Deputy Director, Ashmolean Museum

Since at least the 16th century individual scholars in England have collected and studied coins. The coin collection of Edward Beaumont of Oxford is mentioned in his will of 1552.[1] Prince Henry, elder son of James I, collected coins, and Charles I's collection was dispersed by Parliament. Most of these early collections were broken up and are lost without trace, but Archbishop Laud gave his coins to the Bodleian in 1636 and 1639, while the coins of Sir Robert Cotton (1571–1631) survived to be transferred to the nation in 1702. Similarly the coins collected by the Tradescants and Elias Ashmole formed part of the donation made to Oxford University in 1677. These coins were part of the founding collection of the Ashmolean in 1683, but there was nothing resembling a coin room at that time.

Coins were often part of the antiquarian's stock in trade throughout the 17th, 18th and 19th centuries, but such collecting hardly amounted to a scholarly discipline. Meric Casaubon, a mid-17th-century Canon of Canterbury Cathedral formed a mostly Roman collection, which survives in Canterbury today. I can't help but wonder if George Eliot had heard of him, when she chose the name of Casaubon for her diligent accumulator of minutiae in *Middlemarch*. Eliot's Casaubon never discovered the key to all mythologies to which he devoted his life. Perhaps it is unduly harsh to so characterize such isolated early numismatic efforts, but the case has been well made that it was the establishment of the British Museum which permitted the emergence of numismatics as a discipline.[2] Sir George Hill certainly had no doubt that the Department eventually established in 1861 'had for its nucleus the numismatic cabinets of Sir Robert Cotton and Sir Hans Sloane and thus dates back to the foundation of the Museum in 1753.' William Hunter's collecting and his magnificent bequest to the University of Glasgow in 1783 was very much a product of the same spirit of enlightened enquiry which gave birth to the BM. In this sense then the establishment of the Department of Coins and Medals in the British Museum in 1861 marks the coming of age of numismatics as a scholarly discipline in Britain, rather than its birth.

Numismatics is of course only the handmaid of history and archaeology; like sigillography or pottery studies, it is an aid to study rather than an end in itself. So why should it deserve a whole department in any museum? Coins and medals contribute to the study of almost every society and culture since the 7th century BC, so might they not best be studied within the context of these individual societies? That is to say within the Greek and Roman Department, or the Medieval or Islamic or Chinese Departments?

Certainly coins have to be studied in the context of the societies which struck and issued them. Moreover, such study calls for specialist language skills. And yet there are powerful practical reasons why numismatics calls for its own department. Coins are small, portable objects which are seldom unique but often of high value. They are thus easily marketed, and unless they are looked after by dedicated specialist staff they are vulnerable to theft, or even to misguided de-accessioning.

Curators for whom coins represent only a small part of their wider responsibilities also find it hard to devote enough time to them. Coins require intense and minute study before they yield up their secrets. They are rarely spectacular display items individually, because they are so small, even though they often contain an enormous amount of historical and dating information. Frankly, in the absence of specialist numismatists, coins are often neglected and frequently misunderstood by general historians and archaeologists. Nevertheless, properly studied, numismatics yields a rich harvest for the archaeologist, the art historian, the economist, and the political historian. This harvest is lavishly illustrated by the record of the Department of Coins and Medals over its first 150 years. The scholarly publications record of the Department is unparalleled. The Catalogues of the British Museum collection are an essential reference point. Historical monographs on specific topics illustrate the contribution which coins can make at the highest level, while more general works illustrate how coins can best be used for historical study. Popular introductions for the general public serve the wider community. This range of publication is matched by a similar range of exhibitions, which contribute specialist evidence to scholarly displays as well as more accessible presentations for the beginner.

Derek Allen once told Peter Mitchell that before the Second World War that he expected to publish something once a month. As the successor to G.C. Brooke, one can understand the pressure Allen felt, and a glance at the output of the Department's curators indicates that this level of publication was typical. Harold Mattingly wrote five volumes of Coins of the Roman Empire; Sir George Hill wrote six Greek catalogues and a Corpus of Italian Renaissance Medals; Stanley Lane Poole was employed as a temp., but wrote 13 Islamic coin catalogues before leaving to become Professor of Arabic at Trinity College, Dublin. Warwick Wroth wrote six Greek catalogues and a Byzantine catalogue before his early death. One hopes there was no connection.

Nowadays there can be few curators so sheltered from other duties to allow a similar level of scholarly productivity. Andrew Burnett recently estimated that the Department handled some 10,000 identifications and public enquiries a year.[3] I also fervently believe that the curator's obligations to the wider museum public are profoundly important. Nevertheless a balance has to be struck between the many calls on a curator's time, and we must understand that at different points in a curatorial career different duties will take precedence. A major IT cataloguing push, or a new exhibition

or re-display might delay a publication or research project. Museums have to do all these things, but we must not neglect the importance of the publication of original research.

The Department has a particularly important role in the publication of coin hoards. As time-sealed currency samples, which illustrate what coins circulated together when and where, coin hoards provide the essential data on which our understanding of the chronology of issues and the composition of the circulation are based. Thanks to the wisely drafted laws of Treasure Trove, and more recently Treasure, the UK enjoys a database of carefully recorded coin hoards stretching back a century and a half. It was the Park Street, near St Albans, hoard of 1886 which persuaded the Treasury of the need to reward finders with the antiquarian value of finds,[4] but many great hoards – for example Cuerdale – were declared before then. The volume of work generated by coin hoards alone – their cleaning and conservation as well as their weighing, photographing, recording and publication- is truly enormous, and the scholarly community owes the Department a debt of gratitude which cannot be exaggerated. This work is frankly often a burden. Although new finds are capable of transforming our subject, more often they tend to confirm and deepen our existing knowledge. The staff in the department might be forgiven if they sometimes inwardly groan at the news of another big 3rd- century Roman hoard, or a big find of Edward pennies or Civil War coins of the 1640s. Yet the study of this material is fundamental to our subject, and continues to yield new insights. It may be that the wider numismatic community can help to bear some of this burden. Many of us still get an enormous buzz out of handling new hoards. Local finds generate considerable interest in the localities, and regional museum staff, who see such material less frequently, would often be willing to lend a hand. Sharing the load in this way is already taking place, and is much to be welcomed.

However, since the arrival of the metal detector, single finds have emerged alongside coin hoards, as a source of information of almost equal importance. Here once again the Department has played a fundamentally important role through its work establishing the Portable Antiquities Scheme. As is well known, single finds cast a different light on the material from hoards, but this data – now getting on for 30 years' worth – is proving richly rewarding. Once again the co-operation between the BM and regional museums is proving important. The Fitzwilliam Museum in Cambridge has done fundamental work on early medieval English single finds, and my colleague Michael Metcalf's work on sceattas – now already 18 years old – was an early demonstration of the power of single finds to transform our understanding.

It is clear that the relationship between the British Museum's Department of Coins and Medals and the regional and sadly isolated outposts of numismatics in the provinces is and has always been a fundamental part of the Museum's role. In the 1940s when Humphrey Sutherland toiled largely alone in the Heberden Coin Room on Roman numismatics, Stanley Robinson left his post at the BM regularly to travel up to Oxford to teach Greek numismatics. I like to think that some part of that debt to the BM was repaid by Oxford in later years, when the University gave several members of the current BM staff their introduction to numismatic classes. This mutual relationship between London and the provinces continues. The BM trained Cardiff's distinguished numismatist and Oxford's South Asian expert. On a personal note, the first medieval coins I ever laid hands on were in the Department of Coins and Medals, shortly before an interview for my first job in the Ashmolean in 1971.

Quite what a modern museum administrator would make of an arrangement involving BM staff teaching unpaid in Oxford once a week, as Stanley Robinson did, is hard to say, but I cannot help feeling that in the straitened times which we all face nowadays greater co-operation – whatever the administrative difficulties – must be the way forward. It is greatly comforting that the BM has such a proud and well-established record of aid and support for numismatics around the country.

A part of the BM's concern for the well-being of numismatics around the country at large is expressed by championing and demonstrating what can be done. The path-breaking BM HSBC Money Gallery blazed a trail for other numismatic displays – both new and/or much improved – in Cardiff, Cambridge, Lincoln, Manchester and Oxford, though Donal Bateson built fine displays first in Belfast and then in Glasgow even before the BM. Demands on the time of a museum curator are possibly now more numerous and diverse than they have ever been, so it may perhaps be helpful to consider ways in which co-operation between individuals and museums can help. Could it be that temporary exhibitions might be more effectively shared between institutions, rather as the BM and the Barber Institute have done? Perhaps we should think of doing more of this, and thinking about it earlier in the planning stages.

As standard bearer of numismatics in Britain (and internationally) the BM exercises an enormous influence. It is greatly to be hoped that that influence might be applied to good effect, as museum coin posts become threatened. Already the National Collection in Edinburgh is without a curator, though the previous incumbent nobly tries to do what he can in retirement.

Other retirements in the provinces are looming, and particularly in the currently financially straitened times, there is a danger that hard-pressed museum directors may be tempted to let posts lapse. I would venture to suggest that not every regional museum director fully understands the importance of his or her numismatic collections. With so much attention nowadays rightly paid to museums' public engagement, it is sometimes mistakenly thought that coins have little to contribute and that no one will miss an unfilled numismatic post. In fact modern coin displays are successfully engaging the wider public, and individual coins are increasingly scattered across archaeological and historical displays throughout the Museum, both here at the BM and in Oxford. This message about the importance of properly curated numismatic collections would, I respectfully suggest, be best communicated from director to director. It is no exaggeration to say that a word from Neil works wonders.

If regional collections are neglected to the extent that members of the public wishing to consult them are permanently turned away, which is already happening, it is hard to escape the conclusion that such collections should be lodged elsewhere, where they can be consulted and where they will enjoy the proper level of care which makes them more

secure. This is not a pitch for the centralisation of numismatic collections – rather a call for the proper maintenance of regional collections. It's hard to think of anything which might better encourage Edinburgh to do the right thing than the suggestion their coins be ceded to Glasgow.

I have spoken a good deal about museum coin collections outside London, but it is important to recognise that numismatics draws much of its life-blood from individual scholars and collectors with no formal museum connection. British numismatics in particular has established an extraordinarily precise chronology almost entirely due to the painstaking ground work of a series of private individuals. The BM has long provided a welcoming home for this long and distinguished tradition of 'amateur' numismatists. I'm thinking of, for example, L.A. Lawrence or Elmore Jones, but every series has similar amateur heroes. The Department's contribution to the work of private collectors and scholars is also expressed through the work of BM staff for the Royal and British Numismatic Societies. It is no exaggeration to say that these Societies could not function as they do without the voluntary labour of many BM staff.

This central role played by BM staff in the organisation of the national numismatic societies has a long and distinguished history. In 1836, when the Numismatic Society of London (the future Royal Numismatic Society) was founded, the founding fellows included Sir Henry Ellis, the BM Director of the day, Edward Hawkins, the Keeper of Antiquities, and seven other Museum staff. And this was of course 25 years before the establishment of the Department of Coins and Medals. Hawkins became the second President of the Society, and Vaux became President in 1855, before assuming the Keepership of the newly formed Department of Coins and Medals in 1861. Grueber served as Secretary of the Society from 1874–1908. Time does not allow me to list all the BM staff who have served the Royal or British Numismatic Societies since then, but current BM servants of the Societies may be relieved to hear that the periods of office are nowadays not generally so prolonged as Grueber's 34 year stint.

Nevertheless, the message is very clear. The health of the numismatic societies is intimately linked with the support they have received from the BM. At the risk of straying into contemporary politics, there is a wider lesson here about the mutual relationship between the private and the professional, between the State and 'the Big Society'. I hope I have already sufficiently sung the praises of private collectors and scholars who have made an enormous contribution to numismatic knowledge, but I have little doubt that they would join me in celebrating the role of the BM Department of Coins and Medals. Without the Department, the efforts of private numismatists would have been far less successful, and in some cases not possible at all. The role of the amateur and volunteer is fundamental, but the Big Society is the fruit of adequate state provision, not a substitute for it.

In conclusion, the last 150 years make a glittering story of achievement. The Department plays a major role internationally, and is the unquestioned leader of numismatics in this country. It supports individual numismatists, the numismatic societies, and numismatics in museums around the country. There is of course an element of personal gratitude in this tribute. I have benefitted enormously from 40 years of friendship and help from the medieval coin curators, Marion Archibald and Barrie Cook, whose work I have leant on. More generally I owe my thanks to successive Keepers of Coins and Medals, Mark Jones, Andrew Burnett, Joe Cribb and Philip Attwood and their staff for decades of support and advice. But I hope at an institutional level I have managed to convey something of the debt owed by numismatics in general to the British Museum.

Yet it may not have escaped you that in thanking the BM for the past, I have also set out an agenda for the future. We look to them to continue their support of societies around the country, and of coin cabinets in the provinces some of whom may be threatened. We depend on them for the continued administration, recording and care of Treasure. And we rely on them for the care of the collections, on which so much of what we do is based, and for the steady flow of publications which allow numismatics to progress and to provide the sorts of historical and archaeological insights which make this subject indispensible to the wider world of scholarship. The depth of our gratitude also imposes on the BM a heavy burden of responsibility for the future of numismatics.

Notes

1 Blunt 1999, 2.
2 Burnett 2003a.
3 Burnett April 1996.
4 Carson 1986, 18.

The International Numismatic Community and the Role of the British Museum – Past, Present and Future

Christel Schollaardt, Manager of Collections and Research, Geldmuseum, Utrecht, and President of ICOMON

In this paper, I reflect on the role of the Department of Coins and Medals of the British Museum from an international perspective. During the research and writing process, I began to realise that very little is known about the history of the coin and medal collections of the world or of the relation and interaction between them. I have no insight into the BM's internal policies either. Therefore, I will merely present a few facts and mostly my personal reflections on the matter.

The beginnings of most numismatic collections are clear. Most were founded in the early 19th century, based on the existing collections of noblemen and kings. This pattern is found all over Europe. The holdings of the BM go back further than most European museums, but its specialist Department of Coins and Medals was founded in 1861, and in this it follows a general European pattern for the creation of distinct numismatic departments. Collecting coins and medals was a pastime of the rich that turned professional with the establishment of specialist museums. Most collections started with ancient coins, supplemented by medals. In the 19th century, interest arose in medieval and local coinages, and later still saw the addition of interest in colonial coins, paper money and coin finds.

So, there are similarities, yet are there differences as well? Once you start thinking about the role of the Department of Coins and Medals Department in the international numismatic world, you quickly realize that there are various ways of looking at it. Permit me to discuss the four most obvious perspectives here:

- the collection;
- research;
- the audience;
- international co-operation.

The collection

A brief survey of my colleagues focused on the question: 'What comes into your mind first when you think of the BM's Department of Coins and Medals?' The outcome was that most people think of the collection. Having one of the largest collections in the world makes the BM a big player. The BM website describes the collections as follows: 'The Department of Coins and Medals is home to one of the world's finest numismatic collections, comprising coins, banknotes and related materials such as coin weights, tokens and money boxes. The department also holds an impressive collection of commemorative and art medals, as well as the most extensive numismatic library in the country. The collection contains almost a million objects from all over the globe. The department's aim is that its holdings may serve as a key reference for scholars and members of the public'.

Being the keeper of this vast collection makes the BM an international player. People will always want to study the collections; they cannot be overlooked or ignored. This was the case in the past and it is still the case today, but will it be the case in future? For instance, one question that arises in the Netherlands is whether coin collections are still meaningful to modern society. If the answer is yes, what are we going to do to prove it? I think that numismatic institutions can no longer afford to focus solely on numismatics (the objects themselves). We have to change our focus at least in part. To reach a larger audience we have to show the role the objects in our collections played and still play in society. We have to show that the objects in our care are still full of meaning.

Research

The next angle of approach that comes into mind is the amount and quality of the research conducted by the department. To quote the website again: 'The Department of Coins and Medals is committed to furthering knowledge and facilitating research into the field of numismatics, and in the BM acquisitions policy'. This is something the department has always done. The department has produced so many significant publications, numismatic knowledge and research would not be the same without the BM's many important publications on the collection or on coin finds, or on methodology. Another striking fact is the number of staff working in the BM. Many of the most important numismatists in the world have their roots in the BM. Nowadays the BM has more curators in the field than any other numismatic institution in the world. This is wonderful, but combined with housing the largest collection in the world, it might create expectations.

Could we consider the Department of Coins and Medals as the numismatic mother institute of the world? And if so: would that be a blessing or a burden? No matter how you look at it, we have an opportunity to influence numismatic research all over the world. The BM could be leading the direction in which the international numismatic society is heading. We have problems that need to find solutions, preferably with international involvement, such as setting up international databases for coin finds. How can we make more and better use of knowledge gained from other disciplines (e.g. sociology, anthropology and archaeology)? Interdisciplinary research and co-operation could bring us lots of new information and perceptions. Meanwhile, however, we should also be preserving pure numismatic research. Given the fact that its collections and staff are both essential to the international numismatic community, what is the BM doing to reach its audience?

The audience

The danger of belonging to one of the most important museums in the world, of being caretaker of an incredible collection and having all these wonderful people on staff is the

threat of self-indulgence. Serious researchers will always refer to the collection, due to its stature, size and content. This is a comfortable position to be in, so why bother reaching out to the rest of the world? Modern times demand modern methods to reach other audiences. Instead of resting on our laurels, deriving prestige from the mountain of information we sit on and expecting people to come and visit us, we, modern numismatic museums, are obliged to present our knowledge as quickly and as completely as we can. We can do that by telling stories about the objects, by explaining the how and why of their existence, and by placing them in their historical, anthropological, archaeological, economic and social context. All of this is topped by the added value our curatorial knowledge can give.

In the past, the BM used to reach out to the audience by producing catalogues and serious works of science and by organising exhibitions. All this should be continued, but we should also draw on many other means of communicating with the audience now available today. The fruits of all the research carried out in the past (over the last 200 years or so) plus new information from new research must be made available on the internet and through other communication channels. We should not only be making data accessible, but perhaps also creating the possibility for users and visitors to comment and add information to what is already available. Looking at the BM programme of activities listed on the website, there are quite a few interesting projects in progress. The BM's collection, as the website says, 'is intended for use by the citizens of the world'. Here follow a few examples of the international activities that the department takes part in.

International programmes Key international partnerships help to keep lines of communication open between nations and foster an international community of inquiry and research. A fine example is the 'Money in Africa' project, in which the Geldmuseum has played a minor role. This major project combines research, exhibitions and programmes, international partnerships, and digitization of collections. I think it is a wonderful initiative that could be carried out with more partners.

International curatorial training programme A training programme for curators from outside Europe, covering various aspects of museum work and creating a network of colleagues around the world.

Overseas exhibitions An extensive loans and touring exhibitions programme allows global access to the BM collection. Over 1,925 objects travelled to 104 venues outside the UK in 2007–2008.

So, we can safely conclude that the BM is reaching out to international audiences. However, I think the Museum could take on even a bigger role in the international numismatic community, and this brings me to my fourth angle.

International co-operation

The Department of Coins and Medals can play a role in helping to run international committees. Currently, the numismatic world has three major international bodies.

The International Numismatic Commission was founded in 1934 to facilitate co-operation between scholars and between institutions in the field of numismatics and related disciplines. In 2009, it changed its name to the International Numismatic Council/ *Conseil international de numismatique*. The Council now has some 160 members in 38 countries. Member institutions include museums, university institutes, numismatic societies and mints. Council activities are coordinated by a board of nine members elected by the representatives of member institutions at the International Numismatic Congress. In 1973, the first representative of the BM appeared on the board in the person of Robert Carson. He was followed by John Kent (1986), Mark Jones (1991), and Andrew Burnett (1997). Since 2003, however, there have been no BM representatives on the board.

The second international committee is the International Art Medal Federation or *Fédération Internationale de la Médaille d'Art* (FIDEM). It is a professional society dedicated to the practice, appreciation, and promotion of the art of the medal around the world. It is the foremost society for artists who create medals. FIDEM was founded in 1937, but not until the 1970s did BM's Mark Jones join the board. Philip Attwood has been a member for three years.

Last but not least, ICOMON, the International Committee of Money and Banking Museums, was founded in 1994. ICOMON was created for museums of numismatics (either as completely independent institutions or as part of larger and more general collections) and museums of financial and economic institutions or companies. It is exclusively dedicated to the museological problems of its members and is a forum of discussion for problems including:

- the acquisition and conservation of objects;
- security and collections management and care;
- educational projects;
- conceptual questions;
- presentation and display.

In 2007, the BM in the person of Katie Eagleton joined the board of ICOMON, but much has changed since then. Katie Eagleton took the initiative to create a modern website, and ICOMON is grateful to the BM for hosting the site. She also oversaw the involvement of the Swedish Coin Cabinet and the Geldmuseum in the 'Money in Africa' project.

I think that an institution like the BM should always be represented on the board of all three major committees, because of the wide range of research it conducts. I suggest that under the auspices of the International Numismatic Council the BM should initiate some long–term programmes that would welcome the active participation of many numismatic institutions around the world and would thus create a common ground for international numismatic research.

Numismatic institutions could also jointly organise schooling for numismatic researchers. The BM already organises the annual Classical Numismatics Summer School that aims to give undergraduates and graduate students a basic grounding in Greek and Roman numismatics through a varied programme of lectures and practical sessions. This summer school is mainly focused on students in the UK, but there are plans to co-operate with several European institutes to organise a larger, more internationally orientated summer school, possibly with European funding. The INC could become a patron or sponsor, to give body and possibly even a global spread to this initiative.

The BM is indeed involved in international projects, but my impression is that its degree of involvement depends on the

personal enthusiasm of individual participants, and has no political or strategic basis.

Conclusion

Being in charge of one of the most important numismatic collections in the world, having the largest staff, belonging to one of the most important museums of the world, all of this creates an obligation. In times when independent institutions like the Geldmuseum or the museums of Central Banks are forced to shift their focus from pure numismatics to more economic issues, the BM's Department of Coins and Medals could consider taking up the challenge of operating as the numismatic mother institute of the world, as the source of numismatics, the protector of this rare but valuable science. Therefore I propose that BM policy should be to ensure staff representation on the boards of the three international committees at all times.

Part II

The Growth of Knowledge

Coins in Context

Archaeology, Treasure and the Portable Antiquities Scheme

Richard Kelleher, Money and Medals Network coordinator, and Ian Leins, Curator of Iron Age and Roman Coins, British Museum

This paper is an expanded version of that presented on the day.[1] It considers evidence from three sources which contribute to numismatic study and relate to the Department of Coins and Medals in different, but important, ways. Each element could easily fill a day of papers and combining them in this way means that we cannot hope to explore them fully. We also acknowledge that a large number of BM staff, in the Departments of Coins and Medals (C&M), Portable Antiquities and Treasure (PA&T) and Conservation and Scientific Research (CSR) are involved in work on coins reported as Treasure, single finds and, to a lesser extent, excavation coins. What follows will come in three parts; the first will provide a brief summary of the development of archaeology in Britain with reference to contemporary links with numismatics; the second will assess the impact of the revised Treasure process on the Department of Coins and Medals and beyond; and the third, a summary of the role of the Portable Antiquities Scheme (PAS) in numismatic research and publishing new finds which, on occasion, museums have been able to acquire. In each area we will suggest a number of future directions.

Coins have always been important in archaeology, traditionally valued as a highly dateable artefact type, but the potential significance of coin finds is more complex than such a generalisation suggests. The recovery of coins by archaeologists and the discovery of hoards and single finds by detectorists provide a variety of challenges, but also offer alternative valuable ways to read or interpret their place in the past.

- Archaeological excavation generates an archive of material culture, of which coins are a part, and the strength of this type of evidence is that is comes with contextual information. Associations with features such as structures, rubbish pits, ditches and other negative features are invaluable, as are explicit links with other forms of material culture.
- Coins that come to the attention of specialists in the British Museum and elsewhere via the Treasure Act are, for the most part, hoards. These have historically provided the source material for the rich tradition of numismatic study and are the stuff upon which numismatic techniques, such as die-studies, classification, metrology and chronological development, were honed. But, with recent changes to the definition of what constitutes Treasure, they can also comprise votive deposits and coins adapted into jewellery or other expressions of re-use. Hoards represent single depositional events, while ritual assemblages can define the particular use of a place over time. Re-used coins can reveal individual and collective attitudes to personal display, piety or disobedience.
- Such is the nature of the finds recorded on the PAS database that it can be used in ways that have only been possible in rare circumstances in the past. The majority of the coins recorded through PAS represent single, accidental losses, and so can help shape our understanding of patterns of use among given populations, at a local, regional or national level.

1. Archaeology

The key developments and future directions regarding the Department of Coins and Medals and numismatics more broadly were covered in the first three papers and here the focus shifts to an area of scholarly endeavour which has strong links to coins, but, as we will argue, would benefit from a closer relationship.

The antiquarian tradition (16th–19th centuries)

Like numismatics, archaeology has its roots in the antiquarian tradition. Collections of coins had been formed by princes and prelates from the Renaissance,[2] and an early example of a plate of coins appeared in the third edition of Camden's *Britannia* published in 1590. In many antiquarian collections coins were just one type of 'thing' collected together with other antiquities, manuscripts, books, natural history specimens and ethnographic material. Coins were a core part of the interests of many of the British antiquarian community in the 18th and 19th centuries and key figures such as Sir Hans Sloane and Sir Robert Cotton, on whose collections the British Museum was founded, were themselves collectors of coins. Numismatics, as we might recognise it today, had yet to appear,[3] while archaeology is widely accepted to have emerged by the middle of the 19th century and developed out of the work of figures like William Stukeley and Richard Colt-Hoare who documented, and sometimes dug into, prehistoric monuments. New finds, including coins, were published regularly from the 17th century, with the Society of Antiquaries periodical *Archaeologia* and the *Gentleman's Magazine* forming important sources for such information from the 18th century.[4] Thus, the tradition of finds recording can be seen to predate the development of archaeology. The publication of Roman coin finds in Britain in this period (at least of gold coins) has been shown to be more developed than in France or Germany.[5]

In 1836, just over 80 years after the foundation of the British Museum, the society which later became the Royal Numismatic Society (RNS) was founded. At the time this was a natural progression following the creation of a series of scholarly groups dedicated to particular disciplines in the natural and historical sciences. From the earliest incarnation of what became the RNS, British Museum curators were active participants, with seven presidencies and countless council positions held to date. In 1861 the Department of Coins and

Medals was established. The existence of a dedicated society and British Museum department resulted in the rapid development of numismatic methods and an increase in research and recording of new material.

Culture history and national archaeologies (late 19th–mid 20th century)

Alongside the strides made in methods of archaeological fieldwork by pioneering figures such as General Pitt-Rivers, 'culture-historic' archaeology became the dominant theoretical position in this period.[6] Its principal focus was to interpret material culture to stress differences between particular groups. Changes in the archaeological record were ascribed to either the diffusion of ideas from one culture to another or the migration of people from one area to another, often by invasion. Elements of diffusion theory have a place in archaeological interpretation and in coinage we have a clear example in the work of Sir John Evans (1823–1908) who famously demonstrated the derivation of British Iron Age staters from Gaulish copies of Macedonian coins of Philip II.[7] Interestingly it was his son, Sir Arthur Evans, who explained the appearance of distinctive Continental burial rites in south-eastern England by reference to the settlement of Belgic invaders mentioned by Caesar. This 'invasion hypothesis' had a huge influence on British numismatics.[8]

Processualism (1960s–1980s)

By the 1950s weaknesses in culture-historic theories in archaeology led to a range of new approaches, particularly from archaeologists in the United States, who began to adopt numerical and quantitative methodologies largely derived from anthropology. Lewis Binford was a key figure in this. In simple terms processual archaeologists were interested in observing the long-term processes rather than the details of any particular site and sought to generate grand narratives on themes such as trade, the origins of towns and state formation.[9] What we would term processualist approaches are relevant in numismatics in terms of the long-term trends in monetisation and circulation of coins.

At about the same time numismatists in the UK (principally Romanists) were beginning to think more about the complex relationships between coins and sites and just what coins were able to contribute to site interpretation. This culminated in the important conference and publication in 1974 of *Coins and the Archaeologist* edited by John Casey and Richard Reece.[10] This volume set out, for the first time, some of the methodological issues which were (and in some cases still are) little appreciated by many archaeologists and numismatists. Reece and Casey were early champions in developing frameworks in which assemblages of Roman site finds could be compared, and other archaeologists with a numismatic interest such as Colin Haselgrove for the Iron Age and Stuart Rigold for the medieval period, were moving in a similar direction.[11] After this initial impetus there was little follow-up beyond the publication of a conference of medieval papers in 1989.[12] Just one of the papers focused on Britain.

Despite an impressive record of contributions to excavation reports by figures such as Michael Dolley, Robert Carson and Marion Archibald, the Department's primary focus had long been on the study of hoards.[13] With the rise of metal detecting in the 1970s a new body of material was beginning to emerge and the academic response from archaeologists was a hostile one. Where the weight of recording and interpretation of this material would fall had yet to be established.

Post-processualism (1980s–present)

In the 1980s archaeological theory, pioneered by British archaeologist Ian Hodder, began to move in a new direction advocating a social constructivist approach which focused on the meanings of material culture. Criticisms of processual archaeology were aimed at its massive–scale data collection and the use of inappropriate mathematical models, while these new interpretative archaeologies concerned themselves with more personal themes such as social identity, gender, supernatural belief, sensory perception and spatial experience.[14] As well as this theoretical shift, a key piece of legislation appeared in 1990 which had a huge impact on the practise of archaeology in England. Planning Policy Guideline 16 (PPG) came about through public outrage at the destruction of important archaeological sites by developers and, although not enshrined in law (and as of 2010 replaced by Planning Policy Statement 5),[15] the guidelines led to developer-funding for evaluation and excavation work on sites where *in situ* preservation was not possible. A crucial result of this has been the growth in the amount of fieldwork, but concerns were raised regarding the lack of provision in the guidelines for post-excavation work.[16]

The professionalisation of archaeological fieldwork had begun with the establishment of the Institute of Field Archaeologists (IFA, now rebranded the Institute for Archaeologists) in 1982 with a mandate to 'represent the interests of archaeology and archaeologists'. In 1990 an IFA specialist finds group was founded to consider guidelines and professional standards in finds work in the light of the rise of developer funding,[17] but the impact of this on coin finds has been negligible. Because professional units compete for contracts, the lowest bidder is invariably preferred and this can impact on the quality of the archaeology and particularly the outcomes in terms of post-excavation and publication of sites. Also, as a form of fieldwork that responds to development, critics point out the absence of any overall research agenda in this type of work.[18] In 2004 when English Heritage published a report considering the production and standardisation of Romano-British coin reports, the distance between archaeologists (represented by English Heritage) and numismatics (represented by museum departments) was shown by the fact that the latter were not consulted in the process.[19] Another example comes from the research framework written for London archaeology in 2002 where only Iron Age coins were deemed important enough to form part of any of the objectives recommended in the report for future consideration.[20]

Summary

For the 150 years that the Department has existed both archaeology and numismatics have grown and developed distinct identities, but how different is the Department's relationship with field archaeology in 2011 compared with 100, or even 50 years ago? We would argue that in terms of reporting upon archaeological finds and to a large extent

hoards, the methods and publication format remain the same. The role of the numismatist, like other finds specialists, has been a passive, reactionary one, with a mandate to report on a group of material independent of accompanying artefacts and abstracted from context.[21] Where new types of evidence have emerged, particularly in single find analysis, new methods continue to be developed, particularly by scholars with feet in both the archaeological and numismatic camps. In celebrating 150 years of the Department of Coins and Medals we nod to the enduring value of our subject. But for continued success in future the estrangement between numismatics and archaeology should be repaired. The key issues and a number of proposals are outlined below, aimed to engage different levels of archaeology with our subject:

1) Our first proposal is to revisit the Coins and Archaeology conference format in the near future under a set of broad themes and across periods, we would encourage archaeologists who are not familiar with the potential of coin data to be involved and importantly undergraduate and post–graduate students. We would hope that this would encourage new and sustained debate between numismatists and archaeologists.

2) The second idea is to build on the Department's Summer School model and the teaching carried out in Oxford, Cambridge and elsewhere, but to focus on archaeology students. Most specialists in the major cabinets come from classics or history backgrounds and thus their teaching links tend to be focused on students in those subject areas. We see the summer school model as an obvious point of contact with archaeologists of the future, enabling numismatics as a subject to be more widely understood.

3) The delay in publishing archaeological site reports has long been recognised as an issue.[22] Coins form a part of many excavation assemblages and specialists often provide coin reports. If these do not include spectacular or rare finds they may not be seen in print for many years if at all. This 'invisible archive' is clearly to the detriment of students working on site finds but a clear solution remains elusive. It is the kind of subject that would benefit from more discussion, for example, could authors (if they are working for free) stipulate that they will author a report only on the provision that a numismatic summary be published elsewhere, such as on an online database? There will clearly be difficulties in some cases, but adequate provision of such data is lacking. Another area of publication where coins are to be found is in what is termed 'grey literature'. This body of material, usually generated by smaller–scale developer-led fieldwork and retained as a typescript on the local Historic Environment Record (HER), has the potential to add to our knowledge. Access to this type of data remains the problem, but recent initiatives designed to make it available includes OASIS: *Online AccesS to the Index of archaeological investigations* (http://oasis.ac.uk) and the Archaeological Investigations Project (http://csweb.bournemouth.ac.uk/aip/aipintro.htm).[23] It has been proved that among the grey literature are occasional hidden gems waiting to be found,[24] this may be true of coin finds too.

4) One criticism of numismatics, certainly for the medieval period, is the lack of publication amongst the wider archaeological community. The main journal for the medieval period, *Medieval Archaeology*, rarely features articles on numismatic subjects.[25] It would appear that having two dedicated numismatic journals, in the shape of the *Numismatic Chronicle* and *British Numismatic Journal*, might be the cause of this, but this hides the fact that numismatic articles are to be regularly found in the journals of other disciplines. Senior scholars such as Nick Mayhew, Peter Spufford and Chris Dyer are frequent contributors to economic history journals such as *The Economic History Review* which sometimes feature articles incorporating numismatic themes. Roman articles can be found in *Britannia*. A further welcome move would be to see the *NC* and *BNJ* online in the same way that many national archaeology journals are available. These are an increasingly important resource for university students.[26]

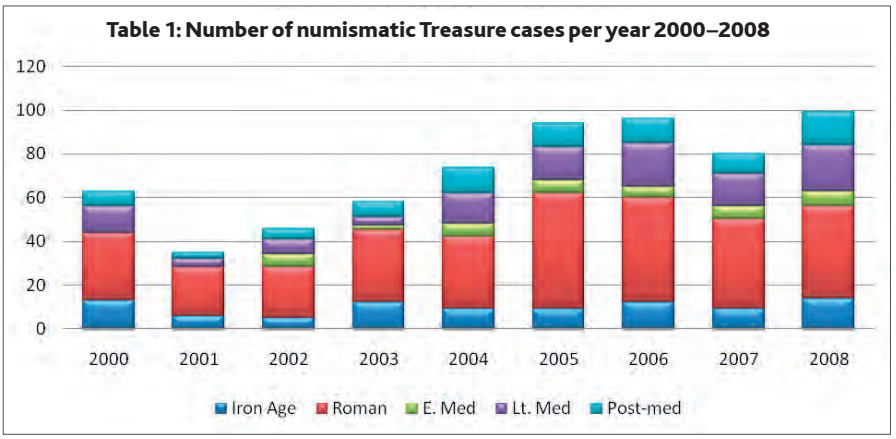
5) The subject of standardisation in producing numismatic reports for archaeology remains underdeveloped. English Heritage's attempt at a Roman standard failed to involve the full numismatic community in its 2004 document,[27] ignoring British Museum curators, who deal with almost all English hoard finds, and the PAS, which has been recording finds made by detectorists since 1997. A revisiting of this subject would be most welcome, particularly by numismatists working on site finds, as often vital information such as proper classification or weight are omitted and images of coins are seldom included.

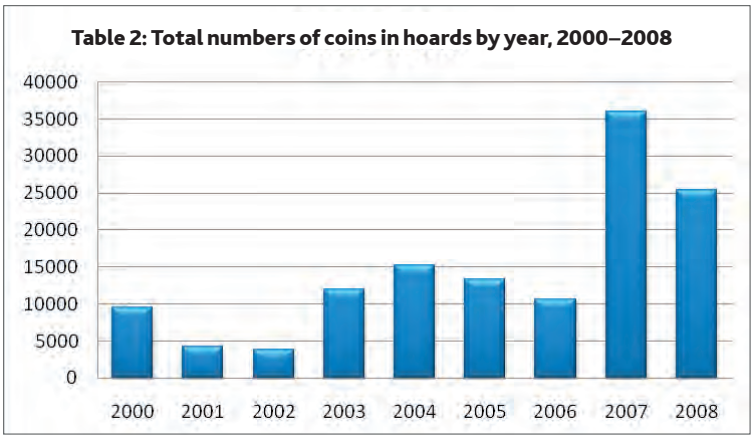
2. Treasure

Definition and development

In 1996 the Treasure Act superseded the old Treasure Trove law in England and Wales.[28] It had long been appreciated that the old law was dated and its requirement to prove that the artefacts were deliberately hidden with the intention of recovery was particularly problematic. Sir George Hill, Keeper of the Department in the 1920s and later Director, was an early advocate for reforms of Treasure Trove. In practice it was more than half a century before Andrew Burnett and Roger Bland, Hill's successors in Coins and Medals, successfully instigated changes to the system. The new Act extended the definition of Treasure to include two or more precious metal coins or ten or more non-precious metal coins from the same find and made it irrelevant whether the find was a hoard buried with the intention of recovery, an accidentally-lost purse or votive deposits made at a site over a period of time. It is the statutory responsibility of curators in the Department to report to the Coroner on Treasure cases from England, whereas Welsh finds go to the National Museum of Wales. Between 1996 and 2008 over 850 hoards passed through the Department,[29]and currently nine members of staff and researchers work directly or indirectly in the processing, administration or research on hoards and PAS finds.

Table 1 illustrates the breakdown of hoards by period from 2000–8. There has been a steady growth year–on–year if we accept that hoard levels in 2001–2 were affected by the restrictions on access to the countryside resulting from the foot and mouth epidemic, and despite the slight tailing off in 2007 a glance at **Table 2** shows the actual numbers of coins and reveals an interesting point. The huge 2007 Bath hoard of over 30,000 coins represents just one case, but in terms of curatorial work is a huge undertaking. These large hoards should not be seen as one-off events. The Frome hoard in 2010 consisted of over 52,000 coins and, as with the Bath hoard, adequate ways to fully process it are currently being negotiated.





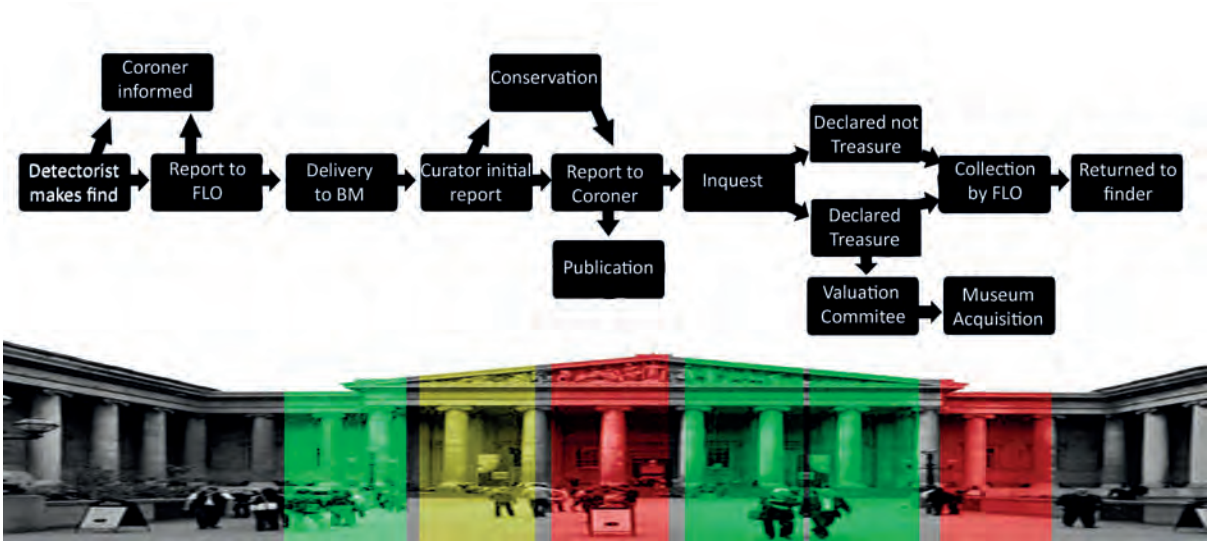


Plate1 Schematic diagram of the Treasure process in the Department of Coins and Medals

Role of the BM

It is impossible to plan for the frequency or volume of large coin-hoards, a fact played out by our Roman examples. How a typical hoard might be processed and the level of BM engagement is demonstrated in **Plate 1**.

Treasure processing involves the departments of Coins and Medals, Prehistory and Europe, Portable Antiquities and Treasure and Conservation and Scientific Research. The areas of most intense activity centre around the identification and cataloguing of the hoard and where necessary colleagues in Conservation and Scientific Research carry out a range of procedures on the coins (see following paper). If the hoard is to be acquired by the Museum then fundraising and acquisition all add to the curators' remit. Whether or not the BM is the acquiring museum, the publication of treasure finds should be seen as a key outcome of the whole process.

Since its inception, the Department of Coins and Medals has been at the forefront of the publication of new coin hoards. Short notes or detailed catalogues describing new hoards can be found in almost every volume of the *Numismatic Chronicle (NC)* and the *British Numismatic Journal (BNJ)*. From 1975 new British hoards were summarised in the RNS *Coin Hoards* series, of which 9 volumes have been produced.[30] Since 1994 comprehensive annual summaries of new hoards have been included in the back of the *NC*. In 1979 Robert Carson and Andrew Burnett established a dedicated series for Romano-

British hoards (*CHRB*), which now runs to 13 volumes, the latest published in 2010.[31] These include *full* catalogues of new Roman hoards. In 2001 Marion Archibald and Barrie Cook provided the inaugural volume of a similar series for medieval hoards, for which others are planned.[32]

British finds obviously dominate the hoard work of the Department. The rise of metal detecting as a hobby from the 1970s, the extension of the definition of Treasure and the success of the PAS have all increased the workload in this area. The volume of material and the time and cost involved in producing conventional edited volumes prohibit the full publication of all hoards (within a reasonable time-frame). Against this background, the summary listings in the *NC* and the *Treasure Annual Report* (*TAR*) and for 2007 and 2008 the joint Portable Antiquities & Treasure Annual Report have become vital tools in ensuring the rapid dissemination of basic information. For the Iron Age, medieval and post-medieval hoards this offers a satisfactory level of publication as typological information about each coin is usually included. The numbers and, more importantly, the larger average size of Roman hoards mean that the *NC* and *TAR* records usually comprise only 'emperor counts'. Although full catalogues exist, there is usually no automatic publication schedule for the reasons outlined above. From next year the Portable Antiquities & Treasure Annual Report will no longer be published and instead it is hoped to make the data in those annual reports available by search facilities on the PAS website (www.finds.org.uk). PAS is also seeking funding for a project to establish a complete online database of Roman hoards from the earliest finds to the present day. There remains, however, much work to ensure that information on the backdated pre- or post-Roman hoards are made more widely available.

3. The Portable Antiquities Scheme

The origins of the Portable Antiquities Scheme are intimately bound up with the Treasure Act (discussed above). It was established in 1997 as a voluntary scheme to record archaeological objects found by members of the public in England and Wales - essentially ALL archaeological material that fell outside of the definition of Treasure under the new law (see definition above). As far as coins go, this included single finds of gold and silver, groups of less than 10 bronze coins and 'site assemblages' (material not recognised as constituting 'a single find' under the criteria of the Act). Although this suggests a formal division of responsibility between Treasure and PAS, the two cannot be separated and a functioning Treasure Act without a PAS is almost impossible to imagine. The PAS nationwide network of 41 Finds Liaison Officers or 'FLOs' and two National Finds Advisers who are specialists respectively in Iron Age and Roman and medieval and post-medieval coins (plus support staff) have an important role in publicising the Treasure Act, advising finders on which objects may constitute Treasure, providing a vital link between finders, Coroners and the national museums, couriering objects and a range of other activities.

PAS was initially funded by the DCMS and Heritage Lottery Fund and subsequently the Museums, Libraries and Archives Council (MLA) but now forms, with Treasure, a Department of the BM and, from 1 April 2011, the full responsibility for funding and administering the Scheme has been transferred from the MLA to the BM. PA&T is closely integrated with C&M and P&E, with some members of staff based within these departments. The benefits of this co-operation are clear. The expertise of C&M and P&E curators can supplement the expertise of the PAS national finds advisors, while PAS often steps in when the fixed resources and other commitments of the curatorial departments mean that they are unable to meet the sudden and unpredictable demands of Treasure.

The publication of databases of coins (both on paper and online) did not begin with the PAS. The coin departments at the British Museum and other museums maintain card files that include details of many UK finds and the *BNJ*'s 'Coin Register', established in 1987, publishes an annual selection of single coin finds. The *Celtic Coin Index* was set up in London in 1961 as a card index of Iron Age coin finds and subsequently transferred to Oxford University. Since 2004 it has worked closely with the PAS, which developed its online database and enabled searching across both datasets. At the Fitzwilliam Museum, Cambridge, the Early Medieval Corpus (EMC) was established to record coins from the earliest Anglo-Saxon period to 1180 (http://www-cm.fitzmuseum.cam.ac.uk/emc/). For further details of the PAS database and other numismatic databases see the paper by Daniel Pett in this volume.

The Database and finds

The coins and artefacts recorded by the PAS are entered onto an online, publicly accessible database (www. finds.org.uk). At the time of this paper the recently redesigned database included records of over 680,000 objects of which more than a quarter of a million were coins. To put this coin archive in perspective, it is already 50% the size of the C&M online coin collection (and is guaranteed to grow at a faster rate). Even ignoring the highly visible contribution of the PAS to recent hoards (e.g. the 52,503 Roman 3rd-century AD coins from Frome or the Staffordshire Anglo-Saxon Treasure) its single finds have included some spectacular discoveries, some recent highlights of which are shown in **Pl. 2**.

Coin 1 (DENO–B129A5) is an Iron Age gold stater inscribed VOLISIOS CARTIVELLAVNOS from Carlton in Lindrick, Nottinghamshire. Found in 2002, this is a very important coin for our understanding of the north-east Midlands at the time of the Roman conquest (*c.* AD 30–50). It was acquired by the BM. Coin 2 (LIN–89844I), found near Sleaford in Lincolnshire, is a Roman denarius of the Civil War period (AD 69). It is a superb example of a rare coin in amazing condition. Coin 3 (DENO–3B3AF6) is a spectacular Roman gold aureus of the emperor Carinus (AD 283–85), one of only two known. It was found in Collingham, Nottinghamshire. Coin 4 (PUBLIC-FD5232) is a bronze nummus of Constantine I (AD 306–37) – a significant new coin from the Roman mint at London found in Beedon, Berkshire. This coin is the first example of this type ever found and is also one of the first finds to be recorded by a member of the public (a recent development by the PAS). Coin 5 (BUC–08EE42) is the earliest known Anglo-Saxon halfpenny. Struck for Ceolwulf II of Mercia, it was found in Pitstone, Buckinghamshire. It was acquired by the BM. Coin 6 appears to be a portrait farthing of Henry VIII's first coinage, and is the first of its kind.



Plate 2 A selection of some of the more important new types discovered by metal detectorists (for details see text)

Acquisitions

PAS has not just recorded new finds, but benefited museums by enabling purchases and donations. Current acquisition policies and codes of ethics can make it difficult to acquire objects which lack a complete provenance. DCMS acquisition guidelines state that `when acquiring newly-discovered objects from either the finder or a dealer the curator should attempt to establish the exact location of the findspot and the identity of the landowner and to satisfy him/herself that the landowner has given his/her consent that the object should be offered to the museum (whether by purchase or by gift). It is also good practice to ensure that such objects have been recorded with the Portable Antiquities Scheme.'[33] As PAS coins can usually be traced right back to the moment of discovery they can be safely acquired. Several of the coins listed above were acquired by the Museum, often with donations from members of the public. Sam Moorhead and many of the FLOs have developed such good relationships with some finders that they have offered coins as donations. Two types of Carausius, not in the BM collection (**Pl. 3**, nos 1 and 2; WMID–133A84; WMID–158F02), were among four donated by a finder after reading an article by Sam in *Treasure Hunting Magazine*. Though not new in terms of the classification of types, the re-use of coins is an area hugely under–represented in museum collections. The folded pair, which were also donated (**Pl. 3**, no. 3; LON–AC9101), offer a window on the more personal aspects of the re-use of coins.



Plate 3 Coins donated to the Department of Coins and Medals (for details see text)

Research

The research opportunities resulting from the PAS database are myriad, with Sam Moorhead demonstrating the potential of the Roman coin dataset.[34] One recent study of late Roman silver *siliquae* recorded with the PAS has provided a very different picture to that portrayed by hoards.[35] PAS records have also made a major contribution to the corpus of Roman gold coins found in Britain and have enabled a total re-appraisal of Byzantine copper coin use in Britain.[36] In addition, hundreds of Roman coin assemblages from sites across England are providing a wealth of new information about Roman occupation. In some regions, such as Devon and the Isle of Wight, this is providing much new evidence for Roman activity where there was little known before.[37] Philippa Walton's PhD thesis explores aspects of coin circulation revealed by PAS data that cannot be obtained from any other source, while the authors of this paper are working on separate projects along similar lines, one on Iron Age coinage, the other on English coin finds (1066–1544). In this way, the study of PAS coin data is providing an important cross-over with archaeological research.

In addition to the impressive research output of the PAS staff and their students, PAS has enabled a whole range of research projects at all levels (**Table 3**).

Table 3: Research projects based on PAS data (www.finds.org.uk/research)

Level of research	No. of projects
Undergraduate	32
Masters degree	64
PhD level research	45
Large scale research AHRC	11
Major publication	11
Magazine or journal article	3
Desk based assessment	9
Personal research project	39
Archaeology society project	2
External project (UK only)	6
External project (International)	3
A-Level archaeology project	5

The number of PhD studies is highly significant as is the interaction with students at an undergraduate level. All PAS data is freely available via the web, meaning that these figures reflect just the tip of the research taking place using the data. PhD students and particularly the recent spate of AHRC collaborative projects based around PAS data, have the potential to revolutionise our understanding of coinage in Britain across all periods.

The future

The relationship established between amateur searchers and professional archaeologists and historians developed by the PAS has almost infinite potential and is a welcome change from the past where both sides viewed the other with suspicion and hostility. A current research project supported by PAS and Southampton University is concerned with developing an understanding of the biases within the PAS dataset that influence artefact distributions and hence our interpretations (for example, the effect of the lack of detecting on duchy estates, urban areas, uplands etc). The sampling or detecting methodology of detectorists is also something that needs consideration. A number of individual projects have been developed by FLOs and in some cases the finders themselves, to target blank spots in the PAS data. Examples include Lindsey Bedford in Berkshire and Peter Twinn in Gloucestershire (both part-time archaeology students at Bristol and also detectorists). In these cases a systematic approach to survey and recording (including GPS) is employed.

Despite the existence of isolated and localised efforts in this area there is room for a larger, centrally organised project to investigate these ideas further. Such a project might establish a list of 'A-star' detectorists willing to partake in targeting metal detector surveys to systematic approaches similar to those employed in field-walking. The Bromholme Priory (Norfolk) project is a good exemplar in the application of field-walking techniques to detector surveys.[38] These could be targeted to specific unsearched fields (i.e. no previous record of detecting) and used to develop a detailed methodology. This is something that the authors have begun to discuss with our colleagues in PAS.

Concluding comments

This brief overview highlights a number of points. Our conclusions are as follows.

1) Both archaeology and numismatics would benefit from a greater exposure to each other's materials and methods. The organisation of a series of conferences (perhaps every two years) on a range of shared agendas is a starting point in this process, and should be supplemented by the exposure of more undergraduates and post-graduates to coin-specific teaching which is not catered for in universities. Publishing broad-based, numismatic articles in the wider archaeological press is desirable.

2) Making hoard evidence and site archives accessible to as wide a range of researchers as possible should be a priority, and as we can see through the attempts to establish a Roman hoard database, is something that is beginning to happen.

3) PAS is leading the agenda in fostering relationships between numismatists, archaeologists and finders and engaging with a wider audience. More importantly the finds recorded on the database are allowing new questions to be posed about many aspects of coin use and circulation in England and Wales that were unimaginable in the past.

Notes

1 Thanks are due to Roger Bland and Sam Moorhead for comments on a draft of this paper and to Daniel Pett and Ian Richardson for the provision of facts and figures. Any errors remain the responsibility of the authors.
2 Carson 1975, v.
3 See Burnett in this volume.
4 Bland & Loriot 2010, 5.
5 Bland & Loriot 2010, 5.
6 The first scientific excavation of a medieval site is considered to be that at Caesar's Camp near Folkestone in 1878. Gerrard 2003, 56.
7 Evans 1849, 132.
8 Evans 1890; Brooke 1933.
9 Gilchrist 2009, 397.
10 Casey & Reece 1988. The second edition included some updated and new material.
11 See for example Reece 1991, Haselgrove 1987, Rigold 1977.
12 Clarke & Schia 1989.
13 For example 73 excavation coin reports by Archibald were published up to 2005. Many more written reports have yet to appear; see Cook, Hewitt & Williams 2006, 724–7.
14 Gerrard 2003, 217; Gilchrist 2009, 389–9.
15 This document is available at http://www.communities.gov.uk/publications/planningandbuilding/pps5.
16 Gardiner & Rippon 2009, 66–7. This paper discusses the broader issues of conflict between developer-led fieldwork and academic fieldwork.
17 Buteux 1990.
18 For a recent critical evaluation, see Chadwick 2003.
19 Brickstock 2004.
20 Nixon *et al.* 28, 88.
21 Chadwick 2003, 99.
22 Gardiner and Rippon 2009, 69.
23 Gardiner and Rippon 2009, 69.
24 Egan, *pers. comm*.
25 Gerrard 2003, 82.
26 The British Numismatic Society is currently implementing such a scheme for the *BNJ*.
27 Brickstock 2004.
28 A downloadable version of the Act is available at http://www.finds.org.uk/treasure.
29 This is the combined figure of cases published in the *TAR* volumes for those years.
30 The first seven volumes of *Coin Hoards* included hoards from all over the world, VIII and IX included only Greek material.
31 Carson *et al.* 1979; Burnett 1981; Burnett 1984a; Burnett 1984b; Bland 1982; Burnett and Bland 1986; Burnett and Bland 1987; Bland and Burnett 1988; Bland 1992; Bland and Orna-Ornstein 1997; Abdy *et al.* 2002; Abdy *et al.* 2009.
32 Archibald & Cook 2001.
33 Department for Culture, Media and Sport, 2005, 15.
34 Moorhead 2010.
35 Bland, Moorhead & Walton forthcoming.
36 Bland and Loriot 2010; Moorhead 2009.
37 Walton forthcoming.
38 Pestell 2005.

Money Laundering

The Conservation of Coins and Coin Hoards at the British Museum

Ellen van Bork, Metals Conservator, Rijksmuseum, Amsterdam and freelance teacher, University of Amsterdam

Introduction

In the metals conservation studio of the Department of Conservation and Scientific Research at the British Museum (where I previously worked), a lot of time is devoted to the treatment of objects that come in through the Portable Antiquities Scheme (PAS) and, especially, the Treasure system. From this group of objects, the largest amount of time is spent on the processing of large coin hoards. This paper will touch on several aspects of processing these hoards: on the type of treatments carried out in the past, how they are treated now and what possible treatments and techniques might be available for the future.

Coin processing in the metals conservation studio of the BM

The goal of the treatment of most of the objects that come into Conservation via the Department of Portable Antiquities and Treasure at the British Museum is not to bring them to display standard, but to stabilise and clean them to the extent that they can be identified. In many cases the objects are stable and can be identified without treatment, so little or no conservation input is required; perhaps just repacking. However in the case of coins, conservation treatment is often necessary since the coins need to be legible to be properly identified. Even with very large coin hoards every single coin needs to be identifiable to some extent, because the last coin examined could be the one that could change the interpretation of the whole hoard.

In some cases the coins come into the studio in small batches and are bagged separately so the find can be processed quickly. However many coins are found in very large batches. Some examples of hoards that have been processed at the BM in recent years are the Milton Keynes hoard (2006 T631) of 1,471 coins,[1] the Brockfield Hall hoard, (2008 T723) with 1,050 coins in the vessel alone,[2] the Shrewsbury area hoard, (2009 T450) of 9,220 coins and – one of the largest hoards ever processed at the BM – the Frome hoard (52,500 coins, 2010 T272) (**Pls 1–2**). Fortunately the condition of the coins in the last mentioned hoard was relatively good. The hoard had been waterlogged and therefore the coins had to be treated as quickly as possible, because if it had been left to dry the corrosion and soil present on the surface would have solidified, making later conservation work more difficult and time-consuming. The hoard was therefore given priority over other Treasure hoards awaiting treatment. Pippa Pearce, senior metals conservator at the BM, together with several colleagues, processed the entire hoard in no less than eight weeks![3]

Treatment of coins, past and present

In the past (up to the last quarter of the 20th century) coins were treated with a variety of chemicals in bulk for a relatively long time. Treatment was therefore fairly uncontrolled with the risk that coins could be damaged by over-cleaning. Today we take a different approach to chemical treatment and introduce more control by making selections, based on condition and composition, within the hoard groups by visual and microscopic examination, and by minimising the immersion time.[4] We do tests to see how long the selected coins need to be immersed and only add additional treatment time of one or two minutes if necessary. After thorough rinsing with de-ionised water any remaining corrosion products are mechanically removed until enough detail is visible for identification.

Fortunately most of the Frome hoard coins were in good condition and the initial treatment of washing and drying was very straightforward. However on many coins from other hoards corrosion products are present that obscure the detail, making them illegible. In the conservation of archaeological metal objects, the safest and most controlled treatment for the removal of corrosion products is mechanical removal with a scalpel and pin vice under high magnification (e.g. 40x). This method requires skill and experience to carry out successfully and is a very time-consuming process; it is therefore expensive in time and resources and not feasible for the very large amounts of coins awaiting treatment. In many cases the corrosion product may also be too hard to remove with these



Plate 1 The Frome hoard during excavation. © Somerset County Council



Plate 2 Coins from the Frome hoard laid out to dry after conservation treatment





Plate 3 (left) Copper alloy coins before chemical treatment

Plate 4 (right) Copper alloy coins after chemical treatment

methods alone and it is because of these factors that chemicals are sometimes used to remove or soften some of the corrosion products.

Chemicals commonly used are alkaline glycerol and alkaline Rochelle salts. The advantages of treatment with chemicals have already been outlined; however there are also potential drawbacks to this technique. Removal of corrosion is obviously irreversible and chemical treatment is difficult to control, with a risk of over cleaning which could lead to loss of detail when the safeguards described above (pre-selection and close monitoring) are not applied correctly. On one coin various corrosion products can be present which might each have a different response to the chemical solutions. The action of some chemicals is indiscriminate; some will attack all corrosion products equally while some attacks one type of corrosion more quickly than another. The result, without careful monitoring and choice of solution, can be a coin with over and under cleaned areas. In addition, the change in appearance can be very marked (**Pls 3–4**). In some cases mineral preserved remains, a very thin layer of silvering and in very rare cases, gilding, can be present on the surface of a coin. Without careful pre-examination and assessment a chemical treatment can affect or even destroy these layers.

Circumstances of burial

Coin hoards are archaeological assemblages and this is always borne in mind before and during conservation, so that any surviving archaeological evidence can be retrieved in the process. The way objects or coin hoards have been buried can give a lot of information. In the case of the Frome hoard it seemed highly unlikely, because of the weight of the 52,500 coins, that the large ceramic vessel containing them was filled before being buried. If the vessel was placed in the ground before filling, we can imagine many smaller pots or bags of coins being tipped into it. Therefore the coins were excavated from the vessel in separate layers. The layers were all bagged separately and during conservation the separate layers were not mixed. After conservation treatment the coins could be identified and it became apparent that a large group of Carausian coins were present in layer 16, suggesting that the contents of a smaller vessel, mainly consisting of these pieces had been tipped into the larger one. This shows the importance of careful excavation as it can give an insight into the way a vessel was filled (**Fig. 1**) as well as other archaeological evidence.[5] Therefore during conservation treatment of large coin assemblages we are careful to excavate in an appropriate manner, keeping layers separate or even to the extent of recording distribution at successive levels. The Shrewsbury

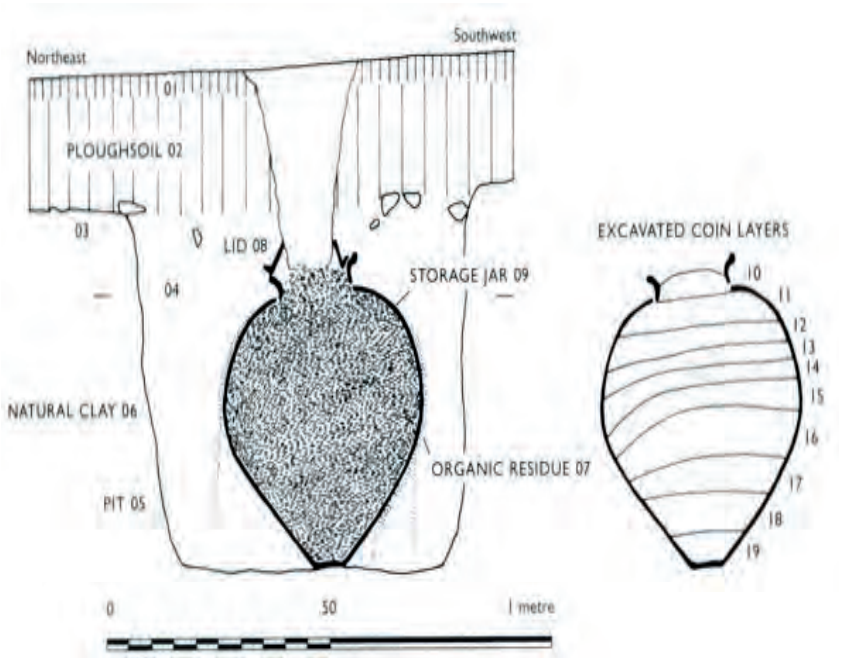


Figure 1 Section drawing of the excavation of the Frome hoard by Alan Graham, showing how the vessel was excavated in layers. © Somerset County Council



Plate 5 The coins from the Shrewsbury Area Hoard carefully being removed from the vessel

Area hoard, which is currently being processed (March 2011), was brought in with the coins still in the vessel. The coins were carefully lifted from the vessel (**Pl. 5**) and kept separate. The top and bottom layers have been treated and identified and already show a difference in the date of the coins, again giving us valuable information on how the hoard was buried.

Some aspects of the future in coin conservation

X-radiography

It would be useful, in terms of resources, and less interventive, to be able to use X-radiography to identify illegible coins. During the initial washing of the Frome hoard, it was decided to X-radiograph a few of the coins to determine whether they could be identified in this manner. The X-rays came out very well and the coins could indeed be identified (**Pl. 6**). X-radiography has also been used successfully on a small number of coins in other hoards. A disadvantage of this technique is that the coins must be kept in separate numbered bags or trays to differentiate one coin from another.

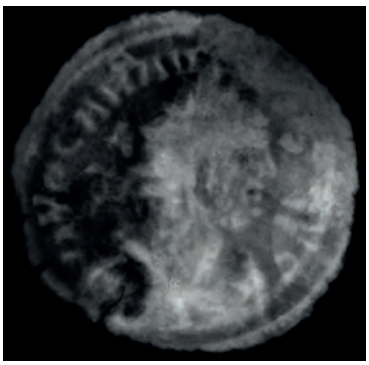


Plate 6 An X-radiograph of a Carausius coin from the Frome hoard

X-radiography also has quite a high cost implication for large coin hoards. A potential solution to this problem could be the use of digital X-radiography. It may not be possible to identify all coins this way since the X-rays can sometimes be hard to interpret as you can see both sides at the same time, but it could potentially save a lot of time if parts of coin hoards could be identified with this technique.

X-ray computed tomography

Another very promising technique for identifying coins is X-ray computed tomography, also known as CT or CAT-scanning. This is a powerful non-destructive evaluation technique for producing three-dimensional cross-sectional images of an object from flat X-ray images. Characteristics of the internal structure of an object such as dimensions, shape, internal defects, and density are readily available from CT images (**Pl. 7**). The main advantage of CAT-scanning over two-dimensional X-ray and conventional excavation techniques is the three-dimensional view, the ability to visualise exterior and interior features of objects within the block or in the case of coins in the vessel.[6] However, currently there are very few machines that are powerful enough to get through a block of coins. Also there is the problem of separating the images into views of single coins – this is currently difficult and very time-consuming.

Conclusion

As mentioned above there are different techniques available that can be used for identifying coins. However the ideal technique has not yet been found. Therefore conservators and scientist will continue looking for new techniques that could help save time and money during identification and maybe even make conservation treatment obsolete. Until then the conservators at the BM will continue conserving the coins in the best possible way with the techniques that are now available to them.

Acknowledgements

The author would like to thank Pippa Pearce, Jamie Hood, Duncan Hook, Janet Ambers and Marilyn Hockey for their help and support.

Notes

1 TAR 2005/6, no. 1124.
2 TAR 2008.
3 Moorhead, Booth and Bland 2010.
4 Watkins and Enderly 1998.
5 Moorhead *et al.*, 2010.
6 Ebinger-Rist, Peek , Stelzner and Gauß 2010.



Plate 7 XCT Image of a bronze amulet showing an ancient repair. The amulet was still present in a soil block when this image was made. © Landesamt für Denkmalpflege im Regierungspräsidium Stuttgart

The Application of Science to Coins and Coin Hoards at the British Museum

Duncan Hook, Senior Scientist, British Museum

Introduction

I was delighted to be invited to present a short paper at the conference to mark the 150th anniversary of the formation of the Department of Coins and Medals, and indeed to take the opportunity to express my own department's best wishes and congratulations. In addition to celebrating such a major anniversary, the conference provided an opportunity to look back at the history of the Department of Coins and Medals, assess its current situation and consider some of the ways it can go forward into the future, both as an organisation in its own right and in its relationships with some its collaborating partners, such as my own department of Conservation and Scientific Research. Aspects of the conservation of coins and coin hoards are addressed by Ellen van Bork elsewhere in this volume, but in this paper, I hope to illustrate some aspects of the role of science in numismatics, and in the past, present and future of the Museum's Department of Coins and Medals (C&M).

Early 'coin analysis'

When was science first applied to the study of coins? It could perhaps be said to be during the explosion of science that occurred during the 'Age of Enlightenment' in the 18th century; for example, Martin Klaproth, the famous German chemist (known by some as the 'father of analytical chemistry'), is known to have analysed Greek and Roman coins in the 1790s.[1]

A few years earlier, in 1774, a Mr Alchorne had analysed two Bronze Age swords from Cullen in Ireland.[2] Although examples of the early analysis of antiquities, clearly these objects were not coins. However, Mr Alchorne was Stanesby Alchorne, the *Master's Assay Master* at the Royal Mint, later becoming *King's Assay Master* to George III, i.e. he was an expert in the analysis of gold and silver coins and bullion. The critical nature of Alchorne's skills are illustrated in the records of the Old Bailey of 1772, where he gave evidence at the trial of two men facing the death penalty for counterfeiting coins:

> …Samuel Roberts and Thomas Bacchus were indicted for falsely, feloniously, and traiterously forging, counterfeiting, and coining one piece of false, and counterfeit money, to the likeness and similitude of the good legal and current money, and gold coin of this realm called a guinea, against the duty of their allegiance, and against the statute…[3]

Alchorne gave the following evidence on the weight, composition and value of one of the counterfeit coins:

> …Mr. Stanesby Alchorne: I am assay-master in the mint; I received from Mr. Chamberlayne on the last of December, a counterfeit piece of money, resembling a quarter guinea, which in consequence of my office he desired me to try, in order to discover what it was made of, and what it was worth. Upon examination it was found to weigh 26 grains only.
>
> Q: How much is that below the real weight?
>
> Alchorne: Six grains. The surface appeared gilded, and on cutting, it looked silvery; on proper trial it was found to contain of fine gold seven grains, fine silver near fifteen grains, base metal above four grains; the value of the gold and silver together may be worth 16 d. or 17 d. and the piece was so well executed that it might easily have been imposed on any common observer for five shillings, and three pence… .[4]

The men were found guilty.

To determine the gold content of an alloy, Alchorne would have carried out cupellation using a fire assay furnace similar, for example, to that described and illustrated in the 16th century treatise by Lazarus Ercker (the woodcut illustration is shown in **Pl. 1**).[5] This technique is still widely used today, for example at the Assay Office of the Goldsmiths' Company, London. (**Pl. 1** also illustrates other equipment used in an assayer's laboratory, such as a parting furnace for separating gold and silver, and a balance suspended in water for measuring the densities of gold alloys.)

Ercker also discusses the use of the other ancient method of gold analysis, the touchstone. Again this is a technique still in use today and, in the hands of a skilled practitioner, accuracies of the order of 1% are possible. The first detailed description of

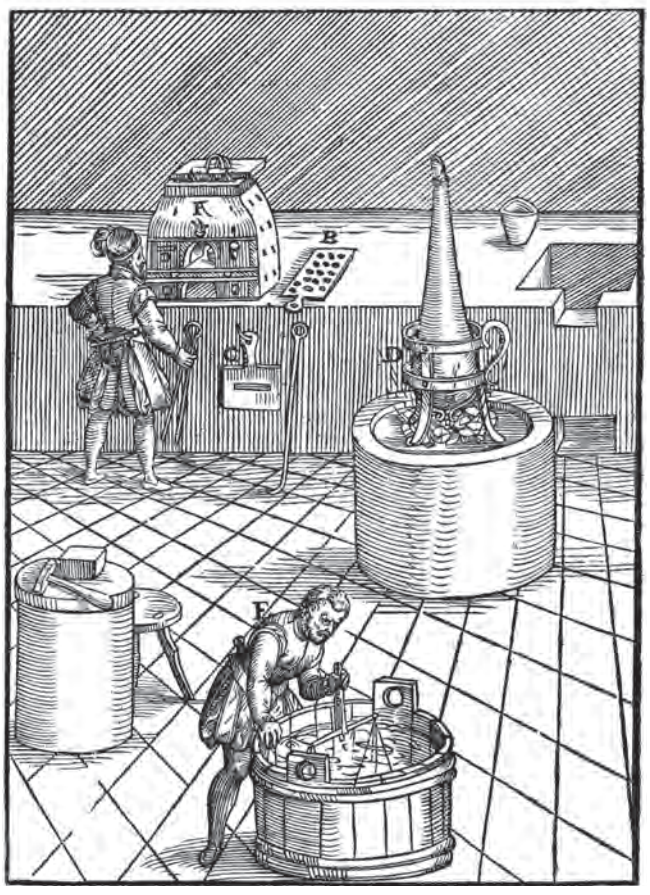


Plate 1 Reproduction of a woodcut illustration which appeared in Lazarus Ercker's *Treatise on ores and assaying*, dating from c. 1580, showing an assaying furnace, parting furnace, and a balance for weighing bullion in water



Plate 2 Portrait of Dr Gowin Knight, by B. Wilson, 1751

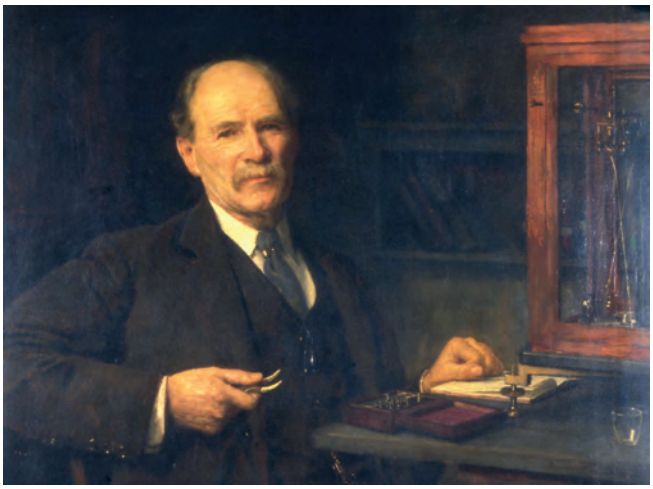


Plate 3 Portrait of Dr Alexander Scott, by Herbert Olivier, 1921

touchstones is given by Theophrastus (*c.* 372–287 BC) in his treatise *On Stones,*[6] although they are mentioned earlier in the ancient literature.[7] Theophrastus does appear, however, to write specifically about the use of touchstones for coin analysis:

> …They say that a much better stone has now been found than the one used before; for this not only detects purified gold, but also gold and silver that are alloyed with copper, and it shows how much is mixed in each stater… [8]

It is not known precisely when the touchstone was first used to analyse gold, nor when the realisation occurred that much natural 'gold' often contained substantial amounts of silver, now known as the alloy 'electrum'. However, this knowledge and the discovery of the process of parting, i.e. the separation of electrum into its pure gold and silver constituents, eventually lead to the production of the earliest coins of pure gold (and silver), in Lydia in the 6th century BC.[9]

Science and the British Museum

Returning briefly to the second half of the 18th century, we come, of course, to the founding of the British Museum in 1753, based on the collections of Sir Hans Sloane,[10] who was a physician and a Fellow of the Royal Society, i.e. he was a scientist! The first 'Principal Librarian' (or Director) of the British Museum was Dr Gowin Knight (**Pl. 2**), another physician and FRS – another scientist! It is thought that Knight set up his own 'magnetical laboratory' within the Museum in the 1750s.

However, the roots of the present 'science group' in my own department (the Department of Conservation and Scientific Research) date back to the formation of the 'Research Laboratory' in the years following the First World War.[11] During the war, much of the collection had been dispersed to 'safer' storage areas, which included parts of the London Underground. Perhaps unsurprisingly, some of the collections suffered damage from the storage conditions, so in 1919 the museum's Trustees requested that the eminent chemist Dr Alexander Scott, FRS (**Pl. 3**) should investigate some of the problems and recommend suitable treatments. Since then the science group has grown and there is now a small team of scientists at the museum who continue to apply scientific methods to artefacts, answering questions such as: what are they made of? how old are they? where were they made? are they genuine? Equally important is the work the scientists undertake to ensure that the collections are preserved for the future. This includes diverse aspects of 'Conservation Science' which, in the context of the Department of Coins and Medals, includes the monitoring of ambient conditions of temperature and relative humidity, identifying safe light levels for the display of paper money,[12] and the analysis and control of potentially harmful construction materials in galleries and stores. Most of the work carried out by the scientists involves close collaboration with the Museum's curators and conservators.

Scientific techniques currently available at the British Museum

We have a range of scientific techniques that we can use, depending on the kinds of questions we are trying to answer. Wherever possible, the techniques used are those which cause no or minimal damage to the artefacts in the Museum's collections. The techniques applied to coins and coin hoards at the Museum include:

- Optical microscopy
- Specific gravity (SG)
- X-ray fluorescence (XRF)
- Scanning electron microscopy with energy dispersive X-ray analysis (SEM-EDX)
- Inductively-coupled plasma atomic emission spectrometry (ICP-AES)
- X-radiography

Optical microscopy

Though perhaps regarded as a simple approach, the use of an optical microscope with 5–80 times magnification can be very informative in understanding the method of manufacture of a coin and should always be used prior to any other methods of analysis. For example, it can often reveal the characteristic

dendritic structures of cast coins, and the flow marks on struck coins. Plated coins can sometimes be identified if small areas of damage exist or if the outer foil has become detached. The microscope can be linked to a video camera and display monitor to facilitate discussion with colleagues, and to a digital camera for recording and subsequent publication. Microscopy can be combined with a raking light source to enhance the visibility of areas of differing relief. Multiple images can also now be digitally combined.[13] For example, two images taken at different angles can be combined to produce three dimensional images, currently viewable using separately polarized or red/green glasses. Also, a 'stack' of images of the same area but taken at differing points of focus can be combined to give a single image which has great detail and depth of field. Such images can be examined and rotated in real-time, and can be used to extract precise measurements and profiles, which could, for example, offer a third dimension to die studies. These methods also have great potential to produce stunning graphics for display, and offer a possible solution to some of the difficulties involved in trying to bring coins and distant researchers together through the use of computer technology.

Specific Gravity

The excitement of the discovery of density measurement in the third century BC had Archimedes jumping out of his bath and running down the street shouting 'Eureka!'. Perhaps surprisingly, we are still using specific gravity (SG) measurements at the British Museum some 2,300 years later.[14] It is essentially a straightforward technique. First, the coin (preferably cleaned from adhering material such as soil, corrosion products, wax or finger grease) is accurately weighed. The balance is reconfigured so that a second weighing can be made with the coin suspended in an inert liquid (originally this would have been water, although for many years now we have used an inert organic liquid (perfluoro-1-methyl decalin) to prevent damage to the coin. In its simplest form and using water, the equation for calculating the SG is given below,

$$SG = \frac{\text{weight of coin}}{(\text{weight of coin} - \text{weight of coin suspended in water})}$$

In practice, the density of the actual liquid used and its temperature must also be taken into account. The resulting SG value varies depending on the proportions of each component metal in the alloy and their respective SG values.

SG measurements in numismatics have mostly been used to measure gold-based coins. They can be used to calculate the quantity of gold in a binary alloy of gold and silver or gold and copper, but many ancient gold alloys are ternary alloys of all three metals and in these cases an SG measurement can give only a range in which the gold content should fall. SG measurement can also be useful for silver coins, especially in identifying plated examples.

X-ray fluorescence

X-ray fluorescence (XRF) is a fast, non-destructive technique of elemental analysis.[15] It works by firing a small beam of X-rays at the object, which releases secondary or fluorescent X-rays, the energies of which vary depending on the elements present. The energies and intensities of these fluorescent X-rays are measured and displayed as a spectrum which can be interpreted qualitatively or processed using appropriate computer software to obtain quantitative, numerical results indicating which elements are present and in what proportion. It should be noted that the X-ray beam does not penetrate very far into the object (a few hundred μm in metals, depending on their density), so to get fully quantitative results, any unrepresentative surface material should be removed prior to analysis.

Scanning electron microscopy

Scanning electron microscopy (SEM)[16] is used to study the materials, technology and manufacturing history of museum objects at very high magnifications, much higher than is possible with optical microscopes, and with a greater depth of focus and higher resolution. The object (which in some cases may be polished or sampled to provide a better surface for examination and analysis) is placed in a vacuum chamber and examined by scanning a beam of electrons onto its surface. The back-scattered and secondary electrons which are produced can be detected and used to form magnified black and white images of the surface. X-rays are also produced in the SEM by the interaction of the electron beam with the atomic structure of the material, and can be used to gain compositional information about the surface material of the object or sample. The energies and intensities of these X-rays can be measured by a technique known as energy dispersive X-ray analysis (SEM-EDX) and displayed as an X-ray spectrum (similar to those obtained by using XRF). The SEM can be used non-destructively to produce high quality images but it should be noted that, as with the XRF, to get fully quantitative analytical results, any unrepresentative surface material needs to be removed prior to analysis, as the electron beam does not penetrate far into the object.

Inductively-coupled plasma atomic emission spectrometry (ICP-AES)

Inductively-coupled plasma atomic emission spectrometry (ICP-AES)[17] is a 'destructive' technique of analysis, i.e. a sample weighing *c*. 5–10 mg is required (usually obtained by drilling into the edge of a coin using a micro drill bit of 0.5–1.0 mm diameter). The sample is then dissolved in acids, diluted and introduced into the instrument. The sample is heated to *c*. 10,000°C in an argon plasma which causes it to emit light, the wavelength and intensity of which is measured and compared against emissions of standard solutions to determine the concentrations of the elements present. Although a sample is required for this technique, it has lower detection limits and better precisions at low levels than either XRF or SEM-EDX.

X-radiography

Radiographic techniques, similar to those used in hospitals and industry, are used in the study of a wide range of archaeological artefacts, often revealing internal details that otherwise may not be visible.[18] It is a non-destructive method and does not require an object to be cleaned or a sample to be removed. Generally, a beam of X-rays produced by an X-ray tube is projected towards an object. Depending on the density and composition of the different areas/parts of the object, varying proportions of X-rays are absorbed. The X-rays that



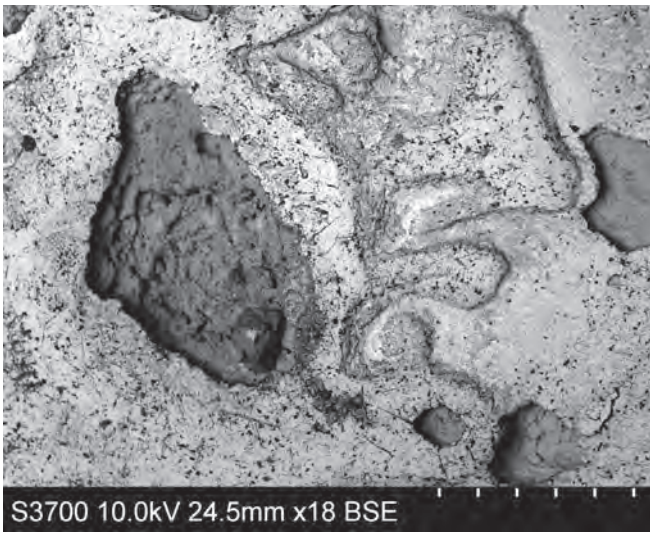


Plate 4a Photograph of a coin of Domitian from the Holme hoard; **4b** Detailed secondary electron image of the obverse taken using the scanning electron microscope, showing the darker areas on the cheek and in front of the nose where the brighter silver foil has been lost.

pass through the object are captured on a photographic film or fluorescent screen placed behind the object, producing an image. The resultant images often allow the identification of internal structures, including breaks, joins and the presence of different materials. The technique is thus well suited to the examination of objects such as a hoard of coins held within a ceramic vessel, for example.[19]

The Holme hoard – a case study

A recent example of several scientific methods being applied to numismatic material is provided by the Holme hoard, which was found and reported by metal detectorists Reg Robinson and John Sparks in Lincolnshire in 2003. They discovered a broken ceramic vessel that contained 408 silver denarii, ranging in emperor and date from Mark Anthony (54–31 BC) to Septimius Severus (193–211 AD). The opportunity arose to create a small, temporary display based on the Holme hoard (in case 10 of the Money Gallery), showing what happens to a newly-found hoard if it comes to the British Museum, especially in terms of conservation[20] and scientific input. The display in the main body of the case consisted of the vessel and the coins, some of which were in the uncleaned, 'as-found' state and others which had been conserved to a high standard for study and display. The display panels at the ends of the case consisted of text and images which told the story of how the hoard was found, conserved and examined scientifically. At an early stage in the examination of the hoard, it had been noted that one of the coins (of Domitian, 2005,0834.15) was a contemporary forgery, consisting of a base metal core covered in a thin silver foil (see **Pl. 4**).[21]

Examination and analysis of the coin in the SEM allowed high quality images of the coin and its foil to be recorded, and the nature of the core to be identified as copper. A survey of 78 of the cleaned coins was then undertaken using SG to investigate whether any further plated coins could be detected. (A silver plated coin with a base-metal core would be expected to have a low SG, as copper (or iron) has a lower SG value than silver, and additionally, any air pockets present between the core and plating would also lower the SG.) No uncleaned coins were analysed as any soil or corrosion products on the surface would also affect the measured SG. A further coin (of Septimius Severus) was identified as having an unusually low SG, and on close inspection under an optical microscope a small area of damaged foil could be seen, suggesting that it too was a plated coin. The SG results also illustrated the well-known Severan debasement.[22] Excluding the two plated coins, the mean SG for the pre-Severan coins was 9.98 (standard deviation 0.150, n=50), whilst that of the Severan coins was notably lower at 9.46 (standard deviation 0.146, n=26), reflecting the lower amounts of silver in the coins. To obtain more detailed analyses, and for the purposes of the display, quantitative XRF analyses were carried out on small cleaned areas on the edges of 20 pre-Severan coins and 10 coins of Septimius Severus. The results (see **Table 1**) are illustrated in **Fig. 1**, which shows the silver contents of the coins against emperor/date, illustrating the fall in silver content that occurred with the accession of Septimius Severus, at which point copper became the major component of the alloys used. A similar image was included in the final display in the showcase, demonstrating to the public the concept of debasement over time, and that the face value of a coin was related to the value of the precious metal it contained.

Application of other current or future scientific techniques

A number of other scientific techniques not (currently) available in-house in the British Museum have been or, looking to the future, could be applied to numismatic studies in laboratories around the world. Perhaps the most important of these is the suite of sensitive nuclear and synchrotron or ion beam techniques (such as neutron activation analysis (NAA), proton activation analysis (PAA), synchrotron- XRF (sy-XRF), proton induced X-ray emission (PIXE), proton induced gamma ray emission (PIGE) etc.). Numerous papers using these techniques are scattered throughout the scientific literature and conference proceedings. Though it is rare to be able to use such scientific analytical techniques to discover exactly where a particular coin came from, some studies have shown that certain ore sources have a distinctive trace element 'signature'. For example, studies by French researchers have shown that South American silver from Potosí and gold from Brazil first arrived into Europe in the 16th to 18th centuries by analyzing dated European coins and detecting high, diagnostic levels of indium and palladium respectively.[23]

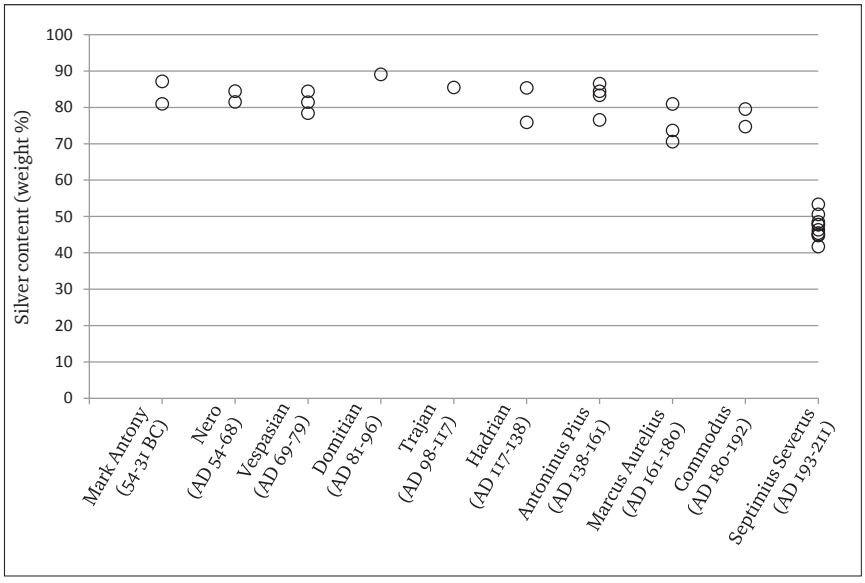
One final technique to mention is inductively coupled plasma mass spectrometry (ICP-MS). It shares some similarities with ICP-AES discussed above, although it has

Table 1: X-ray fluorescence analyses of Roman denarii from the Holme hoard, ranging from Mark Antony to Septimius Severus

Cat. no.	BM coin no.	Obverse	Period	Ag%	Cu%	Au%	Pb%
3	1	Mark Antony	54-31 BC	81.0	17.7	0.4	0.9
3	2	Mark Antony	54-31 BC	87.1	10.9	0.5	1.5
7	4	Nero	AD 54-68	84.5	14.7	<0.05	0.9
8	5	Nero	AD 54-68	81.5	16.3	0.7	1.5
15	6	Vespasian	AD 69-79	84.4	14.5	0.5	0.6
25	11	Vespasian	AD 69-79	78.4	20.6	0.4	0.6
39	15	Vespasian	AD 69-79	81.4	17.4	0.3	0.8
55	22	Domitian	AD 81-96	89.1	10.1	0.5	0.3
66	25	Trajan	AD 98-117	85.5	13.2	<0.05	1.3
83	28	Hadrian	AD 117-138	75.9	22.6	0.1	1.5
95	30	Hadrian	AD 117-138	85.4	14.0	<0.05	0.6
130	40	Antoninus Pius	AD 138-161	84.4	13.1	<0.05	2.4
141	44	Antoninus Pius	AD 138-161	86.5	12.5	0.1	0.9
148	47	Antoninus Pius	AD 138-161	83.3	15.8	<0.05	0.9
162	50	Antoninus Pius	AD 138-161	76.6	22.0	0.1	1.3
185	57	Marcus Aurelius	AD 161-180	70.6	27.4	0.4	1.6
203	60	Marcus Aurelius	AD 161-180	80.9	18.3	0.1	0.7
219	64	Marcus Aurelius	AD 161-180	73.7	25.3	0.2	0.8
225	65	Commodus	AD 180-192	79.5	19.3	0.4	0.7
230	67	Commodus	AD 180-192	74.7	24.6	0.1	0.7
245	69	Septimius Severus	AD 193-211	46.3	52.3	0.4	1.0
246	70	Septimius Severus	AD 193-211	47.8	51.2	0.4	0.7
257	73	Septimius Severus	AD 193-211	45.0	53.4	0.4	1.2
268	78	Septimius Severus	AD 193-211	47.8	51.0	0.3	0.9
273	83	Septimius Severus	AD 193-211	41.7	57.0	0.3	1.0
278	84	Septimius Severus	AD 193-211	44.8	54.0	0.3	1.0
302	92	Septimius Severus	AD 193-211	45.4	52.8	0.5	1.3
304	94	Septimius Severus	AD 193-211	50.6	47.6	0.4	1.4
314	97	Septimius Severus	AD 193-211	53.4	44.8	0.3	1.6
315	98	Septimius Severus	AD 193-211	48.5	49.8	0.2	1.0

Notes to table
The analyses were carried out at cleaned areas on the edges of the coins. The precision or reproducibility of the analyses should be c. ±1-2% relative for silver, c. ±2-10% for copper and c. ±20-50% for gold and lead, the precision deteriorating as the detection limit (0.05%) is approached.
"<" denotes less than the value quoted, i.e. the detection limit.
The analyses were performed by Aude Mongiatti and Philippa Duffus.

Figure 1 Silver contents of Roman denarii from the Holme hoard (obtained using quantitative XRF), showing the debasement that occurred with the accession of Septimius Severus in 193 AD



some significant advantages. It is about a thousand times more sensitive and therefore requires a smaller sample, but perhaps more significantly it can be connected to a laser ablation system to produce a suitable sample directly from an object. The size of the resulting hole is *c.* 0.1mm in diameter, and therefore very difficult to see with the naked eye. As well as being able to measure very low levels of trace elements, it can also be used to measure isotopes such as those of lead which have been used in attempts to provenance metals.[24] To get the best results for lead, and increasingly other isotopes such as those of tin, the extra precision of the 'high resolution' or 'multi collector' variants of these instruments are currently required.

Conclusions

In this paper I have attempted to explain and illustrate some of the scientific techniques that are applied to numismatic material both at the British Museum and elsewhere. For example, scientific examination and analysis can help in the identification of forgeries; it can be used to follow debasement over time, often giving revealing insights into economic history, and can help conservators to preserve the collections for the future. Also, the fact that this is very much a two-way relationship should not be overlooked - for example, for a scientist interested in following the changes in metal composition over time, what could be better than to study well-dated material such as coins?

Other papers in this volume show that the future of the Department of Coins and Medals itself is likely to be bright, whilst the future of my own department seems equally exciting – we will be moving to new, purpose-designed facilities in the World Conservation and Exhibition Centre when it is completed, hopefully in 2013.

Many numismatists appreciate that much has been gained by collaboration with scientists throughout the past and up to the present day, and much promise is being shown by new analytical techniques and applications. I hope therefore that in the future, for another 150 years at least, there will continue to be close collaboration between numismatists, conservators and scientists.

Acknowledgements

Much of the scientific work carried out in the Department of Conservation and Scientific Research on coins and medals over the past 30–40 years was undertaken by Mike Cowell (XRF) and Andrew Oddy (SG) – there can be no doubt that their efforts and achievements greatly advanced the scientific study of numismatic material. I would like to thank Susan La Niece, Philip Fletcher, Nigel Meeks, Janet Ambers, Catherine Higgitt and Antony Simpson for their help in preparing this paper. In addition, I would like to acknowledge the efforts of a large group of British Museum staff, past and present, who worked on putting together the Holme Hoard display, especially Kirstin Leighton-Boyce and Laura Philips in Coins and Medals, and Simon Dove, Pippa Pearce, Melina Smirnou, Aude Mongiatti and Philippa Duffus in Conservation and Scientific Research. Finally, I would like to take this opportunity to thank all the many curators in the Department of Coins and Medals with whom I have worked over the years, including Philip Attwood for inviting me to speak at the conference, and especially Barrie Cook for his patience and editing skills.

Notes

1 Klaproth 1798, 97-113 etc.
2 The analyses are reported in Pownall 1775, 355.
3 Old Bailey Reference Number: t17720429-59: http://www.oldbaileyonline.org/browse.jsp?div=t17720429-59, accessed 13 May 2011.
4 See n.3.
5 Sisco & Smith 1951.
6 Caley & Richards 1956.
7 Oddy 1983.
8 Caley & Richards 1956, p.152.
9 Ramage & Craddock 2000.
10 See Pl. 2, in Burnett above.
11 A short history of the British Museum 'Research Laboratory' can be found in Craddock 1991.
12 Saunders 2008.
13 This is a huge and rapidly changing area, with numerous commercial products and free downloads being available. For example, free 3d imaging software can be found at: http://www.stereoscopy.com/downloads/index.html, accessed 13 May 2011. Further information about the commercial software package Montage (a module in the Leica Application Suite) used to can be found at: http://www.leica-microsystems.com/products/microscope-software/imaging-software/details/product/leica-las-montage/downloads/, accessed 13 May 2011. Examples of pseudo-3D images of coins (in this case Polynomial Texture Maps) can be found at: http://www.c-h-i.org/examples/ptm/gallery_gsb_2004/ptm_coin_denarius.html, accessed 13 May 2011 (right mouse click on individual coin images to bring up an option menu).
14 Oddy & Blackshaw 1974.
15 E.g. Cowell 1977 and 1998.
16 Goldstein, Newbury, Joy, Lyman, Echlin, Lifshin, Sawyer & Michael 2003.
17 Hook 1998.
18 Lang & Middleton 2005.
19 See, for example, van Bork in this volume.
20 For details of some of the techniques used for cleaning coins, see van Bork in this volume.
21 La Niece 1993.
22 Bolin 1958.
23 Barrandon, Le Roy Ladurie, Morrisson & Morrisson, 1995 and 1999.
24 Resano, Marzo, Alloza, Saénz, Vanhaecke, Yang, Willie & Sturgeon 2010.

Building the Collection – Past, Present and Future

Gareth Williams, Curator of Early Medieval Coins, British Museum

Collecting is key to the activities of the Department of Coins and Medals. Curators within the department do not restrict their activities to the BM collections, or even to purely numismatic material, but the departmental collection provides a focus not just for cataloguing and other 'housekeeping' activities, but for research, display and educational and outreach activities. It follows that our current activities are to a great extent shaped by our attitudes to collecting, past and present, and that decisions made now on what to collect will impact on the activities of the curators of the future. Throughout our history, our acquisitions have been governed by a combination of policy and circumstances.

1. The past

The history of the departmental collections does not begin with the formation of the department in 1861, or even with the foundation of the British Museum in 1753, but with the collection of Sir Robert Cotton (1571–1631), donated to the nation on the death of his grandson in 1702. As a pupil of Camden, and a youthful co-founder of the Elizabethan Society of Antiquaries, it comes as no surprise that Cotton's collection was dominated by coins which contributed to the understanding of British history.[1] His collection was particularly strong in the Anglo-Saxon period and, although we know little about the sources of Cotton's collection, we may surmise that he had access to coins from some early and unrecorded hoards. In so far as it was possible, Cotton seems to have attempted to build up a systematic collection from the coins available at the time, and his collection included a number of rare and even unique pieces (**Pl. 1**).[2]

The Cotton collection also included some of the most important manuscripts relating to the Anglo-Saxon period, and Cotton and his contemporaries seem to have recognised that coins, like manuscripts, were valuable sources of historical information. The collection of Edward Harley, which together with the Cotton collection and the collection of Sir Hans Sloane (1660–1753) formed the founding collections of the British Museum in 1753, also contained medals as well as manuscripts,[3] and with this emphasis on the historical value of numismatic material it is no surprise that coins and medals were initially placed within the department of Manuscripts, before being reclassified as Natural and Artificial Productions in 1803 and then Antiquities and Coins in 1807 before the growing size and importance of the collection was deemed worthy of a separate department.[4]

The last of the founding collections, that of Sir Hans Sloane, reflects the breadth rather than the depth of the department's collections. Sloane's coins are not identified as such on the tickets, and his catalogues sadly seem to have been lost during the bombing of the department on May 10th, 1941, while surviving records from the time of his donation conflict on the size of his collection. However, we may be sure that the Sloane collection numbered at least 23,000 items (more than the entire numismatic collections of many museums). These included Greek, Roman, Byzantine, Anglo-Saxon and later English (including siege pieces), Scottish, Irish, European and Oriental (including 'Hebrew') coins, plus medals.[5] In other words, most of the areas included in the department's collections today, although we do not have a very precise breakdown across all these areas.

Between 1753 and 1861, the numismatic collections of the British Museum continued to grow, including not only coins and medals but other numismatic or paranumismatic material, especially tokens. This was, after all, the Age of Enlightenment, and the private collecting of both contemporary numismatic material and of antiquities (which might also include coins and medals) was widespread. On the one hand this led to the generation of new numismatic material for the collectors' market, as explicitly indicated in a promotional token by the token manufacturer Thomas Spence issued in 1796, with the inscription 'Inscribed to collectors of medals' around the image of a screw-press (**Pl. 2**). On the other, it meant that the Museum was able to benefit from the acquisition of a number of private collections. Notable amongst these was the collection of Sarah Sophia Banks, sister of Sir Joseph Banks, whose wide-ranging collection (including the token mentioned above) reflected in numismatic form the world in which she lived. 'Contemporary collecting' is a major issue in the museum world today, but it is



Plate 1 Silver penny of Edward the Elder, issued 915–20, moneyer Wulfgar, from the Cotton collection



Plate 2 Token issued by Thomas Spence, 1796

easy to forget that museums have been collecting contemporary material for over two centuries.

Other important additions to the BM collection before 1861, some through purchase, some through donation, included the collections of Southgate (English, by 1795), Cracherode (mostly Roman, 1799), Tyssen (Iron Age and Anglo-Saxon 1802), Roberts (English, 1810), Townley (Roman, 1814), Payne Knight (Greek and Roman, 1824), Borrell (Asia Minor, 1833), Marsden (Oriental, 1834) and Hawkins (Medals, 1860).[6] This last purchase, of 4,347 pieces, was slightly controversial since Edward Hawkins had amassed his collection in part during his time as Keeper of Antiquities, and purchasing collections from a museum employee raised ethical questions even then, but its acquisition was nevertheless eventually approved.[7] Another major acquisition was the Royal Collection, which was particularly strong in both English and European coins and medals, and which seems largely to have been brought together by George III, although it probably also contained material collected by previous English monarchs. It was donated to the nation in 1823 by George IV as part of a settlement with the government of the debts which he had run up while Prince Regent, and acquired by the BM in 1825.[8] While this approach is unlikely ever to set a precedent for regular acquisitions, the idea of donating collections to the Museum as a payment of dues to the State remains valid, and there have been a number of donations made in more recent times in lieu of death duties.

Some areas within the expanding collection come as little surprise. The prevalence of Greek and Roman coins reflects a wider collecting in interest in classical antiquities, while the heyday of European colonialism provided opportunities not only for the acquisition of the currency of the colonial powers, but for the collection of indigenous coinage and antiquities from around the world by European soldiers, administrators, missionaries, businessmen and adventurers. It would be anachronistic to apply modern ethical standards to collecting within this period, but the colonial period undoubtedly benefited many private collectors and, in turn, the British Museum and other museums. Although there is no evidence for a conscious strategy to create a global collection of coins, this nevertheless developed naturally as a consequence of Britain's global influence at the time

However, the collecting of post-classical British coins contrasts with the substantial neglect before the late 19th century of British antiquities. While the late 18th and 19th centuries saw the development in many countries of national museums of antiquities, the British Museum never formally had that role, and the acquisition of medieval antiquities was comparatively neglected, reflecting a broader 19th-century view of the Middle Ages as a regrettably backward interlude between the more civilised periods of the Roman Empire and the Renaissance. Hawkins made some attempt to address this, and this was taken further by Augustus Franks in the latter part of the century. Even so, when the Department of Antiquities was divided in 1861, British and Medieval Antiquities only formed a sub-department, somewhat bizarrely placed under Oriental Antiquities. The greater attention paid to the British coins probably reflects in part the fact that they had been well represented in the founding collections. In a period in which the Museum was dominated by the library rather than by antiquities, the status of coins as historical texts may have helped a succession of Senior Librarians to recognise their importance. Even so, coins could be damned by association with antiquities, and coins (including the so-called Liudhard medalet, the earliest identifiable Anglo-Saxon numismatic production) were amongst the collection of Anglo-Saxon antiquities formed by the Rev. Bryan Faussett, and rejected for purchase by the Trustees in 1853.[9]

Medals, portraying and/or commemorating a wider range of individuals than coins, and in some cases also commemorating specific historic events, groups and societies, provided an even more explicit source of historical information. This is reflected in the title of Edward Hawkins' monumental *Description of Medals Illustrative of the History of Great Britain –Numismata Britannica,* although Hawkins' interpretations of the history that they illustrated were sufficiently partial and controversial for the volume to be withdrawn from publication at the last moment by the Trustees in 1852, only appearing (with substantial posthumous revisions) in 1885.[10]

Hawkins' anti-Catholic views should not distract us from his systematic approach. His own collection had been built up on the principle that 'As his object in collecting was historical, Mr Hawkins could not afford to allow any medal to pass away and consequently when obstacles opposed its acquisition for the Museum, he purchased it for himself.'[11] A similarly systematic approach can be seen in Franks, who had the job of incorporating the Hawkins collections and for sorting through it for duplicates. He noted that 'The least difference however, of die or metal, has been considered a sufficient reason for retaining two specimens otherwise similar', and went on to argue that with such a well-represented series, it was desirable for the Museum to complete it as far as possible.[12]

This concept of completeness runs through much of Hawkins' work. The Cuerdale hoard of 1840 contained around 7,500 coins in total, in addition to the non-numismatic material, and although probably a few hundred coins had been stolen before the hoard was delivered to the British Museum (including some rarities), it seems clear that Hawkins studied those that he received systematically. Much of the hoard was dispersed to other museums and private collectors, but the selection made by Hawkins for the BM seems to have included an example of every type, and probably every die, represented within the portion of the hoard which he saw (almost certainly the vast majority), although his publication of the hoard does not include so much detail.[13]

This approach has subsequently been applied across many different series, with a view to filling gaps in the existing collection where possible but not collecting duplicates except where there was an argument for keeping an entire hoard or archaeological assemblage intact. This approach thus informed the selection of coins from some of the larger hoards; the identification of duplicates for disposal, usually by exchange with other museums or private collectors; and the selective purchase of individual coins or collections as opportunities have arisen. This means that the department, in addition to acquiring what some colleagues have been known to describe as 'sexy' coins, has often acquired coins which may not be spectacular in themselves, but which add to our knowledge and understanding of the relevant series. The first coin

acquired by the new department in 1861 is a case in point. Although it is hardly an exciting coin, it is a nice example of a Henry VI halfpenny, and presumably filled a gap at the time.

Hawkins's work on Cuerdale also reminds us of another important element in the building of the collection in the 19th century (and up to the present day). Cuerdale was one of the first hoards to be recorded after the tightening in 1838 of the medieval laws of Treasure Trove, according to which ancient finds of precious metal are the legal property of the Crown. Even after 1838, the law was not always rigorously enforced, but prior to this there had been a complete lack of control. The important hoard found at Crondall in Hampshire in 1828 (still today the only major hoard of Anglo-Saxon gold coins) was never formally reported, and remained in private hands until its acquisition (apart from a few pieces which had disappeared) by the Ashmolean Museum a century later. Even more remarkable was the Tutbury hoard of Edwardian sterlings found in 1831. This was the largest hoard ever found in Britain, and probably contained around 360,000 coins in total. Hawkins, responsible for recording those which were officially recovered, was able to catalogue a mere 1,489 of these as the rest had disappeared.[14] The Museum would never, of course, have acquired the whole hoard, but the lost opportunity for study probably influenced the decision a few years later that the law should be applied more rigorously.

Acquisition after the creation of a separate department thus continued according to established patterns and principles, and the shape of the department's collecting policy since 1861 probably owes more to the example of both Hawkins (whose retirement in 1860 prompted the division of the department of Antiquities) and Franks (who was formally a member of another department from 1861 onwards) than of the department's first Keeper, W.S.W. Vaux. Tickets marked only with 'Found in Mr Vaux' table' provide some of the less impressive provenances for coins in the collection, although some of these can, in fact, be identified as registered coins acquired around this time.

The department continued to grow through a combination of both large and small acquisitions, across a variety of areas. Almost immediately after the department was formed, it received a major donation in the form of the de Salis collection of Roman, Byzantine and post Roman European coins (1861), and in the course of incorporating this into the main collection, de Salis himself arranged the Roman coins as a systematic collection. The department also benefited from two major institutional donations, gaining the collections of the Bank of England (1877) and the India Office (1882). These were joined in the late 19th century by the collections of Woodhouse (Greek, 1866), Wigan (Roman gold, 1864 and Greek 1877), de Blacas (Roman, 1866), Freudenthal (copper coins, tokens and tickets, 1870), Cunningham (Bactrian and Indian 1888, and Hindu 1894), Elliot (Southern India), Pandit Bhagvanlal Indaji (Indian, 1889) and Franks (British, 1893). The 1880s saw the arrival of the most important elements of the Museum's collection of Japanese coins, from the Morse, Gardner and Tamba collections.[15] The period also saw significant additions to the British series through Treasure Trove, including selections from large hoards from Eccles (1864, Short Cross), Chancton (1866, Edward the Confessor) and Stamford (1866, late medieval groats), but Treasure Trove was still not working as effectively as it should have, and a number of major hoards either failed to come to the BM at all (e.g. Sedlescombe, 1876, Edward the Confessor) or came via private collectors, like the large group of late Anglo-Saxon and Norman coins from the (considerably larger) Walbrook hoard of *c.* 1872, acquired by E.H. Willett and donated to the Museum in 1876.[16]

The latter part of the 20th century saw fewer substantial acquisitions, probably reflecting in part the fact that there are fewer large private collections being formed, as well as reduced resources for purchase when major collections do come up for sale. Exceptions include the Hersh bequest of Greek and Roman coins, and the acquisition of a number of hoards of all periods, including the Fishpool hoard of late medieval English gold, and the massive Cunetio hoard of late Roman bronzes. However, the earlier part of the century continued to see the same sort of expansion as the late 19th century, with further institutional donations of collections of gold coins, mostly English and Anglo-Gallic, from the Worshipful Company of Goldsmiths. There were also further additions of significant private collections, interspersed with smaller acquisitions in between. Major additions include the bulk of the collection formed by Sir John Evans (English, 1915 and Iron Age, 1919), plus the Van de Bergh (Islamic, 1911), Seager (Greek, 1925), Weightman (English proofs and patterns, 1926), Clarke-Thornhill (assorted, 1934), Barnett (British, 1935), Lloyd (Greek, 1946), Farquhar (British coins, medals and para-numismatica, 1953) and Armitage (assorted, 1956) collections.[17]

2. The Present

Collecting in recent decades has seen changes to the collecting policy of the department, and of the Museum in general, in a number of respects. These partly reflect external factors, and partly a conscious choice to take a broader view of what a numismatic collection should contain. A major limiting factor has been the development in a number of countries of laws restricting the export of antiquities, and the introduction of the UNESCO convention obliging signatory states to respect each other's antiquities laws, with a cut-off date of 1970. Although the UK did not sign up to this convention until after the recent invasion of Iraq, the BM had signed up to the principle much earlier, in common with the Museums Association and most leading museums in the UK. This has meant that series such as Ancient Greek coins which have traditionally been major priorities in the collection can now be acquired only when documented pre-1970 collections come up for sale. This also limits collecting in the Asian, Middle Eastern, Byzantine and medieval European series, amongst others, and to some extent in the Roman series, although the department still collects Roman finds from Britain. At the same time, where the modern collection is concerned, there is a consciousness of our role as a global museum, and we actively collect coins and paper money from countries around the world, so that we continue to build modern collections from countries from which we can no longer acquire antiquities. Much of our global collecting is opportunistic, relying on the generosity of issuing authorities in supplying samples of their currency, or on members of the department, friends and colleagues donating left-over foreign currency after trips abroad.

However, there has also been a strategic concentration on building collections in geographical areas which have

previously received little attention, and this has formed a component of the Money in Africa project.

Other shifts in museum practice have also limited our ability to collect. One such area is the repositioning of the BM in relation to regional museums. Whereas in the past there was a presumption that the BM was the obvious home for finds of national importance, and that the BM should certainly have first pick of Treasure Trove, there is now much more of a sense of a single dispersed national collection, held both by national and regional museums. The pendulum has swung in the opposite direction, and there is if anything a presumption that regional museums rather than the BM will have first pick of Treasure cases. Even finds of national importance, such as the Patching hoard (the only major Roman hoard of the late fifth century from Britain, acquired by Worthing Museum) have gone elsewhere, while others such as the Vale of York Viking hoard have been acquired jointly, creating practical and administrative problems to balance the undoubtedly positive opportunity to ensure that such finds are made available to the public in their local areas as well as in the BM. The recent massive public response in the West Midlands to the Anglo-Saxon gold hoard from Staffordshire (if perhaps incomprehensible to numismatists, given the absence of coins) shows the depth of public interest in the regions, and in our role as 'national resource' rather than 'national collection' this is something which the BM can only encourage, if with the occasional wistful thought about the ones that got away.

In addition, the practice of exchanging so-called duplicates provided an opportunity in the past to fill gaps in the collection in exchange for items which were already represented, but there does not always seem to have been strict control over what constituted a duplicate, leaving the possibility that valuable information may in the past have been lost to the BM. Even where coins can be shown to be die duplicates, the scope for detailed numismatic and metallurgical analysis is lost when a coin is removed. Furthermore, there is the principle of keeping archaeological finds together where possible, and many duplicates for disposal were in the past selected from hoards. Although collectors, and perhaps even some curators, may lament the move away from exchanges, this is definitely a step forward in terms of good museum practice.

This means that disposing of valuable 'duplicates' is not a viable solution (as often suggested by collectors) to another limiting factor on acquisition, which is the massive reduction in the financial resources available to the BM for this purpose. Whereas in the past the BM received a separate dedicated grant for this, the acquisition budget has long since been rolled into the main grant-in-aid, which itself has been severely reduced in real terms since the 1980s. At the time of writing, the current round of cuts in public spending means that the amount available for acquisitions has reached a new low, but this has been an issue for some years. With coin prices continuing to rise, large hoards are increasing unaffordable, and even a single coin, if rare enough, can sell for more than the Museum's entire annual acquisition budget. The department is indebted to the generosity of a number of funding bodies for enabling us to continue to make significant purchases. The British Museum Friends have been a regular source of support over many years, as has the Art Fund (formerly the National Art Collections Fund), while the National Heritage Memorial Fund has been a major source of support for more expensive acquisitions such as the gold mancus of Coenwulf of Mercia in 2006 (also supported by the Goldsmiths Company Charity), or the Vale of York hoard in 2009.

The ability of the department to continue to collect has also been enabled by the generosity of individual donors, contributing to the cost of larger purchases, or donating either the cost of individual coins, or in some cases donating the coins themselves. This is particularly important because of another external factor which affects our acquisition policy. The growth of metal detecting as a hobby since the 1970s has meant that new coin types have been discovered at an unprecedented rate. This is true across most areas of coinage which can be found in Britain, and probably most of all for the Iron Age and for certain of the Anglo-Saxon series, as both periods saw multiple rulers issuing coins, and therefore a greater range of types being issued at any one time. The new discoveries, coupled with the cost, mean that it is increasingly impossible to maintain a fully representative collection. At the same time, and more positively, the greater body of finds means that we are more likely than ever before to have opportunities to fill gaps in the collection, including gaps which we never knew existed, such as new types, moneyers, and even (more rarely) rulers. With this in mind, the department has chosen to mark the 150th anniversary by the creation of a British Coin Fund, to help cover the cost of acquiring interesting gap-fillers for the collection which cannot be afforded through the Museum's acquisition funds, but which are too small to attract the support of the major external funding bodies.

Another positive change is that the restrictions on collecting in some areas have been balanced by the broadening of other areas of the collection, a process shaped by the conscious decision of the Museum to introduce the specialist curatorial posts necessary for this. The presence of a dedicated curator of medals since 1974 has ensured that this part of the collection has grown enormously in both size and representative reach.[18]

This is also true of the department's holdings of paper money, which are now a significant and constantly growing element, including early examples from both the eastern and western traditions, a wide variety of historic banknotes, and examples each year of the latest issues of a variety of national banks. A particularly important recent acquisition was the donation to the department of around 40,000 thousand banknotes in 2009 (processing is still ongoing, hence the lack of an exact total) by the ifs School of Finance, formerly the Chartered Institute of Bankers. Their collection had been on deposit in the department since 1987, and complements the department's existing collection in many areas, although there is inevitably some duplication. Its acquisition brings the total collection of paper money in the BM to around 80,000 items, making this one of the largest collections of paper money in the world. In addition to paper money, the department now has a growing collection of credit cards and other means of payment, and a wide variety of objects relating to the manufacture, use and storage of money in its various forms. This reflects the wider re-orientation of the department to include monetary history in its research and displays as well as more traditional object-focused numismatics.

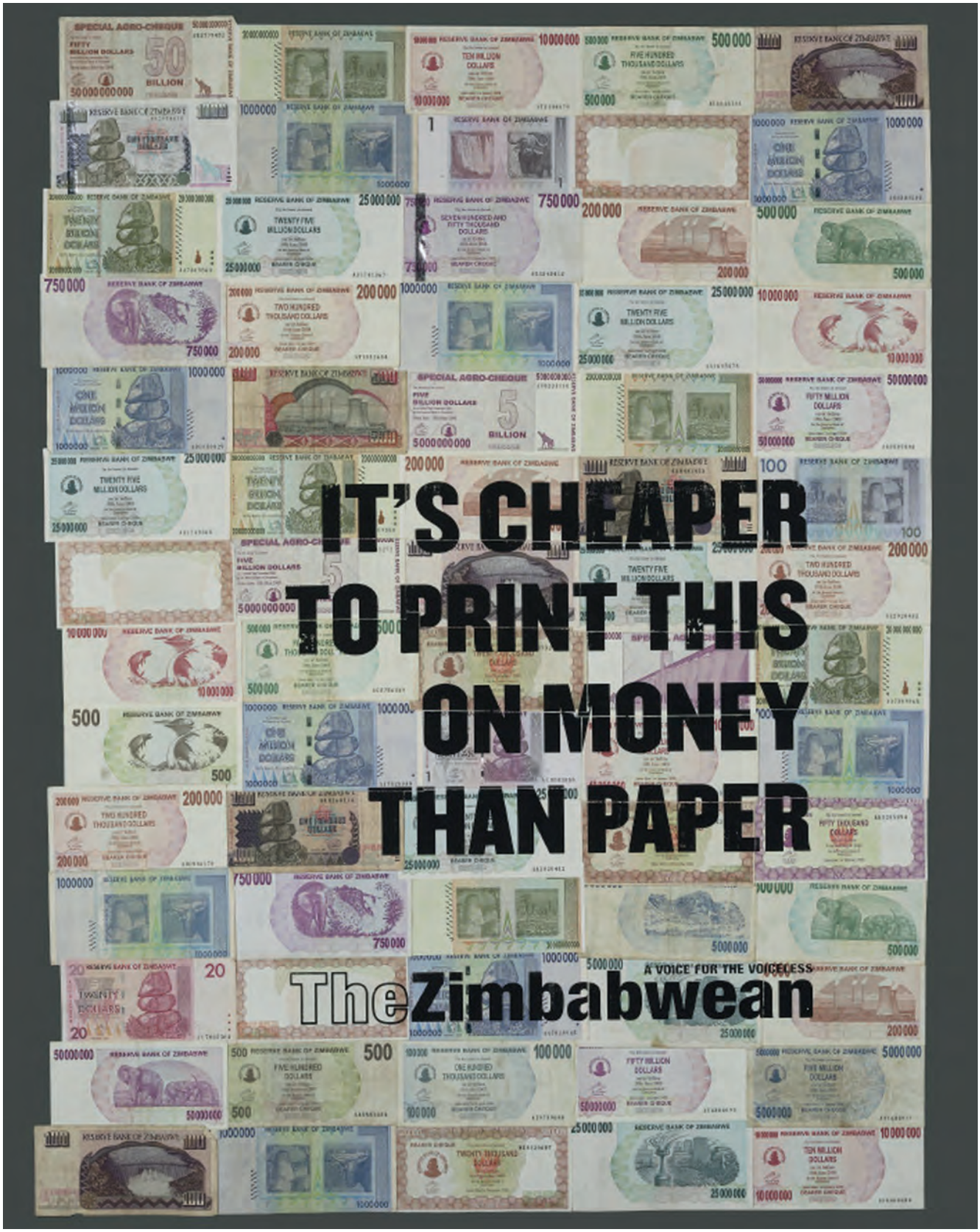


Plate 3 Poster made of Zimbabwean banknotes, 2009 (©TBWA/Hunt/Lascaris)

With that in mind, the department also collects items which provide insights into monetary history, both past and present. A poster for *The Zimbabwean* newspaper, showing large numbers of Zimbabwean banknotes with the message 'It's cheaper to print this on money than paper' provides a compelling visual image of recent Zimbabwean hyperinflation (**Pl. 3**). The collection also includes both toy money as well as pseudo-money made for collectors. Some recent examples show the narrowing of the boundaries between money as currency and money as a collectable item in its own right with special coins that are technically legal currency in a number of small states, but which have bizarre forms, such as the teddy-bear shaped 1 dollar from the Republic of Palau or the 5-dollar coin from the Cook Islands which contains an inset fragment of a lunar meteorite.



Plate 4 'Barbie' cash-register complete with credit card.

Toy money can also reflect monetary history. While one can imagine past curators such as Hawkins or Grueber turning in their graves at the thought of the department acquiring a 'Barbie' cash-register complete with credit card (**Pl. 4**), such an acquisition reflects more than taste for kitsch. This widely available toy, aimed at children from the age of three upwards, always accepts payment, and the card is never rejected. It would be a little unfair to hold the manufacturers of Barbie solely responsible for the current economic crisis, but the toy certainly familiarises children from an early age with the idea of borrowing without thought of the consequences, and acts as a reflection of a society in which both irresponsible lending and irresponsible borrowing had become widespread.

A final area of the collection to have developed from almost nothing in recent decades is the badge collection. At first sight, badges have little in common with coins and medals other than the fact that they are typically round and carry inscriptions. Nor, in most cases, do they have any particular monetary associations. However, they share with both medals and tokens (and to some extent commemorative coins) the characteristic that they are fundamentally portable public documents of particular events, associations and affiliations, and causes, and as such they provide important records for both social and political history. Political badges are of particular interest, as badge-wearing has been a popular expression of attitudes for and against specific causes since the 1960s. A badge of the Countryside Alliance from 2002 shares with a token of Thomas Spence from 1796 a demand for 'Liberty' (**Pl. 5**), and while Spence's 'seditious tokens' (as many are labelled on their original tickets in the trays) were concerned with Rights of Man somewhat more fundamental than the right to have foxes torn to pieces by dogs, the incorporation of such pieces in the collection reflects the replacement of tokens and medals by badges as one of the main material representations of popular sentiment. A good demonstration of the potential significance of this material is the groundbreaking survey and catalogue of the museum's Chairman Mao badges, published in 2008.[19]

Broadening the collection into these new areas is not without its issues. Plastics and paper raise different conservation issues for both display and storage in a department whose collections are largely made of metal. Furthermore, there are security issues associated with some of the modern forms of money not associated with coins and medals. In the case of paper money, even basic record photography, a standard element in collection documentation, risks falling foul of anti-forgery legislation. Monetary forms such as credit cards and cheques carry personal information and account details which may still be current, even if the object itself is expired, which means that such items have to be stored with more restricted access than other items in the collection, leading to the somewhat bizarre situation that a member of the department who had donated an expired credit card to the collection would not normally have access to the card except by special arrangement, on security grounds.

3. The Future

The other key element of collecting today is that, like our predecessors, we are consciously collecting for the future. We still aim, within the constraints already discussed, to build representative collections of world currencies both past and present. In doing so, we have to strike a balance between filling gaps in series which have historically received less attention than others, and building a positive and ethical relationship with museums elsewhere, especially those in developing nations. A case in point here is the Money in Africa research project, part of a wider development in recent years to give Africa more attention and a higher profile within the BM than its has sometimes received, both through exhibitions and publication. On the one hand, this has meant that the department has set out to acquire additional African material





Plate 5 Badge of the Countryside Alliance, 2002, and 'seditious token' by Thomas Spence, 1796; although the specific causes are different, both objects protest government interference in the personal liberties of the population



Plate 6 Medal of Joe Cribb, Keeper of Coins and Medals 2002–10, by Linda Crook, 2010

to support this project. On the other, the project has also involved developing a network of collaboration with a number of museums in different African countries, including the provision of guidance and support in building their own numismatic collections. While this network provides opportunities for the BM to acquire additional contemporary material, there may be occasions when it would be preferable for the BM to help build a connection between a nation bank and a museum in the same country or region rather than simply to build connections to acquire the same objects ourselves. Of course, it need not be a question of 'either/or', but the BM has attracted enough criticism in the past for its imperialist acquisitions for us to take such issues seriously when acquiring in future.

Gap-filling remains an issue for the future: it is harder to know what the gaps will be. This requires a certain degree of second-guessing as to what future generations may consider important from our own time, so that we acquire objects at the point at which we have established that they are worth collecting, but also when they are at their most affordable. This might be after an item has ceased to have a direct monetary value of its own, but before so many have been thrown away or destroyed that surviving examples are rare enough to become collectable in their own right. Examples here would be telephone cards. Ubiquitous in the 1980s and early 1990s, they quickly became obsolete when mobile phones became widely affordable. Likewise both banking mergers and banking crises have meant that a number of once-familiar banks have disappeared in recent years. There are probably already younger adults who cannot remember a time when there was a Midland Bank on almost every High Street, or that it was possible for a high-street bank to advertise itself, apparently in all sincerity, as 'the listening bank'. A credit card or cheque provides a permanent record of that bank's existence.

Something similar applies to collecting medals. The department's collection has always contained a mixture of historical and art medals. As historical documents, we need to continue to acquire medals which reflect significant events, where these exist. Here, however, the role of the commemorative medal faces increasing challenges from other forms of memorabilia. Commemorative china has been long established, followed by items such as tea-towels and t-shirts, but as shown by the impending royal wedding, commemorative medals now face competition from an ever wider range of tat. While royal wedding condoms and sick-bags may arguably have something in common with the tradition of satirical medals celebrated in the 2009 Medals of Dishonour exhibition, they are too remote in form from traditional medals to be acquired by the BM, at least as part of the medal collection.

By contrast, the art medal continues to thrive, and here it is important to collect a representative cross-section of different artistic approaches to medal making. While some medals consciously reflect traditional medallic forms, such as Linda Crook's 2010 medal celebrating Joe Cribb's keepership of the department (**Pl. 6**), others do not do so at all, and small pieces of sculpture and conceptual art in a wide variety of forms now carry the label (**Pl. 7**).

In the absence of a formal definition of the art medal, it seems that an artwork is basically considered to be an art medal if the artist chooses to say that that is what it is. This means that it is necessary to make subjective choices, given that we cannot afford to be fully representative, about which medals best represent medallic art of the present, and which the Museum should preserve for the future. It is also important to second-guess the artists who will turn out in hindsight to be interesting (possibly because of their achievements in other media more than as outstanding medallists). Even if the judgements made today are not shared by the art historians of the future, it may be useful for those art historians to see which medallists were considered to be worth collecting at the time and what these medals say about contemporary attitudes to a range of issues. Here again, relatively small investments now may ensure that we have the collections in place to support the exhibitions and research and public enquiries of the future. Here again, completeness is not possible, so we have to be consciously selective in acquiring with an eye to the future,

especially as many art medals are made in very small editions and will then be expensive or unobtainable. Whether those selections are correct, only the future will tell.

A final challenge in collecting for the future is that such a small proportion of the money supply now has the physical form of coins or paper money. A large amount of nominal money is tied up in stocks and shares, and we could actively collect stock and share certificates. Unfortunately, however, the cost of doing so in any systematic way is prohibitively expensive. Collecting means of payment, such as cheques, credit cards and other payment cards is more affordable, and will doubtless continue. However, the vast bulk of today's money has no physical form, existing only as numbers on computer screens. Again, it is possible to collect physical objects relating to making payments in e-money, including appliances such as the LAKS PayPass 'Smart transaction' wave-and-pay watch acquired by the department in 2010.

E-money itself is less tangible. This applies to both official currency, and to currency functioning within the growing corpus of online communities such as Second Life and World of Warcraft. Virtual currencies have genuine monetary functions within those communities, games, etc., even if the items and services purchased with them are also virtual. The fact that it is possible in some cases to transfer these virtual game currencies between players even means that there are monetary transactions between 'real' virtual money, and between the virtual money of these imaginary worlds. Such a fundamental development within money certainly deserves to be represented within the department's collection, but how do we collect it, and what do we do with it once we have it? Money with no physical form has certain advantages from a curatorial perspective. It doesn't require storage space, and has no associated conservation worries. It is less satisfactory both in terms of public display and in our ability to make it conform to documentation standards designed around physical objects. There is also a barrier to acquisition of some virtual currencies in the potential conflicts between software companies' terms and conditions, and our need to establish clear legal title. Even so, e-money is now such an important element in the money of the present, and (probably) the future, that we should find ways to reflect it in the collection, but to do that effectively we need to find ways to collect it which provide an appropriate museum record.

That said, e-money is unlikely to represent the whole of the future of money. Recent economic problems have emphasised the artificiality of a monetary system based, effectively, entirely on confidence, and it is likely that there will continue to be a demand for something more tangible, even if coins and paper money have only a token value. There will be future coins and other monetary items to collect, and I have already mentioned the continued strength of the medal as an art form, and the continued discovery of new finds from the past. As long as coins and medals, and other numismatic and paranumismatic items continue to be produced, or used, or even dug up from the ground as a hobby, then it will continue to be the role of the BM to collect them for the studious and the curious of future generations.



Plate 7 *A Minute of My Time*, Micah Lexier, 1997: installation consisting of a steel cashbox containing a hoard of several hundred identical struck cupronickel coins, each with an abstract linear design on one side and an inscription on the other

Notes

1 Archibald 2006, 172.
2 Such as the unique gold mancus of the moneyer Pendræd which had been removed from the Cotton collection by an unknown hand before it came to the British Museum, but which was recognised and re-united with the Cotton collection through the generosity of Christopher Blunt.
3 Miller 1974, 65
4 Miller 1974, 100
5 Archibald 2004
6 Hill 1922, 9–11; Walker 1953, 76–8
7 Syson 1997, 297. Hawkins' collection was around three times the size of the existing collection of British medals, so this was a significant addition.
8 Hill 1922, 10; Walker 1953, 76; Pagan 2003, 158.
9 Wilson 2002, 132
10 Syson 1997, 296–8.
11 Hawkins' self description, although in the third person, quoted in Syson 1997, 297.
12 Syson 1997, 297–8,
13 Hawkins 1843; Blunt 1983; Williams forthcoming. It is clear that a number of rarities were illegally abstracted from the hoard by the collector John Kenyon. Others were held back by the landowner's representative, and although these were added to Hawkins' publication, they were not added to his selection for the BM, but were returned to the landowner, William Assheton. Through the generosity of his descendants, Lord Clitheroe and the Hon. R.C. Assheton, the Assheton coins from Cuerdale have been placed on long-term deposit at the BM, making a more complete representation of the hoard available for study.
14 Hawkins 1832; North 1995; Kelleher & Williams forthcoming.
15 For a discussion, see Sakuraki *et al.* 2010, 3-4.
16 Hill 1922, 10–11; Walker 1953, 76–8.
17 Walker 1953, 76–8.
18 For an analysis of one area of medal-collecting, see Attwood 2008.
19 See Wang 2008.

Part III

Impacting on the Scholarly Community

New Histories of Central and South Asia

The Role of Numismatics

Robert Bracey, Project Curator Kushan coins, British Museum

This paper is a personal reflection (short on references, long on opinion) on what the numismatist does and how this is relevant to South and Central Asian history.[1] It consists of two parts. The first is a description of work that I think is important, and an attempt to justify this in terms of how it contributes to history. The second are disconnected musings on the current challenges that face numismatists contributing to South Asian history.[2] My opinions have developed in my time as a Project Curator with the Department of Coins and Medals at the British Museum. During that time I have worked specifically on the coins of the Kushan dynasty and taken general responsibility for pre-Islamic material from South and Central Asia, a section I will reference as the South Asia collection. In developing my thoughts I have found it useful to think about the collection's past.

By 1873 the British Museum had acquired a significant collection of South Asian coins as a consequence of the expansion of British imperial interests in India and Afghanistan. This was recognised by the department's second keeper, Reginald Stuart Poole. On 6 November 1873 Poole wrote to the Trustees to propose the creation of five volumes of catalogues to cover the whole oriental collection. The importance which he attached to the publication of the collection is summed up in the conclusion of his letter:

> Mr Poole earnestly hopes that the Trustees will favourably entertain this proposal by which a fresh step could be taken towards the completion of the Catalogue of the National Collection of Coins, and at the same time a welcome addition made, at a very moderate cost, to the books of authority on numismatics.

Unusually, at the time, Poole had out-sourced the first catalogue on the coins of the Sultans of Delhi to Stanley Lane Poole, who completed it in 1884. At that time the plan was for Reginald Poole himself to publish the volume on the coins of the Mughal emperors and other Islamic material, though Stanley Lane Poole in fact completed both volumes in 1885 and 1892. The ancient coinage was allocated two volumes, to be undertaken by Percy Gardner. Gardner had worked extensively on the Greek catalogues and did complete the volume on the coins of the Greek and Scythic kings of Bactria and India before he left the department in 1887. He was replaced by Edward Rapson, who published the planned fifth volume in 1908. These publications did not achieve Poole's goal 'that the Catalogues should represent the whole Collection as nearly as possible at one time'. New material was acquired on a regular basis. Two more catalogues were produced by John Allen. The first in 1914 on the Gupta dynasty was made necessary by the acquisition of the extensive collection of Nelson-Wright and a final catalogue, covering those ancient states not covered by Rapson, appeared in 1936.

Despite these publications some sections remained unpublished (Nepal, South India) and many others continued to be extended until the original publications represented only a fraction of the holdings. So in 2010 the 400 or so Kushan coins published by Percy Gardner in 1884 represented less than 10% of that series. It is in this context that the South Asia collection is being subjected to a new period of cataloguing. The new catalogues will exist in a virtual world, which makes them available to the widest possible audience at the lowest possible price. Unlike their print predecessors, there is no need to publish cumbersome supplements or to ignore new acquisitions, nor is there any difficulty with parts of the collection too small to justify a volume in their own right. Hopefully it won't take 50 years this time.[3]

So cataloguing will continue to be important for the curators working on the British Museum's South Asia collection. But, however vital a step they are in the process, catalogues do not contribute anything to history in and of themselves. They are just collections of data and do not alter how historians think about the past, or the stories they tell about the past. It is not new evidence but new ways to look at evidence that create new histories.[4] And at the root of all new interpretations are the source specialists (in this case, numismatists) who interpret that evidence.

Here I want to illustrate two approaches to the understanding of South Asian coins which have had a transformative effect on the stories told. These examples will be drawn from the coinage of the Kushan empire. The Kushan dynasty ruled an empire from central Asia to northern India, from the middle of the 1st to the 4th century AD. This period reflects my expertise, but I suggest that the lessons to be drawn are broadly applicable to South Asian numismatics in general. The first technique is the die study, and the second the concepts of 'tradition' and 'metaphor'.

The die study

The die study is not a new technique. It was pioneered by Sylvester Sage-Crosby and F. Imhoof Bloomer in the 19th century and its potential demonstrated for an English speaking audience by E.T. Newell in the early 20th century. A die study consists of two parts, a corpus and an analysis based upon that corpus. The corpus is built by comparing coins to establish if the obverses or reverses are sufficiently similar to indicate they were struck by the same die. The corpus records each known die and all the extant coins struck from each pair of dies. Like type catalogues, a die corpus is not very interesting. It is simply a necessary step to make analysis possible. Several forms of analysis are possible, usually with simple mathematical or computer based tools. From these can be derived information about production such as quantity, rate, order of dies, procedure, number of workmen etc.[5]

Plate 1 (centre) illustrates a coin of the Kushan dynasty from the middle of the 3rd century AD. The obverse depicts the



Plate 1 Left, composite of a 'hu' die, Bactrian legend clockwise from 1 o'clock reading ÞAO NANOÞAO KANHÞKO KOÞANO; centre, an example of a 'pri' coin; right, composite of a 'pri' die, Bactrian legend clockwise from 1 o'clock reading ÞAO NANOÞAO KANNHÞKO KOÞANO

figure of a king who stands before an altar. Several control marks in Brahmi script appear on the obverse, 'ga' between the fire-altar and legs, 'gho' between the legs and 'pri' in the right field. Around the outside is a legend in Bactrian which is mostly off-flan. This legend is not readable from a single coin. Die studies provide a solution through examining many coins struck by the same die. As the alignment varies in each case different parts of the legend survive and can be composited together to produce an image of the original die.[6] The coin on the right shows a composite of the same die from which the legend can be read ÞAO ÞAONANO KANEÞKO KOÞANO, which translates 'King of Kings, Kanishka the Kushan' but on this particular coin 'Kaneshko' is written 'Kanneshko'. Coins very similar in type are known in which the 'pri' in the right field is replaced by a 'hu', as shown on the left of **Plate 1**. 'Hu' coins are more numerous than 'pri', representing 73% of known examples.[7] It would be tempting to attribute the coins to two different mints, or as Robert Göbl does, to two separate officials (1984: Types 634–639). For most of the Kushan period two distinct mints made gold coins. This pattern of two mints is implied by control marks, style, and types. Die studies have confirmed that the normal practice was a 'main' mint producing about two-thirds of the coinage and a 'subsidiary' mint producing the rest. As Kanishka III's coinage has the two distinct marks 'pri' and 'hu', it could reasonably be assumed that these are from two different mints, however the die study demonstrates that is not the case.

Although the number of surviving coins implies that about a quarter of production was 'pri' they were in fact struck from less than a twelfth of the dies (d_o=2, D_o=2.2), while the vast majority were made by dies with the mark 'hu' (d_o=19, D_o=25.0).[8] Two dies and less than 10% of the coins could hardly represent a separate mint. In fact, the doubled 'n' in 'Kanneshko' implies that the 'pri' dies were made after the 'hu' type. 'Kanneshko' is an error made by a die engraver; only one 'n' should be present. However, on the most numerous of the 'hu' types (a composite of which is shown in **Pl. 1 left**), the single 'n' (only one 'n' here) is located underneath the altar (just visible in the bottom left). The 'pri' dies make a different break in the word 'Kaneshko', placing 'Kan' to the right of the king's feet and 'eshko' to the left of the fire altar, but has also retained a vestigial version of the 'n' under the fire altar from the 'hu' coins. This can only be a copyist's error. The engraver of the 'pri' die has written the legend correctly but he has copied the element underneath the altar without realising it is the 'n' of the legend he has already written. To do that he would have to work at the same mint because you cannot copy all of these details from a surviving coin (we need to composite the coins to see these details), so the copyist would have to have seen the original die or its prototype.

So coins naming Kanishka III were issued from a single mint. More than this can be said. From previous studies it is known that Kaniska III's coins followed those issued with the name BAζHÞKO, or Vasishka. Kanishka III's coins are followed by those naming Vasudeva II. It is a little more complex than that, both Vasishka and Vasudeva II issue coins from two mints. Once we establish that Kanishka III intervenes in only one of these two production centres, then a clearer picture emerges.

The realisation that these coinages in the name of Kanishka are issued from a single mint has implications for the chronology of the period. Both Vasishka and Vasudeva II (the kings normally seen as predecessor and successor of Kanishka III) produce coins at two mints. Vasishka has two mints; when he dies the mints stop making coins in his name, and one mint produces coins in the name of Vasudeva II, while the other mint makes coins in the name of Kanishka III. We know this because all of the Kanishka III coins are made at a single mint. After a period of time the mint producing coins in the name of Kanishka III starts producing coins in the name of Vasudeva II. So Vasudeva II and Kanishka III are contemporaries who both succeed Vasishka. The whole of the Kushan coinage can be placed in order by repeating these sorts of technical analysis. From the order of the coins can be established an order for the political authorities in whose names they were issued. Kanishka III succeeds Vasishka who succeeds Kanishka II who succeeds Vasudeva I. The order thus established helps us to interpret other evidence, such as religious inscriptions.

Mathura, located between Delhi and Agra, was a major religious centre in the Kushan period. As a religious centre, it was common to make dedications there, and many survive from Buddhist and Jain monasteries. These usually take the form of inscriptions on stone panels or sculptures. Local fashion in dedications was to provide a date and the name of the current king. If we were to place the names on those inscriptions in order of dedication date they would be; Kanishka, Vasishka, Huvishka, Kanishka, Vasudeva. This is surprising inaccurate; according to those dates Vasishka and Kanishka III would predate Vasudeva I. For a long time Kushan

history was reconstructed on this basis, even though it had been realised by two scholars, Lohuizen (1949) and Rosenfield (1967) that the series of dates at Mathura actually consisted of two or more series superimposed on top of each other. Yet without independent evidence, there was no way to establish which inscriptions belong to which sequence. The order of kings derived from the coins provides that evidence. It allows some inscriptions to be dated firmly and from this changes over time can be detected. At the simplest level, the way characters are engraved can be studied, the changing forms recorded and the results applied to date other inscriptions. This had been attempted before but, without the coins to establish basic reference points, the arguments became circular or highly subjective. With the coins it becomes possible to establish those reference points, and so move on. The coins give us a new list of names; Kanishka, Huvishka, Vasudeva, Kanishka II, Vasishka, Kanishka III, Vasudeva II.

This is a period of major social and religious change. It is the moment when Sanskrit, a formal literary language, displaces the vernacular Prakrits in public records; when anthropomorphic images of the Buddha are first made; and when references to Buddhist nuns in inscriptions now cease, leaving them much less visible than before in the historical record. It was recognised a long time ago (Falk, 1979) that, prior to the Kushan period, Buddhist nuns featured prominently in construction projects but, after the Kushan period, they are almost completely absent. Nuns represent one quarter of the dedications at Mathura, including some extremely prominent individuals. Of those inscriptions which are presently firmly dated, women are restricted to the first 40 years of Kushan rule at the city, and absent from the next century and a half. This divide coincides with an apparent increase in the activity of Jain nuns at the same site. This phenomenon requires further research, but in conjunction with art and Buddhist texts it offers an insight into the gender politics of ancient India – and ultimately depends upon the die used to strike a Kushan coin.

Metaphors and traditions

The second technique of interpretation that I wish to consider is derived from a reading of an article by Joe Cribb on the Kushan coins that feature an image of Siva,[9] through the lens of the theoretical framework he has subsequently developed. Cribb has written four lengthy discussions on the understanding of coins as metaphors, and how coins act as and can be understood through metaphors of order, time, and power.[10] He has extended this thinking in two articles on the 'coinage tradition', focusing on the macro-study of Central and South Asian coins.[11]

Cribb's general notion is that coins are symbolic objects, they are metaphors for power, value or continuity, and at the same time an understanding of them is constructed through metaphors. This positions him in a debate on the way history is done, referred to as the 'linguistic turn' or inaccurately as 'postmodernism', which since the 1970s has been very active but had little impact upon how history in general, and numismatics in particular, is performed; partly because most historians have ignored the criticisms generated from these theories, partly because good historians always approached their sources in a more nuanced way than their critics have suggested.[12] The central notion, derived from linguistics and literature studies, is simply that historical facts are only understood through stories and stories are built of metaphors, not facts. These can be large tropes, creating totalising narratives for historical events that are tragic, comic, or heroic. They can be small analogies that simplify problems by treating one part of the story, such as the people who appear in our sources, as representing the whole of society. The linguistic turn does not represent a value judgement, a suggestion of how historians ought to think, but rather an argument that other way of thinking are impossible. Stories, this approach argues, are just the way we reconstruct the past. So the approach Cribb takes is an alternative only in the sense that it acknowledges a process that all historians already engage in, but of which they are often unaware.

By way of example, P.L. Gupta, a prolific and skilled scholar of Indian numismatics describes the value of coins as follows:

> They provide an almost unparalleled series of historical documents. They conjure up before us the life and story of those who had issued them. They weave the texture of history into their being and do not simply illustrate it. They furnish us true information. In India we do not possess much literature of ancient days which may serve us as historical evidence in the modern sense. Such of it, as we have, does not reveal many facts about the rulers, their names, dynasties, their thought and actions. But we find these facts well illustrated in many instances on or coins. So coins have a great importance for us for the study of the history of our land.[13]

Gupta's approach might be considered the alternative to thinking about history in terms of metaphors and narratives, just the facts without the woolly theorising. In fact it is built, largely unconsciously, around a theory. Known in foreign policy studies as the rational actor model, it is the assumption that states behave as if they are individuals. That individual in the ancient case is usually the king, so, as Chattopadhyay's describes:

> Wema Kadphises is represented with head turned towards right. We do not think that this representation of the king is whimsical or meaningless. It may be that the king looks to left when he attends to the affairs of the west; and when he look to the right it symbolises his aggressive attitude towards the East. While Kadphises II was conquering territories in India, there might have arisen some administrative troubles in his western territories. Naturally, in the midst of his campaign in the direction of the East, the king had to turn his attention towards the west. Or, again, it may be that after his conquests in the east, he came back to his original kingdom but was still alert in maintaining his supremacy over the conquered territories.[14]

The king is the state, and the state is the king. In Cribb's terms this is a synecdoche in which one part, the king, represents the whole.[15] The metaphorical thinking is deeper than that because not only does the king become the state ('Kadphises II was conquering', 'he attends to the affairs', 'maintaining his supremacy'), but the coin also becomes a manifestation of the king (the image literally turns as the king does so in a very different sense). Where Gupta's metaphor simplifies, Chattopadhyay's actually confuses, causing us to forget the complex interactions that actually existed in a state.

There is nothing wrong with metaphor. It greatly simplifies the analysis of ancient states, particularly when we have no evidence for internal court dynamics, to pretend that the king and the state are one. The point is to make clear that even apparently straight-forward observations are underpinned by



Plate 2 coin of Vasudeva with deity on the reverse (private collection, C186)

metaphors – and sometimes, as for example when those assume that the king's actions are manifested through his portrait, they are not helpful ones. Metaphors and stories are part of history; it is easier to keep the useful ones and discard the others, if we remain aware of their status as metaphors and stories; making the metaphors consciously part of the analysis, rather than an unconscious part of the process.

Cribb employs the same metaphors through his writing. For want of evidence it is often simpler to conflate the king and the state, saving space and time in an argument. At the same time he draws attention to those metaphors, and has tried to make numismatists more aware of the role metaphors, analogy, and narrative play in their reconstructions. It is easy to get carried away in telling a good story, so it is essential to remember that we are telling stories.

On the coins of the Kushan empire there is one image, introduced in the reign of Wima Kadphises, on which a great many stories are built. This god, wearing an ascetic's string and a dhoti, always holding a trident, frequently multi-headed or multi-armed, is shown in **Plate 2** from a gold coin of the sixth Kushan emperor Vasudeva I, who ruled from *c.* AD 190–230. By the god is a label which says simply 'Wesho' in Bactrian. To any student of Indian art the similarity to medieval and later depictions of the Hindu god Siva is striking. And so, by analogy, the god on the coins has been identified as such. It is an obvious assumption to make. However, Siva seems out of place in a coinage which contains so many apparently Iranian or Hellenistic deities. And the question to which Cribb has addressed himself - a long debated one in Kushan studies - is just who is this god with the trident.[16] Is he Siva or some-one else ('Wesho'), or perhaps is his identity more complex in a mixing pot of Indian, Iranian and Hellenistic culture.

The favoured explanations have been that 'The heterogeneous religious elements in Kushāṇa coinage betray also an eclectic attitude of the Kushāṇas towards religion', or that the kings were using an international range of images to promote trade.[17] When the pantheon is replaced by Wesho alone in some reigns, it is assumed that the issuing kings were devotees of Siva, that they had 'become more sectarian in their religious policy than their forbears'. Robert Göbl went so far as to suggest that the empire was divided along religious lines in the 3rd century, between an Ardochsho (Kushan goddess of royal good fortune) and a Siva faction, on the basis of different kings using different gods in their coin types. Evgeny Zeymal followed a similar line of thinking and projected this backwards, assuming that

> the opposition of the two different trends of Shaivism and their religious tolerance or intolerance, emerge as cogs in the wheels of political and social life in the Kushan kingdom as well as all the historical facts and events related to it.[18]

How we understand this single image can therefore be seen as critical to how we understand not just a political symbol, but the religious life of the Kushan Empire and the development of Siva iconography.

The analysis of the Siva-like image needs to begin from its context, the most important of which is the coinage tradition. In relation to the early work on Afghan coins by Charles Masson in Kabul, Cribb has explained how patterns of influence between coins can be detected, one copying another, and from this an order reconstructed.[19] This process of imitation, influence, or borrowing, is part of what Cribb refers to as a 'coinage tradition' but it is not a full description of it:

> The underlying processes of the gradual changes which have taken place in coinage from its origins down to the present day, can generally be tracked in this way. It is, however, easier to recognise them in the distinct series imposed on coins by the discipline of numismatics. Within each of these series it is possible to detect a thread of development, which can be called a 'coinage tradition', holding together the coinage of a region in a framework which readily locates each issue within a chronological sequence.[20]

He goes on to illustrate this with an example that links modern and ancient coinage:

> In British coinage, it is possible to see a design in current use, the royal portrait of Queen Elizabeth II and seated Britannia of the 50p coin in circulation since 1997 (the larger version preceding it was issued from 1969), a direct connection with the coinage of ancient Greece, where the portrait of Alexander and seated Athena, appear on the silver coins of the Greek king of Thrace, Lysimachus.

The imitation of individual coins by individual engravers is a reality, but the coinage tradition is a metaphor. No-one is suggesting that the British 50p was copied from a coin of Lysimachus. And yet coins behave as if the engravers were part of some sort of tradition.[21] Motifs re-appear, often centuries apart, as if some grammar or syntax restrained the designs. It doesn't matter why; what matters is that treating coins centuries apart as if they were related enhances our understanding of them. The Kushan coins belong in the Hellenistic tradition of Pakistan and Afghanistan,[22] a tradition communicated directly from Hellenistic kings and through intermediaries such as the Scythians, Parthians, and Romans. The Kushans began their coinage by imitation, as did earlier and later invaders:

> The intentions of the Yuezhi and Kujula Kadphises appear to have been to issue coins which would be readily recognised as

> successors to the coins of the peoples they conquered, and therefore readily usable in the conquered territories as money.[23]

After their initial issues they began to adapt the patterns of existing coinage to write their own message. That pattern required an authority, the king, on the obverse, and a god on the reverse. Within that there was room for the iconography of king and god to interact, so the reverse could become a play on the king's name, or the obverse could adopt attributes of the god. This can be seen clearly in the case of the Kushan coin above (**Pl. 2**). On the obverse the king holds in his left hand one trident, and above the altar at which he sacrifices is another. On the reverse is the god whose divine attribute is the trident, and in his right hand is the diadem worn by the king on the obverse. No doubt this drives interpretations of a special devotion – that a particular king was a Saivite – but the tradition does not bear this out. There had to be a god on the reverse, the tradition has no room for an alternative. And though the king makes an offering at an altar he does that regardless of the god on the reverse. The story the coins tell is written from the reverse to the obverse; the god offers the diadem; the king adopts the god's attributes (the trident). Authority and power are not exchanged: they flow from god to king.

Looking at this image through the lens of tradition doesn't tell us who the god is or why he occurs so frequently on the coins, but it does explain his function. And it places limits on our imagination, as Cribb suggests, 'the variations in coin type and image type are all in keeping with the normal variations one would expect within a coinage in the Greek tradition.'[24] The 'rational actor' approach sees all through the lens of political action: there is always an agent. It does not want to accept that sometimes coins are just made to look like coins. The metaphor of coinage tradition tells us that it is change, not conservatism, that needs explanation.[25]

As the standard interpretation has always favoured reading the god with the trident on Kushan coins as Siva, a great deal of effort has been expended trying to explain why the coins are labelled Wesho (in Bactrian ΟΗΡΟ). The dominant approach has been to identify obscure appellations for Siva and engage in linguistic contortions to demonstrate how these derive from Wesho. Cribb, however, depends upon a different proposal by Humbach, that Wesho was a version of the name Weshparkar preserved in the Sogdian appellation of the Avestan god Vayu. This has the advantage of actually sounding like Wesho; it is a better analogy than the traditional interpretations. And it seems to have some support from the coins of the Kushano-Sasanians, who give the god a title meaning 'who acts in the high regions', known to be an epithet of Vayu. It also raises a problem, expressed succinctly by Gail: 'Why would a God who, without any doubt, represents the Indian Siva on the coin images, bear the name of an East Iranian wind god?'.[26]

Answering that question requires placing the coins in a wider artistic context.

> There is a reciprocity in the questions being asked by numismatists today, as numismatists wish both to assist the investigations of other disciplines (outgoing), while at the same time enhancing the value of their own (incoming).[27]

Cribb invites us to see interdisciplinary work as a conversation. This conversation might begin by asking what it is on Kushan coins that define Wesho, what is it that identifies him? Here Cribb draws on an earlier metaphor by Evgeny Zeymal:

> The same identical attributes are repeated for different gods. During the early phase in the development of this anthropomorphic iconography, the positions of arms and legs, posture, garments etc., were in most cases not yet endowed with any specific semantic meaning, being represented just as parts of a human figure in general and except for gender, neutral to the identity and functions of the deity portrayed. By this means of standardisation, the die-engraver could create an iconographic series of several gods using the same basic human figure throughout and only changing the identifying attributes.[28]

Cribb refers to this as a 'Barbie doll' analogy, in which generic figures are 'clothed' by a divine attribute which identifies them. So the radiating halo doesn't just mark Miiro, it *is* Miiro, as the lion-wand *is* Nana, or the tongs Athsho. Zeymal excludes a small group of gods, such as Wesho, from this process and suggests they derive from contemporary sculpture. However, Wesho does carry divine attributes and amongst these the trident or 'trisula is clearly the one most characteristic of the divinity, evoking his presence more forcefully than any other: indeed, it is the only attribute constantly associated with his figure on coin images from Wima Kadphises to the Kusano-Sasanians.[29] Wesho holds a trident, but in a metaphorical sense the trident *is* Wesho. So embedded in the minds of the engravers is this symbolic representation, that on the quarter staters of Wima Kadphises the god is represented by the trident itself, with no image.

So, naturally in the conversation metaphor, Cribb turns to contemporary sculpture to ask, who is this god with a trident? Some iconography is common in the coins (the bull Nandi), but unusual in sculpture; others are present in sculpture (an unusual hair-style), but rare on coins.[30] The striking element though is the trident

> … for the Kushans the most recognisable iconographic feature of the god depicted. In later Indian art the trident became the regular attribute of Shiva, but not until several centuries after the Kushan period.[31]

In this period the trident is absent from major Saivite centres like Mathura. Siva in those places can be Siva without the trident, but the symbolic language of the coins is clear, Wesho is Wesho because he holds a trident. Cribb takes the answer from the contemporary sculpture that the god with the trident can be Siva, as he can also be Vishnu, or Heracles, from whom he borrows other attributes. For those the mint served the god was Wesho but enough ambiguity existed that 'their subjects should have no difficulty in recognising this deity as Shiva'.[32]

This multiplicity of meaning becomes possible because we understand the way the image works: these divine attributes give anthropomorphic form to Wesho through his association with Shiva, Heracles, and Vishnu. At the same time, by analogy, those familiar with Siva would see him in the coin design. Wesho is Siva but he is also distinct from him. To at least some of those involved in the production, the king or court perhaps, the figure is principally Wesho. So what happens when we stop understanding the image as Siva and start understanding it as Wesho?

Wesho has in the past been examined alone or as part of the range of the gods that appear on Kushan coins, the so-called 'Kushan Pantheon'. The standard approach, illustrated by Rosenfield, has been art historical and fragmentary. He breaks the pantheon as a whole into its Hellenistic, Indian, and

Iranian elements, while noting that the coinage itself is Roman in design.[33] And elements of individual gods are further isolated to find their antecedents and parallels. In the case of Wesho:

> … the deity holds a lion pelt, which representation must have been adapted from images of Herakles which were common in the region. The club carried by the deity in the Sirkap seal above must also have come from Herakles, and the form of OESHO's trident is that of Poseidon's.[34]

Understanding the components that constitute a visual image help us read it, but they don't create an understanding of the whole. This process of fragmentation naturally leads to interpretations that mirror the fragmentation, that 'the coins were minted for foreign trade and thus reflected the beliefs of external trade zones'[35] or that 'the coins reflected the various ethnic and ideological communities within the polyglot Kushan Empire'.[36] Note the plural, 'zones' and 'communities', to match the many parts that make up the image. Rosenfield recognised the problems with these explanations, and tried to find a common metaphor. As have many others he comes to the conclusion that 'these deities were the Kushan *comes augustii* – the divine companions and supporters of the monarchy'.

Cribb discusses the importance of an imaginative leap which puts the numismatist into the mind of the producer of the coins:

> The numismatist must imagine himself as the statesman authorising the coins, as the artist engraving the dies, as the moneyer striking the coins, as the official regulating them, as the money-changer profiting from them and as the individuals using them, so that the processes he has learned put him in touch with the 'logic of history'. [37]

This can be read back against the art historical approach and its fragmentation. It creates coherent or unified understandings, at least for each individual agent that is studied. Take this imaginative leap and the eclectic pantheon of the Kushans can be envisaged as a unified whole. Few gods have no parallel (though never exact matches) in the Zoroastrian tradition, implying a common Iranian origin. Many that do not can be explained; the Greek Selene, Helios, Hephaistos, Animos are translations of the Iranian Mao, Miiro, Athsho, and Oado. During the reign of Kanishka the legends on the coins change from Greek to Bactrian. 'shaonano shao' replaces the Greek 'ΒΑΣΛΕΟΣ ΒΑΣΙΛΕΩΝ', though both mean 'king of kings'. This is clearly an act of translation, not a change in status, and the change in the names of the gods (which occur at the same time) should be understood in like manner, a translation of names, not a change in identity.

This leaves Sarapis, Heracles, and the Buddha, but as Cribb suggests half a dozen dies employed in just two reigns should not distract us from three centuries in which Mao, Miiro, Ardochsho, Nana, and Wesho are the pre-eminent deities of the Kushan pantheon, a pantheon which we can see from the point of view of the royal court as unified, as essentially Iranian, and as a symbol of royal authority. 'Apart from the Buddha and Maitreya, it seems likely that all the gods represented on Kushan coins are part of the official cult of the Kushans, as represented in the Rabatak inscription.'[38] The Siva-like images, labelled as Wesho, can from the 'contexts, numismatic, artistic and archaeological, within which they were created, show the devotion of the Kushan Kings for a god who they saw as related to both the Indian god Shiva and the Greek god Heracles… . This god appears, from his name Wesho and from his survival into later Zoroastrian iconography, to have been a form of the Avestan god Vayu.'[39]

This is not an exclusive conclusion. The court, or the king, can see Wesho and understand Wesho also to be Herakles and Siva. That does not preclude some users seeing only Siva or the Kushano-Sasanians seeing only Wesho. There is no opportunity to explore this here, but when the pantheon was replaced by Siva alone. the mint introduced a system of letters and symbols as control marks. By a substitution of functions it seems that the mint saw in divine images only the symbolic repertoire of coinage to be used for its own administration.

Systems: what these examples have in common

'Of all these powerful monarchs there is scarcely a trace in history; their cities, their palaces, their civilization, have entirely perished; their coins alone survive. Hence, while in the case of Greece and Rome coins are aids to history, in India they contain all the history we can hope to recover.' This is Percy Gardner commenting on the Bactrian and Indo-Greeks in an early introduction to coinage produced by the British Museum.[40] In the preface to the same book Lane-Poole explains its purpose as '…intended to furnish an answer to a question that is often and properly asked about any study of which the use and advantages are not immediately obvious.'

I have given two examples of how the detail of numismatics can build through history into new narratives about the past. In a sense these are illustrations of Gardner's point about the importance of numismatics in South Asia, which is itself an answer (albeit partial) to the challenge Poole poses. It might seem that these examples have very little in common. Technical studies, however interesting the history that is drawn from them, seem to have little to do with linguistic-turn concepts like metaphor and *longue durée* explanatory themes like tradition. However, I want to argue that these ideas have a conceptual unity. They are all based on understanding systems. Coins are parts of systems. They are produced by mints who operate according to procedures, they circulated (and are deposited from) complex economic and social systems, and their designs are created not only with those systems but within changing political and artistic traditions.[41] These approaches have in common an attempt to understand coins in these systems and through that to understand the systems themselves.

The approaches that are presented here are different from the way in which coins have traditionally been understood. At the obvious level the histories are not directly about political events. Traditionally coins tell us about kings and dynasties. That is not the real difference however; it is more than just a change in subject (reflecting a broader change in historical studies). It is also a change in method. Traditionally those who would use coins as evidence have done so through a process of interrogation. They ask a question, such as 'when did Kanishka rule?', which reflects their interests. That inevitably leads to imposing those interests onto the coins. If we are interested in political propaganda then we see propaganda in the coins. If we are interested in wars we see records of victories.

I began by outlining previous and present attempts to catalogue the collection and said that was an important task.

Certainly neither of the examples could have been presented if people had not first catalogued and recorded not just one collection, but many diverse, public, private, and archaeological collections. As I suggested though, the cataloguing is not an end in itself, the investigation of the coins (as illustrated through these stories about them) is the point. The conventional approach is an interrogation. The alternative approach is a conversation; seeking to understand our sources and the systems that made them, from which flow stories. The goal is to understand the sources on their own terms, rather than shaping them to preconceived agendas. On their own terms they inform us about past events, allow us to make new stories about the history of South Asia, though not on topics of our choosing.

Challenges, context, sites and talking to archaeologists

One of the reasons that die studies or examinations of tradition and metaphor through symbol have been so fruitful is that coins encode information in themselves. A coin in a museum collection or sales catalogue is as useful as one in an archaeological dig. Unfortunately for most of the systems that the coin was part of in the ancient period, some sort of context is necessary to make sense of it. Let us take as an example a coin found at the site of Vaisali.[42] This coin is a rather worn example of the coinage of Wima Kadphises, in the largest copper denomination (a tetradrachm). The condition is too poor to read the legend or see details of the altar or club which flank the king and thus to establish whether it is an early or late example. With one single exception, it is an unremarkable coin. That exception is an S-shaped countermark stamped on both sides, at the king's feet on the obverse and to the right of the god Wesho on the reverse.

Even without context this would tell us that this coin circulated outside of the Kushan Empire, somewhere where another political authority felt the need to mark it. Fortunately, we can go a little further. Excavations at Toprak Kala in Choresmia, far to the north of the Kushan Empire, yielded 22 Kushan coins, of which 16 were identified and assigned to the kings between Wima Kadphises and Vasudeva.[43] All, except the coins of Wima, were over-struck using this same mark. If the coin had no context, it might be assumed it was found in the same region, but Vaisali is actually in the Indian state of Bihar, beyond the south-western border of the Kushan domain. The deposit of the Vaisali find cannot be accurately dated, but it is likely it left the Kushan Empire as part of an outflow driven by reductions in weight standards in the middle of the 2nd century AD. So this coin, which was in Afghanistan at the start of the 2nd century left the Kushan Empire twice. The first time it was taken north along the Oxus river to Choresmia where it circulated, before being traded back into the Empire. Then it moved within the Empire from the northern province of Bactria to Gandhara and from there to one of the major Kushan border cities, such as Mathura. From Mathura it travelled down the Ganges River, probably to Pataliputra from where it passed into local circulation and was eventually deposited in Vaisali. It did all of this in a relatively short period of 50 years or so.

Of course we would not know any of that if the coins excavated at Toprak Kala had not been published, or if the context of this coin remained unknown. The excavated context of a coin is not a fixed thing, but a moment in time. If it is not recorded (and published) it vanishes and cannot be recovered. I am aware of nearly 100 archaeological sites which have yielded Kushan coins stretching from the Aral Sea to the Bay of Bengal. Yet with a few notable exceptions to follow, almost nothing other than the fact that Kushan coins were found has been reported by the archaeologists. The sites that record images, weights and stratigraphy are almost non-existent. Where good records exist such as at Sonkh, Butkhara, Kashmir Smast, and Aziz Dheri, this can be traced to the close relationship between the excavator and a leading numismatist (Robert Göbl and Joe Cribb in the cases mentioned).

Here I disagree with Chakrabarthi, who suggests it results from a lack of well-trained archaeologists, the consequence of a malaise in the study of pre-modern history.[44] I have seen plenty of evidence that these excavations are carried out well; they simply aren't published. The reasons that sites are not fully reported vary, but the main reason is that archaeologists remain largely unaware of the importance of this sort of publication. Excavators see coins as tools to date sites (often badly, as they lack an interest in the systems that deposit coins), but they rarely see coins as cultural objects in their own right, deserving attention as part of wider systems. There is a mismatch between archaeologists using coins as context for their sites and numismatists wanting sites to provide context to their coins. It is essential to find a bridge between these specialisms, so that South and Central Asia can begin to develop a finds-related numismatics. It is this area above any other which will create new history, from new methods to new stories.

Histories in the plural and the world of Wikipedia

Up to this point, the discussion has focused on how historians, particularly professional historians in museums, archaeological units, and universities, do research. This might give the false impression that most history is done by professionals and that the rest of the population passively listens. In fact specialist work forms only a tiny part of the discourse on history; text books, public debates about the past, and media such as the internet are far more likely to make up the stories. Historians of South Asia are already aware of this, as controversy about the past is never far away.

The recent court resolution of the Ayodhya dispute illustrates how little impact historians have on public perceptions about the past. In the 1990s the historical questions around the Babri Masjid Ayodhya, a mosque allegedly built on a temple dedicated to the birthplace of the Hindu deity Rama, became a national issue when it was demolished. Extensive acts of violence followed as tensions flared between different communities. The opinion of at least one historian that 'in earlier times a dispute over location would not have arisen, since the historicity of the deity being worshipped was not a matter of significance' shows how large the gap between specialist and public is.[45] The historian trained to see the past on its own terms forgets that the general public care only when their past is directly relevant to their present. In the end, and a lack of violent outbursts implies it is the end, the matter was settled by three court judges, who chose not only to resolve a property dispute, but also to adjudicate in a historical debate. They placed on record extremely lengthy legal arguments labelling some historical interpretations as correct and some as

incorrect.[46] A reminder to specialists, if one was needed, that the judgement of others determines the fate of the stories they tell.

In 2008 Pearson-Longman published a new textbook on Indian history, written by Upinder Singh and covering the prehistoric to the 12th century. This is an excellent piece of secondary scholarship, which engages with history as a process, and will reach a larger audience than the specialist research it draws on. The book has only a short section about the political history of the Kushan period (pp. 376–79), though other elements are treated at greater length. This history rests necessarily on coins with some support from the Rabatak inscription. Only three scholars have really engaged with the whole range of that material, B.N. Mukherjee, Robert Göbl, and Joe Cribb and all three come to very different conclusions. Singh chooses to follow Mukherjee throughout; not because some critical analysis indicates Mukherjee's account is superior but simply because he has done more over the years to make his work available in a coherent and accessible form. By comparison Göbl's main work is out of print and in German (a language spoken by very few scholars working on the period) while Cribb's is broken up in a series of articles in specialist journals.

This tendency, already well-known in text books, is writ large in new technologies. After all what is Wikipedia but a textbook summary executed with less skill and critical judgement? No modern phenomenon better illustrates the peripheral role specialist historians play in (re)telling stories of the past than Wikipedia. The publicly generated encyclopaedia has become the west's single most consulted source of information, with 14 million registered users (wikipedians).[47] Even obscure topics, such as the Indo-Greek dynasty, will be viewed a hundred times a day. When introducing the topic of the Indo-Greeks (the Hellenistic dynasties who preceded the Kushan Empire) to students and collectors, I usually introduce Wikipedia as the best introduction in English. There are some recent lengthy treatments in French work,[48] but in English there is nothing that could really be recommended above Wikipedia. This is not a compliment for Wikipedia. The Indo-Greeks are known only through their coins and, as discussed above, coins tell us about the systems in which they were embedded (systems of production or circulation). They are only tangentially connected to political systems. Yet it is a political narrative that historians working on the period frequently try to write, and therefore requires more of an imaginative leap than is advisable. In such a field, where most conclusions are guesswork and often draw on secondary sources simply because primary ones do not give answers, the mashing together of secondary material on Wikipedia is as good as any.

Wikipedia has rules, arrived at by consensus among its contributors, which are the antithesis of good scholarly practice. Wikipedia's rules to avoid bias (Neutral Point of View or NPOV) require consensus, therefore excluding recent advances, and ensuring that older opinions which might be discarded quickly in the academic community are retained as 'plural issues'. Probably the most important rule in Wikipedia is the ban on original research, which is essentially a ban on using primary sources. Reasoning from evidence, which is central to academic work is essentially off-limits on Wikipedia. Instead all statements have to be 'verifiable' (but never verified from the sources), a criterion which gives prominence to popular secondary material accessible to the Wikipedians. This can be an eclectic mix, as it is drawn from what has been read by the Wikipedians. And while sometimes the source might make an argument from primary sources, Wikipedians lack the skills to distinguish. For example, the Wikipedia article mentioned asserts that the economy of the Indo-Greeks 'seems to have been rather vibrant'. The statement is 'verified' by two references, one from A.K. Narain, a specialist making an argument based on the surviving coinage, the other to a general history by a non-specialist. For the purposes of Wikipedia there is no difference between these sources. Wikipedia's prioritising of secondary sources and its refusal to use critical analysis of evidence carries with it the risk that all arguments will ultimately derive from authority, with the potential for creating a system whereby interested parties (including those motivated by political considerations) publish in hard copy solely for the purpose of amending the Wikipedia article.

This is the negative take on Wikipedia, but there are positives with regards to the dissemination of information, greater opportunity for revision than conventional encyclopaedias, and in engaging the general public with the past in a more active role.[49] Historians have recognised the benefits of web publication and the 'open source' model, but it has been largely restricted to the publication of primary sources, the sort of cataloguing tasks described at the beginning of the article. There is a strong prejudice against internet-based publication and it is hard to imagine time invested by a numismatist updating a wiki being placed on equal par with a peer-reviewed article when their research is assessed.

Yet this still leaves numismatists with a challenge as to how they engage with these stories. If it is hard sometimes to explain the relevance of coins to archaeologists, how much harder to other wikipedian editors? The challenge that Wikipedia presents was ably summed up by the blogger Andy Oram when he wrote:

> Wikipedia reflects a new information environment that flattens the status of information providers. Whether you're *Encyclopedia Britannica*, the *New York Times*, or *O'Reilly Media*, you're competing with anyone who can fill out a form online or write an email message.[50]

If the challenge I was getting at was purely a matter of being part of the wider discourse on history, it would be easy: publish popular books, write websites, participate in discussion lists, update wikis. It isn't. Anybody can do those things. The challenge is for the source specialist to develop strategies to communicate his/her unique perspective. Creating new histories is not enough; they also need to find the most effective ways of telling their new histories, so that the evidence and analyses they develop can become part of the wider discourse on the history of South and Central Asia.

Notes

1 Though this represents only my own opinion, I am grateful for the input of my colleagues Joe Cribb, Paramdip Khera, and Shailendra Bhandare on the subject matter, and to Ysa Frehse for checking the text.

2 A few words on the meaning of history: history as a term to refer to

stories about the past, usually with some notion of truth or at least factual accuracy, is widespread but is only half of what I intend here. History is also an act of an enquiry or analysis, the thought process that goes on between the examination of evidence and writing for an audience. History as what the historian does rather than what the historian produces. The paper is essentially historiographic, both in understanding the history of history and in terms of method. Differences in interpretation derive from differences in method, but historiography is too often over-looked as an essential part of the historical process. This is partly because theory needs to be grounded in the concrete to be useful – which is my objective here in presenting detailed examples to illustrate the general point.

3 At the time of writing the Kuninda, Indo-Parthian, and Sikh coinages are available in detail. The Kushan and collection of Charles Masson are available in part. They can be accessed at http://www.britishmuseum.org/research/search_the_collection_database/advanced_search.aspx by selecting [object type: coin] and [cultures/periods/dynasties: Kuninda/Indo-Parthian/Sikh/Kushan] or in the case of the Masson material at http://www.britishmuseum.org/research/search_the_collection_database/museum_no_provenance_search.aspx by number: IOLC*. A total of 6,468 coins with digital images are available online, already exceeding the approximately 150 plates of images published in the *BMC* series but less than a fifth of the current collection.

4 It is possible – likely even – that you might find new types of coins. This still happens and new fields and opportunities open up when it does, but for mass-produced objects the probability diminishes with each new find. No amount of digging is likely to turn up a radically new design of Kushan coin.

5 A technical literature on die studies does not exist, though there are brief introductions such as Morkhølm (1991). The question of how many dies were used, volume of production, has been explored extensively, see for example the work of Esty (1986). Important contributions on other aspects are often buried within actual studies, see for example Malmer (1997) and Bracey (2009) on inter-die analysis, and Elkins (2007) for implications in art historical approaches.

6 The technique of compositing images to reform the original die has been pioneered independently by John Talbot and Jean-Pierre Righetti.

7 Based on a present sample of 72 coins, 20 of 'pri' type and 53 of 'hu'.

8 d_o represents the number of obverse dies known and D_o an extrapolation to the number of dies which originally existed.

9 Cribb 1997. This is my reading of Cribb, not an attempt to accurately portray his line of argument, and so naturally I highlight what I think shines out of that work as useful and coherent and relegate those parts that do not fit the interpretation I wish to place on it. The insight is in the original papers, but it does not follow that Cribb necessarily intended or would agree with the conclusions drawn here. Others readings could be made of the same rich body of work.

10 Cribb 2005, 2006, 2007 and 2009.

11 Cribb 2003 and 2007b.

12 Keith Jenkins (1991) and Richard Evans (1997) are good introductions to the two sides, in so far as two sides rather than a continuum are really discernable. The ideas can be traced to French philosophers such as Derrida, whom Cribb quotes (2005), but what impact they have had on history has been through intermediaries such as Hayden White, Beverly Southgate and Keith Jenkins.

13 Gupta 1969, vii.

14 Chattopadhyay 1967, 45.

15 Cribb 2005, 418.

16 Cribb 1999.

17 Mukherjee 1978, 21.

18 Zeymal 1997, 261.

19 Cribb 2007, 379.

20 Cribb 2009, 509.

21 Cribb (pers. comm.) has suggested that the precise process in this case was that the device, already well-established on British coinage by the time this coin was made, was first introduced under George IV during the period of Greek revival and therefore that coin might be inspired (rather than copied) directly from the Lysimachus example. The more general point is that British coinage derives from the Greek tradition through the Roman tradition. So the basic notion of head on front and religious figure on the reverse is deeply rooted; it is part of the grammar of British coinage – these sorts of repetition are not surprising, whether they are copying or have independently created a similar design from common elements and limitations.

22 Cribb 1997, 20–4.

23 Cribb 1997, 23.

24 Cribb 1997, 25.

25 At least on the scale we are interpreting here. On a larger scale the nature of this conservatism is very interesting. Why do coins, subject to such huge changes in political, artistic, and economic realities, remain so unaffected? Yes, they behave like there is a tradition: but remember it is only 'like' a tradition – it doesn't really exist. The realities which the analogy glosses over so easily are fascinating, though they do not interest us here, as our scale is too small.

26 Gail 1991, 43.

27 Cribb 2006, 503.

28 Zeymal 1997, 247.

29 Giuliano 2004, 52.

30 Cribb 1997, 33.

31 Cribb 1997, 33.

32 Cribb 1997, 35.

33 Rosenfield 1967, 72–3.

34 Rosenfield 1967, 93.

35 Rosenfield 1967, 69.

36 Rosenfield 1967, 70.

37 Cribb 2006 512–5 at p. 512.

38 Cribb 2008, 125.

39 Cribb 1997, 40.

40 Lane-Poole 1885, 176.

41 See especially Cribb 2006.

42 The coin was excavated during the work at Vaisali from 1958 to 1962 and is illustrated in Gupta & Kulashreshtha 1994, fig. 1.

43 Tolstov 1968.

44 Chakrabarthi 2003, 186.

45 Thapar 1991,1075.

46 The full judgement is available at http://elegalix.allahabadhighcourt.in/elegalix/DisplayAyodhyaBenchLandingPage.do

47 http://en.wikipedia.org/wiki/Wikipedia:Wikipedians, 16 March 2011

48 Widemann, 2009.

49 This notion may be mistaken. The research on who contributes and why is still very limited, for example Nov. (2007), Kuznetzov (2006), but there is no guarantee that Wikipedians do not suffer from gender and socio-economic bias.

50 http://radar.oreilly.com/2007/10/what-motivates-wikipedians-rev.html, April 2011.

Alexander, Apelles and Lysippus in the Renaissance

Coins, Medals and Pictures

Luke Syson, Curator of Italian Paintings before 1500 and Head of Research, National Gallery

Historians of Renaissance art no longer feel they can ignore commemorative portrait medals. Too much has been published on medals produced in Italy and France during what one might term the long Renaissance, not least by G.F. Hill and by the three people who have occupied the post of curator of medals at the British Museum since the post was created by John Pope-Hennessy in 1974. But that is not to say that most art historians yet feel entirely comfortable with medals – too difficult and obscure, they think, to be easily built into their arguments or narratives. Medals are best left to specialists and it says something about combined interest and nervousness that as one of those three medals curators in the 1990s, I was frequently asked by academic art historians to give classes to their students on medals (as I had once been taught by Graham Pollard), while those same academics have never once asked me to teach at the National Gallery, where I am now employed. Similarly, having become a curator of Italian paintings, it was assumed by my colleagues at the National Gallery that only I or my former colleague Philip Attwood were equipped to write about medals when we mounted our exhibition *Renaissance Faces*. I was grateful to Elena Greer, then working as a curatorial assistant, for proving them wrong. My efforts however, as a doctoral student at the Courtauld Institute, as a curator at the BM, and since, have been directed at showing how knowledge of the histories, styles and functions of the medal can increase our understanding of works in other media, and *vice versa*. I do not wish to pretend that there is anything remarkable about my method, but since these are problems that have occupied me for over 20 years, this seems to be the right moment to say something about where I feel I have got to, about the kinds of connection that can be made. As a result, much of what follows will be familiar to those who have read other books and articles I have written over that period. This is intended as a summation and a meditation on work past, a case study and an argument that might nonetheless point the way ahead.

I begin with a picture – one of the most celebrated in London – that now comes under my care at the National Gallery (Pl. 1). That Giovanni Bellini's portrait of Doge Leonardo Loredan at the National Gallery continues to exert such fascination is a remarkable thing. Here, after all, is a picture of the head and shoulders – not even the hands – of a not terribly young or notably attractive man wearing a particularly lavish and utterly foreign kind of fancy dress. Yet this painting is rightly regarded as one of the great masterpieces of European portraiture. We can put this down to the extraordinary talent of the painter, but Bellini painted other portraits, which, though beautiful, do not lurk in the memory in the way this image does. Here I want to suggest that it was this specific commission – to paint the leader of his city – that inspired Bellini to paint an image whose apparent simplicity of composition is belied by an extraordinarily subtle and nuanced approach to both the political role of the doge, to his individuality as a human being, and to the way in which these two aspects of the man and the ruler interacted and crossed. And I want to propose that an analysis of Bellini's choices in how he represented Loredan is greatly assisted by thinking about the ways in which portrait medals communicate their messages.[1]

Bellini's portrait was painted in 1501–2, and that it can be so precisely dated is due to an epigram about it written by one Lydio Catti, found in a book of poems dedicated to Loredan printed in Venice in 1502. Catti calls Bellini the Apelles to Loredan's Alexander the Great. Nowadays this reference requires a little explanation; then it was very well known indeed.[2] Alexander the Great's portrait strategy was expounded in a range of ancient texts: most familiarly by Pliny the Elder in his *Natural History*, in Plutarch's *Parallel Lives* and, perhaps most accessibly, in a brief, casual reference by Valerius Maximus in his *Memorable Acts and Sayings of the Ancient Romans*. Alexander, all these authors said, recognised that only through the particular and outstanding talents of the painter



Plate 1 Portrait of Doge Leonardo Loredan, by Giovanni Bellini (London, National Gallery)



Plate 2 Obverse of silver tetradrachm in the name of Alexander III of Macedon, the Great

Apelles and the sculptor Lysippus would he both ensure proper but flattering likenesses and, by association with their talent, augment his own fame; thus only they were to paint and sculpt his portraits. Accounts of these exclusive relationships and these artists' production of his portraits became clichés of 15th-century writings on art, and their constant reiteration shows how much these stories conditioned the relationship between Quattrocento rulers and their modern court artists. It was well understood that a portrait gained additional meaning and value by the fame of its author and by the particular 'talented' style for which that artist was renowned. The concept was pithily encapsulated by another Venetian, Leonardo Giustinian, writing before a little before 1446:

> Alexander the Great desired to be painted by Apelles, the most excellent painter of his age, above all others. Why was this? It was because he realised that his fame – something of which he was most careful – would receive no small addition through the art of Apelles.[3]

A key motivation behind the employment by great rulers of great artists was, therefore, the desire to re-enact the relationship between Alexander and his two artists. The painter-medallist Pisanello, working at the courts of Naples and northern Italy in the 1430s and 1440s, could indeed be cast in both roles. All the more so if, as was thought later in the Rome of Pope Sixtus IV, Lysippus was identified as one of the engravers of Alexander's coins (**Pl. 2**).[4] And an examination of Pisanello's portraits – painted and sculpted – of Leonello d'Este, Marquis of Ferrara, all bar one executed around the year 1441, shows how much the Alexander story was made explicit in the reading of his image (**Pl. 3**).

It has been convincingly argued that Pisanello accentuated the curliness of Leonello's hair in these medals and in his painted portrait, now in Bergamo, to give his locks the appearance of a lion's mane. This would constitute not just a neat play on his name ('little lion') but also, by the parallel with the king of beasts, a physiognomic allusion to his status and style as ruler. One can go further. Pisanello's adjustments to his subject's sturdy yet angular features bear a suggestive resemblance to his drawing, made in the late 1430s, copying a coin of Alexander the Great, on whose obverse is a head of Hercules wearing his lion's skin (**Pl. 4**). As the humanist Ambrogio Traversari, with many connections to the Este court, testified after examining a specimen in Venice, this image was then considered a portrait of Alexander himself, one in which it must have been recognised that he was establishing a visual and conceptual connection to the legendary hero Hercules from whom Alexander claimed descent. This coin was certainly used as the basis for the portrait of Alexander in various 15th-century illuminated manuscripts of Plutarch's *Parallel Lives*. In the medal, the lion's skin is replaced by Leonello's 'mane' – a further, significant visual pun. And here it is worth recalling Plutarch's exact words:

> ...Alexander decreed that only Lysippus should make his portrait. For only Lysippus, it seems, brought out his real character in the bronze and gave form to his essential excellence. Others, in their eagerness to imitate the turn of his neck and the expressive, liquid glance of his eyes, failed to preserve his manly and leonine quality.'



Plate 3 Medal of Leonello d'Este, by Pisanello, 1441



Plate 4 Pisanello, drawing of ancient coins and gem (Paris, Musée du Louvre, inv. 2315 recto)

Pisanello presents Leonello as a modern, Herculean Alexander and himself as the new Lysippus. Since the work is prominently signed by 'Pisano, the painter', its author also becomes a modern Apelles.

This is not the place to stop. The medal and its medallist invite another range of questions by its obscure reverse, inviting more questions as to how an Apelles, a Lysippus was supposed to transmit the inner characteristics of his lord and master. Take, for example, this reverse across which lounges a male nude. I have argued in the past that the reverse is designedly riddling. The youth reclines on a rocky ground, below one of the many devices used by Leonello: his *impresa* of a vase, through whose sides protrudes the roots of a plant and from the handles of which dangle two anchors; one of their chains is broken. This image is first recorded in court payments of 1441–2 and it has been proposed that this is a mourning device, marking his wife's premature death in 1439. But if its invention was indeed instigated by his consort's demise, Leonello would have wished the message to be more universally applicable. Thus the suggestion that the vase represents the human body – the main part of a vase was termed the 'corpus' – the receptacle of the soul, is plausible. The significance of the two anchors and the plant might be fitted around this idea: perhaps further developments of the themes of body (linked to the earth) and soul (rising to the heavens), life and death (the broken and intact chains) or, given the apparent message of various of his other devices, the chained anchors express an antithetical image of the voyage of the soul: the disciplined strength of acquired and innate human virtue, set against the unpredictable, potentially disastrous control Fortuna exercises over men's lives. The nude, expanding the image of the 'corpus' of the vase, and stripped of worldly vanities – like the soul at the Last Judgement - could stand for Leonello's own soul. This is what I think at any rate.

The late Graham Pollard, on the other hand, interpreted the medal reverse as follows:

> The figure of the nude youth represents mortality and may derive from the Hippolytus sarcophagus in Rome, which was also used by Ghiberti. The vase with anchors and branches whose roots protrude from the sides was a device of Leonello, perhaps one that he assumed after the death of his first wife … in 1439. The composition may be an allusion to that event, as well as a reference to the human condition in general. A broken vase is a symbol of mortality, the *vas perditum* of the Bible…. The broken anchor is the vanity of worldly hope; the complete anchor, hope in God, as described by Saint Paul in the Epistle to the Hebrews: 'Which hope we have as an anchor of the soul, both sure and steadfast'… .[5]

Both these interpretations may seem over-interpretive or incompatible and who is to know which, if either, is right? Or perhaps both are. But, even if some of the details of these interpretations are erroneous, such readings are legitimate given that the object itself clearly invites this approach by its deliberately mysterious imagery. It is often hoped that a text (ancient or renaissance) may one day turn up to crack the codes of this and other, equally baffling medal reverses. Such specific texts are however unlikely to have existed and the meaning of such an image might always have been intended to be nuanced, shifting, fugitive, at the very least extremely difficult to understand. This medal and others like it were set as deliberate challenges to beholders where alternative interpretations might be proposed according to their viewers' particular level of visual and textual knowledge. There is evidence that medals were shown off by the people portrayed – or at least those in the know (such as the medal-makers) – giving scope therefore for controlling, or directing interpretation. But both must have been very well aware that viewing – and reading – would not always be controlled. But the inherent portability and durability of medals admit other possibilities. Makers must always have recognised the potential for producing replicas – aftercasts. And these, after all, are objects specifically intended to survive both subject and author. They travelled beyond the temporal and geographical bounds of those 'in the loop'. Was there therefore an initial and inbuilt awareness of the potential for ambiguity? Was it, for some of the best and most beautiful medals, deliberately cultivated?

Of course some medals, like some ancient coin reverses, set out to be easily understood. I don't want to make too many mysteries here. These make their meanings explicit by reference to a well-understood set of codified images, genuine symbols or hieroglyphs that do not admit ambiguity, and which remain fairly constant, on the basis of their long history or wide popularity. The medals depicting Sigismondo Malatesta, Lord of Rimini, for example, made in the 1450s by Matteo de' Pasti, are good examples. By the standards of Renaissance cast medals, they count as mass-produced, surviving in large numbers and cast to be interred within the walls and foundations of the buildings then under construction by Sigismondo, to be discovered by future generations.[6] Here we

encounter two categories of symbol: the hieroglyph, the personification of Fortitude, easily recognised by her column; and the emblem, which was born out of common experience – the fortress, similarly standing for strength and might.

But that others are so hard to interpret becomes comprehensible when we realise that as well as sometimes this kind of 'factual' information, a medal reverse might actually seek to represent the unrepresentable, the invisible soul of the man or women portrayed. The explicit connection between the medallic reverse and the soul is explored in two self-portrait medals made in 1458 by the obscure Venetian painter Giovanni Boldù.[7] In the first, he shows himself bare-chested, his short curly hair crowned by an ivy wreath, evoking both ancient coinage and classical bust portraiture. The portrait is inscribed in Greek. The reverse also depicts a youth – surely the artist – again nude and grieving as he confronts a sturdy *putto*, lounging against a skull, a flame in his left hand; the 'genius of death'. This last is also an image derived from Roman statuary. Boldù's second piece is similarly concerned with the fate of the soul, now drawing upon traditional Christian belief and devotion. Here the painter is labeled in Hebrew, the language of the Old Testament – and he is dressed, his hair longer and straighter, the portrait a more plausible likeness. This second medal's reverse has the same pensive male nude (once again recalling the naked soul at the Last Judgment), again with a skull at his feet, but on this reverse he is accompanied by the female personification of Faith praying. Behind him is an old woman, Penitence, who lays her scourge around his shoulders. Boldù therefore refers to one of the most deep-seated religious beliefs of the day: that the eternal salvation of the soul could be achieved through penitence and pain, in life but also after death. He has invented an allegory of Purgatory.

These images are not easy to understand – but seeing the soul should not be imagined as a simple process. The soul in life was considered at best indistinct, and since death was the moment when the soul achieved a separate existence, there was never a time when it could be properly seen, let alone depicted by an artist. The medal reverse therefore becomes a kind of solution to this difficulty – one in which the soul is seen and yet remains invisible. The messages of so many medal reverses were, it seems, deliberately indistinct because they were to be perceived in the way the soul was perceived. Two mid-16th-century sources, analysed by Philip Attwood, suggest that *difficulty* was indeed an intended ingredient, and one shows that, in some instances, variant interpretations were admissible from the outset. This is a cast medal of about 1552 by Domenico Poggini of Lodovico Domenichi, a writer and translator, who discussed the piece in his 1556 book, the *Ragionamento*. The medal had been proposed by the artist 'because of his real courtesy and of the love he bears me', Domenichi explained. He elucidated the reverse: the vase represents human life (a further clue as to one of the possible meanings of the Leonello reverse?) and the flowers the virtues bestowed by Heaven and not destroyed by misfortunes. He had chosen a Greek inscription ('It is sent and it does not burn' – a reference to the lightning striking the vase), inaccessible to many, because 'I wanted it to be understood by some, and not all. For, as you must know, the words of *imprese* must be made in a different language from that in which we speak.'[8] Trying to understand a medal reverse – of this kind – was therefore supposed to be a process of analytical unravelling, but one in which the intellectual journey was not necessarily intended to arrive at a fixed point. The image of the soul should remain, in a sense, indistinct.

These conclusions have wider implications – for images in other media. In contrast to our colleagues on the other side of the Atlantic, and elsewhere in Europe, British historians of Renaissance art are often reluctant to engage with discussions of the meanings of works of art executed in the 15th and 16th centuries. In short the debate runs as follows. In an influential article of 1934 on Jan van Eyck's Arnolfini portrait at the National Gallery, Erwin Panofsky called the burning candle a 'marriage candle', the 'symbol of the all seeing wisdom of God', the dog 'indubitably used as a symbol of marital faith' and the various other objects concealed symbols of one concept or another, disguised because of the 'realistic' style of the picture.[9] This for him was a 'method' of symbolism and the whole, he thought, added up to a 'pictorial marriage certificate'. Panofsky's reading has provided one intellectual model for the discussion of those painted portraits, Netherlandish and Italian, that contain more than simply the head of an individual, those that surround faces by things. However little documentary proof there is that such a system ever existed in the Netherlands or elsewhere, it is often assumed that Italian painters adopted (or at least adapted) the same 'method'. Once, it is argued, the spectator knew what each object meant, the text of the picture could be properly read.

Few voices of dissent are as categorical as that of Lorne Campbell.[10] He is particularly alert to the fact that van Eyck has achieved the appearance of reality only by his extraordinary artifice. For him nonetheless, 'It is only sensible … to treat the painting as a portrait, without any significant narrative content, of Giovanni … Arnolfini and his second wife'. 'The room is … an imagined space … although it must bear some relation to the main reception room of Arnolfini's house and its furnishings are probably recognisable representations of objects owned by the couple.' In other words, for Campbell, all these objects are nothing more than signals of the status of the sitters and not symbols of any kind.

One sympathises with his caveat. Many of the insights of Panofsky himself, high priest of iconology, now appear at once limited and fanciful, falsely positivist in that they almost never admit their speculative character. The situation is not helped by the continual reiteration by his disciples of the view that one author's interpretation necessarily supersedes the efforts of all previous scholars. 'No', we are told, 'the picture does not mean this. Actually, it means that.' We are almost always presented with 'either-ors', including the one whereby either works of art of this kind have a single unified meaning, that can be determined with the right research, with the right lucky find; or they mean nothing at all.

This last conclusion is not terribly helpful. Now we have another possibility, one suggested by the ways in which medal obverses and reverses – both – were read. Though we must of course remain aware of the conventions that pertain to works in different media, with (slightly) different functions, we might admit the possibility that some – and again I stress some – painted portraits were similarly intended as open-ended meditations on the character, life story and status of particular individuals, ones that might have broader application. If I had

space, I would look again at a picture like that by Lorenzo Lotto of the wealthy Venetian *cittadino* Andrea Odoni, in which the objects that surround him constitute an equivalent to a medallic reverse.[11] But I want to finish as I began: with Giovanni Bellini's Portrait of Doge Loredan (Pl. 1).

Bellini's subject was already 65 when his portrait was painted. Doges were elected *primus inter pares* from among themselves by members of the patrician class, whose names were registered in the famous Book of Gold. The role was restricted to prevent one individual accruing too much personal power. His movements were also restricted and – at least in theory – he was not allowed to display his portrait outside the doges' palace. Nevertheless he had an important public role – taking the lead in public ceremonies, which were staged at least every five days. This is the description of the doge at such an event in 1494: He 'wore his tiara on his head and a mantle made in the ducal fashion, as he always does when he appears in public.' There were therefore certain set ingredients: the *corno* for example. At the end of the 16th century Andrea Sansovino described its purpose:

> It was an ancient custom, taken either from the Egyptians or the Phrygians, to wear on the head as a sign of pre-eminence something in an acute and pyramid-like shape. This signified that he who rules people must have a more acute mind than others and must, in times of trouble, turn towards heavens, from whence comes all help.

Under *corno*, the *camaura* – a cap made from fine cloth from Rheims in France. Its dangling strings could be tied beneath the chin or left loose. Sansovino described it as like the emblem of a holy person and said that wearing it evoked 'the memory of the holy oil with which certain Christian kings are anointed, just as if this prince were one of them.' We can already see this portrait as an exercise in civic symbolism.

But an Apelles needed to do more than that. After Loredan died in 1521, at his funeral in 1521, his son was praised as the *imagine dell'anima e del corpo,* the image of the soul and the body of his father. Rona Goffen drew a parallel with Bellini's portrait. In that, she argued, it also shows both body and soul.[12] We have already seen that it shows the dogal image, the formal public body defined by the depiction of his clothes. But looking carefully at his face, we begin to see that it also shows the fragile human body that inhabits them. This is important because the job of doge was not a hereditary post. Indeed, it has been argued that the patricians who succeeded in being elected did so at what was usually an advanced age to prevent power being concentrated too long in the hands of one man. In other words the Doge had to die. And Bellini had to indicate this fact, not least because it will be assumed that the portrait will outlive the man.

A useful parallel can be drawn with a large cast medal signed by Agrippa, of which the unique example is here at the BM (**Pl. 5**). On the reverse, the doge is being crowned by female personification of Venice. But his grandeur is undermined. The horses pulling the ceremonial chariot are running wild – reinless. And on one of them crouches the figure of Time holding an hourglass.[13] As Elena Greer argued, this medal reverse has something in common with the bust of a Young Man, in the Bargello, Florence, of perhaps *c.* 1440. This is usually – I think wrongly – attributed to Donatello. The oval relief on his chest evokes the opening in a reliquary bust that provides glimpse of the relic inside. This relief draws on Plato's image in *Phaedrus* of the human soul as the driver of a two-horsed chariot. 'The interplay between medallion and view of the soul is a perfect visual counterpart of the Platonic relationship between the visible form and the idea behind it', as Irving Lavin explained.[14] Doge Loredan's soul is also examined, and he is reminded that his worldly splendour, his political status, are merely temporary.

Bellini does the same – with the setting and above all with the face. Bellini gives his figure a real space to inhabit – but it is also a symbolic one, something akin to a flat medal ground. The lapis background is a sky but it is also the symbolic colour of the Virgin Mary – of her cloak. We might remember that Marin Sanudo stated that Loredan wore white and gold only for



Plate 5 Medal of Leonardo Loredano, by Agrippa

festivals dedicated to the Virgin. The contrast of his spiritual beliefs, his piety, and hope for his soul, and his worldly status is being made, just as it is in Agrippa's medal. And just as Pisanello had, Bellini made sure that the face becomes part of the message, albeit in a way that is more subtle. I cannot improve on what has become a famous description of the picture by Lorne Campbell:

> Bellini's portrait of Loredan is a static official image with the armless rigidity of a Roman bust. Yet the expression seems to change, for the lit side of the sitter's face is more severe, the shadowed side more benign. This is to be explained partly in terms of the painter's manipulation of the sitter's features and partly in terms of his use of light. The Doges right eyebrow contracts and weighs heavily on the eye to give a frowning aspect; the catchlight in his right eye is intense and the upper lid is raised well clear of the pupil, to suggest a glare. The eyes are very widely spaced. Above the sitter's left eye, the eyebrow lies more easily in its natural place, and the catchlight in this eye is weaker, the upper lid is closer to the pupil and the corner of the eye is raised. The lines running down from the cheeks towards the corners of the mouth differ: on the sitter's right the line is straight and suggests a set, stern expression: while on the sitter's left, the line curves, giving a more relaxed impression and appearing to attract into the arc of its curve the centre line of the mouth, which as a result seems to rise upwards. An incipient smile may be suggested by this small area of the face. The strings of the hat, hanging untidily when all else is immaculately ordered, are brought forward in impossible perspective. The string on the sitter's right is assertively straight and vertical and is strongly lit; on the sitter's left, the string is in shadow and falls away from the vertical in a more broken, gentler line. The strings consequently play a secondary part in echoing the contrasts between the two sides of the face.[15]

In other words, even in the face Bellini is able to show us the public and the inner man, obverse and reverse, at one and the same time, and I would argue that it is by looking at medals that we have come to understand that we should expect nothing less from an Apelles. Here is an approach to these two categories of object, medals and painted portraits, which I believe to be richly connective, mutually illuminating. It is one that has emerged not just from my two main curatorial posts, but from the study of medals at the British Museum for more than a century. G.F. Hill, Mark Jones and Philip Attwood have done more for the public and scholarly understanding of the medal than any other three individuals. I hope I too have played a part. I hope the study and curatorship of medals remains a priority at the British Museum in the next decades – and that the art of the medal continues, by these means (and where else is this going to happen?), to be researched in its wider cultural and artistic context.

Notes

1 For this work and its essential bibliography, see E. Greer in *London 2008*, 108–9, cat. 15.
2 Syson 2001.
3 Baxandall 1971, 98.
4 Waldman 2000; Pfisterer 2008.
5 Pollard 2007, 16, no. 9.
6 Pasini 1987.
7 Syson 2008.
8 Attwood 2003, vol. 1, 36.
9 Panofsky 1934.
10 Campbell 1998, 174–211, especially at 198–201.
11 L. Syson in *London 2008*, 122–3, cat. 21 (with recent bibliography).
12 Goffen, 1989, 205–12.
13 E. Greer in *London 2008*), 110–11, cat. 16.
14 Lavin 1998.
15 Campbell 1990, 30.

Money in Africa

New Historical and Anthropological Approaches

Maxim Bolt, Researcher: Money in Africa project, Catherine Eagleton, Curator of Modern money, Leigh Gardner, Researcher: Money in Africa project, British Museum

Since 1986, the Department of Coins and Medals at the British Museum has been engaged in treating African monetary history in a broad, comparative context, especially in the development of the permanent Money Gallery and its accompanying publication, *Money: a History*. This focus was further developed in 2005 when, as part of the preparations for the *Africa 05* events and exhibitions at the British Museum, Joe Cribb, then Keeper of Coins and Medals, asked the newest member of his team, Catherine Eagleton, to curate a temporary display about money in Africa. The resulting exhibition, titled *Wealth of Africa: 4000 years of money and trade*, was organised around 12 case studies, from different parts of the continent at different points in its history, from Ancient Egypt to modern South Africa. The central case in the display was guest-curated by a group of young people from the Mandela Supplementary School at the CarAf Centre in Camden, London.[1]

Research for this display highlighted the complexities of the subject of African money, but also the lack of study in this area. It quickly became clear that the existing scholarship was fragmented, and characterised by regional and historical dislocation. Moreover, there was very little work at all on the material culture of money in Africa. From this starting point, a multi-layered project was developed, led by Catherine Eagleton, drawing together research, collections digitisation, exhibitions, educational projects, and international partnerships. This paper expands on the one given at the conference to summarise the achievements of the project to date and outlines its possible future directions, particularly in relation to research into this under-studied topic.[2]

The past 5 years

The initial research work for the Money in Africa project aimed to combine original research with a review of existing scholarship. From 2005 to 2007, thanks to support from the British Museum's Research Board, the initial outline of the Money in Africa project was developed. The project team began surveys of objects in the British Museum's collections, and elsewhere; reviewed existing research on the monetary history of Africa; identified key members of the international scholarly community; and prepared an extensive annotated bibliography. From this outline of research results and current work, the team mapped the gaps in current knowledge, assessing priorities for future research. In 2006, the British Museum hosted an international conference featuring papers relating to the last 1,000 years of Africa's monetary history, and an edited volume of the papers from this conference was published in the Museum's Research Publications series.[3] In 2008, an interdisciplinary workshop on ancient North Africa was organised, and an edited volume of papers from that conference published in 2011.[4] Both publications are available online free of charge, as well as in print versions. Access to publications can be difficult, particularly for scholars based in African institutions, and the team were determined that the publications of this project should be widely available, to encourage interest in the subject. From these conferences, and other scoping work, some priority areas for future research were identified. Action taken to develop those areas has included, for example, working with the University of Bristol on a Collaborative Doctoral Award project on the important but under-studied coinage of the Swahili coast of East Africa, one of the few pre-colonial coinages of sub-Saharan Africa.

Alongside these activities, the Money in Africa project led to two further temporary displays, drawing on the early results of the project. In 2007, *Inhuman Traffic: the business of the slave trade* focused on the transatlantic slave trade. In 2010, linked to the 50th anniversary of Independence for many African countries as well as the football World Cup in South Africa, *Impressions of Africa* looked at moments in the history of nine African countries, from the last 100 years, through their money. As with the 2005 display, these projects involved work with members of African-Caribbean communities in London, to develop content and, in the case of *Impressions of Africa*, to source some of the objects.

In addition to these educational components of temporary displays, the Money in Africa project has involved more in-depth educational work, thanks to a Knowledge Transfer Fellowship award made by the Arts and Humanities Research Council to Catherine Eagleton in 2008–10. This project, drawing on the early research results of the Money in Africa project, combined educational and curatorial elements, and enabled us to continue our work with the CarAf Centre in north London. In partnership with the specialists at the CarAf Centre, this project focused on the educational needs of African-Caribbean communities in the UK. Two interlinked areas of work provided targeted educational resources and digitisation of the Museums' collection of modern African currencies. The project Education Officer initially undertook an assessment of the existing resources available for teaching African history in supplementary schools and mainstream schools, and organised pilot educational sessions with groups at the partner organisation. Drawing on this, a set of educational resources were developed, aimed particularly at supporting the Key Stage 3 curriculum (ages 11 to 14), but designed to be of potential use to a wider range of age-groups.[5] At the same time, the project Curator of African Money catalogued and created new images of thousands of objects in the Museum's collections, enabling broader access to this important material. This work enabled the project team to identify objects to add to the collection, to further enrich the Museum's holdings in this area. Some of this information, and these objects and images were included in the educational resources, and all of it has been made available through the British Museum's Collections

Online website, enabling people around the world to access information about and images of objects in the Museum's collections. The combination of targeted educational resources and development of the material available on the Museum's website and in the Collections Online database opens up this area of academic study to broader audiences. This makes the Museum's collections, and the information that the Museum holds about them, available to the widest possible public. At the same time, the British Museum has benefitted from its partnership with the CBPTA, and learned from them and others about how it can better meet the needs of African-Caribbean communities in London and the UK, and this will feed into future planning of programmes and projects.

Since the beginning of the Money in Africa project, the team has built a network of partnerships with museums and scholars in Africa. Each of these partnerships has been created through discussion with colleagues in partner museums, and is tailored to their needs. From 2008–11, the development of new partnerships in Ethiopia, Uganda and South Africa was supported by funding from the World Collections Programme, and the Money in Africa project also has strong links with museums in Morocco, Senegal and Nigeria, as well as contact with other specialists. Some of these international partnerships focus on capacity building and staff development, including inviting museum colleagues to London, or visiting their museums to offer tailored training or working together on a particular project or activity. These are long-term partnerships, with the ultimate aim of creating a stronger network of numismatic and money museum specialists in African countries. The partnerships will, moreover, link those colleagues and museums more strongly into the international museum community. At the same time, they support the development of the research strand of the Money in Africa project, offering the local expertise and connections essential for investigating money's past and present in different parts of the continent.

Research priorities and plans for the next 5 years

The previous strands of the project highlighted the need for larger-scale research, targeted at key unanswered questions. Thanks to a substantial grant from the Leverhulme Trust, a new 3-year research project began in September 2010, focussing on the modern monetary history and cultures of Anglophone African countries. The aim of this project is to create a richer picture of the adoption, use and adaptation of coins and banknotes in Africa, and to better understand how these objects can track political and cultural history as well as reflect tradition and innovation. The research is organised as three strands, with each of the three researchers on the project taking responsibility for one of them. There is, of course, overlap between the strands, as they are difficult completely to separate from each other.

1. The introduction and adoption of coin- and banknote-based currency systems during the period of colonial rule.

2. The creation of new national currencies and new national identities at independence, in the mid-20th century.

3. The contemporary uses and abuses of currency, and its social and cultural significance in African countries today.

At the heart of this project are a number of methodological challenges that are of broader significance to the study of money. One of the aims of this research project is to address these, and find ways to combine approaches from history and anthropology that are constructive and creative. A central challenge is that of definition: what are we defining as 'money', across these three strands, and how does that relate to the ways that term is defined in the existing literature? Numismatists, economists, historians, and anthropologists, all have different definitions of the object of study. Often still shaped by Aristotelian ideas of money as a medium of exchange, a store of value and a unit of account, there have been a number of publications questioning the value of this functional definition to the study of Africa's monetary history. In an important article published in 1982 James Webb discussed the problems of applying neoclassical monetary concepts to the study of West African economic history.[6] He argued that there is a need to question our assumptions about money supply and economic growth, as well as to understand African currencies in their own terms before integrating them into the same theoretical framework as European currencies. More recently, Gareth Austin has argued that there are dangers in importing neo-classical economic models and European concepts into the study of African economic history.[7] He argues instead for a new model of reciprocal comparison, which acknowledges the specificity of African history while exploring contrasts or comparisons with other histories or other models. Jane Guyer's book, *Marginal Gains*, begins from a similar concern that current anthropological approaches have made sense of only a small part of the complexity of African monetary transactions.[8] In his series of Presidential Addresses to the Royal Numismatic Society, Joe Cribb explored some of these issues from the numismatic point of view, showing how 'money' can be a concept that defines our experience of a range of objects that we use as money.[9]

Alongside this question of definition, the available primary sources for this research pose challenges. Some of the main sources of evidence for the planned study of the 19th and early 20th-century currencies of Africa are the records kept by the colonial authorities, or accounts written by travellers or ethnographers. These records, however meticulously compiled, are nonetheless often framed by the assumptions of the writer about the monetary systems that they encountered, or the people and cultures that they were observing. Often, traditional currencies would be compared to the gold, silver and bronze of European currency systems, reflecting the assumptions of the European commentators about what a currency system should look like. Colonial administrative reports and ethnographic reports from the early 20th century contain useful detail, but have to be read carefully, and combined with other written, oral, and material evidence wherever possible – transactions might mean different things to the different parties involved, particularly in cases where the people involved have different cultural frameworks.

Historical approaches

As the previous research of the Money in Africa project shows, Africa's monetary history can provide an important window into the continent's economic and political development up to the present. Prior studies of African monetary history, however, have focused largely on individual regions and countries. While providing snapshots of local change, this

literature does not illuminate changing dynamics across the continent as a whole, and fails to capture the variety of monetary systems which emerged in Africa.[10]

The research undertaken for the Leverhulme Trust-funded project will follow previous work in the Money in Africa project and break with these limitations. Its aim will be to produce one of the first cross-regional comparative studies of colonial monetary systems through to the period of decolonization, focusing particularly on the British Empire. This research will address a range of questions related to the introduction, use, and demise of colonial currencies. What did African monetary systems look like before colonial rule? How were colonial currencies introduced? How did existing political and economic features of individual regions affect their introduction?

From the 18th century, expanding international trade brought coins from other parts of the world to Africa. The effects of these dramatic economic changes on Africa's monetary systems are little known. Coins like the Maria Theresa thaler, British silver and gold coins, the Mexican silver dollar, the Indian rupee, and other French and German coins circulated alongside already existing African currencies such as cowrie shells, manilas, iron bars, and copper rods, to name a few.[11] African economies in the early colonial period made different uses of a range of currencies. By identifying what these currencies were and how they were used in different regions in Africa, the Money in Africa project will provide an illustration of African monetary systems at the dawn of colonial rule. Integrating a variety of different sources of evidence, documentary and material, the project will attempt to avoid imposing external models of development on the study of pre-colonial monetary systems.

In the early 20th century, the British government began introducing new currencies to its African colonies. These were intended to shield the British monetary system from fluctuations in the demand for money in the colonies, and to provide revenue for colonial administrations.[12] What were the advantages and disadvantages of the new currencies? To what extent did these coins drive out other currencies previously in use? Preliminary research indicates that colonial currencies were introduced with greater success in some areas than in others. In colonies that traded primarily with territories outside the British sphere, foreign coins remained current. In the Gambia, for example, traders continued to prefer the French 5-franc piece, which facilitated trade with the surrounding French territories, long after the introduction of British West African currency in 1913.[13] This suggests that the political authority of the colonial powers may have struggled to overcome market forces. Further research into the introduction of colonial currencies in other regions may reveal similar examples.

Economic patterns also influenced the money supply. Colonial coins and notes in much of colonial Africa were issued by currency boards, which could only issue colonial currencies in exchange for sterling at fixed rates.[14] Colonies earned sterling by exporting primary commodities. When the prices of these commodities fluctuated, as they often did in the turbulent decades following the introduction of colonial currencies, so did the money supply. Existing scholarship has shown that, in Southeast Asia, traders adopted elaborate systems of barter to cope with sudden changes in the supply of colonial currencies.[15] How severe was this problem in Africa and how did Africans cope with it? What impact did responses to fluctuations in the money supply have on African economic institutions?

Fluctuations in the money supply due to trade patterns were exacerbated by the seasonal nature of production in many African colonies. During the cocoa harvest in the Gold Coast or the cotton season in Uganda, colonial banks faced a complex logistical challenge of moving sufficient currency from other parts of their constituent regions to areas of production in order to meet increased demand. Efforts to remedy this problem led to a number of innovations in the monetary system, such as the introduction of currency notes. The project will investigate how successful these innovations were in facilitating colonial commerce.

These are just a few of the gaps in the existing literature on African monetary history, which the Leverhulme project hopes to fill. Completion of this research will put the British Museum's rich collection of African coins, tokens, and paper money into its appropriate historical context, facilitating both further specialist research using the collection and its public display. By integrating material and archival evidence, the project will also develop new methods of studying monetary history which might be applied to other areas of the British Empire. This research will be paired with anthropological research into the current uses of money in Africa in order to present a more comprehensive picture of African monetary history since the late 19th century.

Anthropological approaches

While historical research about money in Africa is primarily an empirical endeavour, anthropological research requires, in addition, a more explicit engagement with social theory. The anthropological research undertaken for the Leverhulme project will not only chronicle contemporary developments in the understanding and use of money in African settings, but also contribute to the study of money's role in human life more broadly. Further, the Money in Africa project will bring a material focus to this endeavour, using insights from the British Museum's collection to further the study of social life. In turn, fieldwork-based research will yield a broader understanding of the Museum's collection, through better understanding of the context in which these objects circulate. Investigation of money on the ground will offer innovative ways to communicate the meanings and uses of money through exhibited objects.

Anthropological scholarship has analysed the workings of money at three different scales. The first investigates how money enables conversions between different forms of value. Classically, this literature followed from the insights of Marx and Simmel. They, in different ways, saw money as eroding existing forms of social organisation and collapsing the differences between distinct kinds of wealth. Different objects, in other words, come to be interchangeable; what matters is their price. As Bloch and Parry (1989) summarise, 'anonymous and impersonal, money measures everything by the same yardstick and thereby – it is reasoned – reduces differences of quality to those of mere quantity'.[16] Earlier anthropologists broadly demonstrated this levelling, as different kinds of possessions in colonial Africa became priced in amounts of

money.[17] Recent research has, however, increasingly emphasised the limits to such a view. Money cannot buy everything; nor does it simply reduce everything to mere quantity. Scholarship has focused on how and why people continue to assert the fundamental difference between categories of wealth (e.g. migrant men from Lesotho invest in cattle because they *cannot* be sold).[18]

More recently still, anthropologists have begun to examine how people *do* put a price on things.[19] What, exactly, does it mean to see an object as equivalent in value to an amount of money? How is value established and given a number? Such approaches have further been applied to understanding conversions between *different* monetary currencies. This is a key theme for research on Africa. In many countries, people are confronted daily by the relationship between their own, 'soft' national currencies, which have only local value, and the 'hard' currencies of international and regional trade – US dollars, British pounds, South African rand and Nigerian naira. Conversions, between money and other forms of value as well as between different currencies, are a particular challenge for migrant labourers crossing national borders, one focus of this project's research. How do migrants plan lives around conversions from cash wages to forms of wealth – money or goods – that can be used or saved at home? The project will address this theme through in-depth, long-term fieldwork on the Zimbabwean-South African border. Such an on-the-ground view points to the need to capture money's dynamism in museum display: how it moves; how it is stored; how it is handled on a day-to-day basis. Further, an ethnographic perspective on wages and currency builds on emerging scholarship in economic history,[20] bringing the holistic detail that comes from personal engagement and residence with research informants. It shows the broad range of concerns that shape the meanings, uses and limitations of money for workers.

The anthropology of money has long made sense of the first perspective – the context for monetary transactions – through a second, wider one: exploring how people are affected by dynamics working at different scales, both spatial and temporal. Money is both a medium through which people shape their own circumstances, and people are also part of a system that can leave them at the mercy of wider forces. Coins, banknotes, shells or beads are small, portable and easily hidden, offering opportunities to accumulate wealth without others being aware. But in contemporary national economies, money binds people into larger structures, and the vagaries of the financial world affect people who rely daily on money to exchange, buy goods and save. Studies of banking have offered a macroeconomic and institutional analysis of African finance.[21] Anthropology is well placed to offer the view from below, and scholarship has shown how people make sense of their place in economic structures over which they have virtually no control (Comaroff and Comaroff note the rise of 'occult' economies in South Africa).[22]

Across much of Africa, people's cash, once issued, exists entirely outside banking circuits. Most people have little interaction with the workings of money as capital in a banking system. But governments have begun to insist on paying their employees through bank accounts. By looking at one such case – possibly Malawi – this project will examine how money can connect people to larger institutional structures. When government employees are paid through their accounts, do they leave it there, or withdraw it immediately? Does keeping money in a bank account, rather than in the house, affect people's sense of who owns it and who should have access? Does a change in how and where money is saved alter government employees' sense of financial obligation to poorer relatives? These themes will be further developed through comparison with the case of agricultural labourers on South Africa's Zimbabwean border, who are paid in cash, and for whom central problems are safe storage and remittance.

In addition, the study of people's interaction with banks enables exploration of how they keep accounts and reckon their transactions, savings and debts. This will build on the anthropological work mentioned above, on how people use numbers in their everyday lives and how they convert between scales of value. It will also contribute to scholarship on the role of documents as material objects[23] – bank documents can appear to their holders as promises of future institutional stability.[24] And it will ask how people negotiate electronic banking systems in marginal, rural areas with limited infrastructure.[25] Documents and infrastructure enable us to think more broadly about the material underpinnings of people's monetary lives. They suggest fresh ways to depict contemporary monetary life in museums, incorporating the objects through which people come to understand their relationship to money.

A third, fast-growing area of anthropological research on money focuses on the world of finance. This literature has been part of a broader attempt in anthropology to 'study up' (study people in centres of power). It has been invaluable in revealing the concerns, priorities and points of view of financial traders in, for example, Tokyo,[26] Chicago and London.[27] But, concerned to speak to growing academic debate about the 'financialisation' of the world's economy, this research is confined to traders. The Money in Africa project will take a similar 'studying up' focus, but focus on institutions governing the money supply itself, including, for example, mints and central banks. Fieldwork with central bankers aims to work against accounts of central banking institutions that leave them as faceless and predictably, mechanically rationalistic. Here, we will be able to draw on the British Museum's existing partnerships with mints and central banks' money museums, to meet key individuals involved in coin and banknote design and issue. Detailed country case-studies will offer a rich, multi-sited view of the money supply from the perspectives of experts involved at different points in the process, both monetary policy and money production. Moreover, fieldwork will include the perspectives of ordinary people on the street. Interviews will address debates over the design and form of money. The result will be an unprecedented investigation of money from blueprint and production all the way to reception and use at street level. It is hoped that the 'cultural biographies'[28] of coins emerging from this fieldwork will suggest new ways to understand money objects and to present them in the museum setting.

Anthropological research in this project compares experts responsible for supplying money in national economies with workers earning and spending it. It compares state employees, increasingly paid through bank accounts, with migrant agricultural labourers, struggling to store, use and send home

their cash earnings. This broad approach will draw attention to how money operates in interpersonal interactions: between relatives at home, employers and employees at work, and buyers and sellers in marketplaces. But the project also connects the small-scale to larger structures, working with people who shape labour, banking and national economic systems.

Combining these approaches, and looking to bigger questions

How, then, will we combine these disparate approaches, to say something new about the monetary history of Africa? As outlined above, historical and anthropological studies of money in Africa have very different methodologies, different evidence bases, and ask different questions of the evidence they assemble. Bringing these together in ways that do not force the past to become the servant of the present (or *vice versa*) is a challenge faced by the research team. The Leverhulme Trust-funded project is organised as three strands, and case studies are being chosen that cut across the three strands to be approached. Research is still ongoing, and the case studies themselves continue to develop, but we have identified a number of cross-cutting questions that enable the historical and anthropological elements of this research project to be brought together in interesting ways.

At the time of writing, one question is the relationship between political sovereignty and currency, including in areas where there is not a simple overlay of the boundaries of the state and the circulation of a national currency. This question can be studied by looking at case studies from the colonial period, at the changes made to national currencies at independence, and at the choices made by countries today about the designs that are to go on their coins and paper money. Linked to this, when people migrate to work, sometimes across national borders, this can change the ways that they use and save their money – a theme for all three strands of the research.

A second significant question is the relationship between trade patterns and money use, both in terms of the movement of currency within a country or a region, and in terms of the seasonality of money supply and use in economies dominated by agricultural production. These questions were of concern to colonial administrators and to the rulers of newly-independent countries, and in some areas they remain important considerations today.

Finally, there are important insights to be gained by looking at the institutions that issue and control the currency in circulation, and their relationships to each other. The currency boards and banks of the colonial period, and their successor institutions in independent African countries, have rarely been studied. Yet they had a profound impact on people's every day monetary lives. Both in the colonial period and post-independence period, a crucial issue is that of banking – particularly savings banking. Through the case studies we are working on, we will be able to study across the three research strands, to better assess the impact of this on the ways that people save, spend and share their money.

By August 2013, when the Leverhulme Trust funding ends, the team will have prepared a number of articles, and co-authored a book. These publications will bring together the results of their research, and include a more detailed exploration of the methodological issues outlined here. The scale of the topic, and the lack of research on this area in the past, then means that there will then be considerable potential for future research plans, and for extending the research work of the project. The focus of this project on Anglophone African countries opens up the possibility of comparative work on Francophone or Lusophone African countries, or with other regions of the British Empire. There is, for example, considerable potential for a regional study of the monetary history of the Western Indian Ocean, linking Africa to Asia and the Gulf. There would also be much value in extending the existing work on wages and currency to bring together anthropological and historical approaches, and gain a deeper understanding of this important subject. At the same time, there will still be the need for detailed studies of particular places and episodes. One example is the hyperinflation in Zimbabwe, on which the Money in Africa project hosted a small exploratory workshop in 2009, but on which much more substantial research is needed.

Beyond the academic publications that will be the main outputs of the research of this project, this research will contribute to new displays and educational programmes. It will provide a better understanding of our collections in particular, and more generally of African money objects as dynamically in use in people's daily lives rather than frozen behind glass. Ultimately, we hope to contribute to a rethinking of Africa's place in numismatics and monetary history, and its place in money museums and coin collections. The work of the project so far has shown the potential for this. It has made clear that the lack of existing scholarship is no indication of the continent's potential importance in the world's monetary stories and the world's numismatic collections and scholarship.

It is important now to understand Africa's monetary past and present, because this is a time of great change and development for the continent. New innovations like mobile money, along with the spread of banking and the internet, are transforming the ways people live their monetary lives. Understanding Africa's monetary past and present will be an important part of understanding its monetary future. There are also considerable strengths in a project like this being based in a museum, rather than a university, both because of the interdisciplinary approach that this enables, but also because of the way that the research is inextricably linked to the other components of the project: collections, exhibitions, education, and international partnerships. These components will allow the research findings of this project to extend far beyond the limited sphere of academic specialists to reach a broader audience, influencing public perceptions of Africa's political, social, and economic history.

Notes

1 The CarAf Centre provides practical and educational support and advice for families and young people in the Camden area. See http://www.thecarafcentre.org/.
2 Project team members, to date: Maxim Bolt, Amelia Dowler, Catherine Eagleton, Harcourt Fuller, Elizabeth Galvin, Leigh Gardner, Chris Leuchars, Artemis Manolopoulou, John Perkins and Lilian Quamina Reddie.
3 Eagleton, Fuller & Perkins 2009.
4 Dowler & Galvin 2011.
5 Leuchars 2010.
6 Webb 1982.

7 Austin 2007.
8 Guyer 2004.
9 Cribb 2005, 2006, 2007a and 2009.
10 Of the three currency areas in British colonial Africa, West Africa has received the most scholarly attention. An excellent example is Hopkins 1970. More limited research has been done on East and Southern Africa. The Kenya currency crisis of the early 1920s has received the most attention. See for example Maxon 1989 and Mwangi 2001. The most recent research examining the continent as a whole includes: Clauson 1944 and Newlyn & Rowan 1954. Both works focus primarily on major territories, and neglect the colonial periphery.
11 See for example Hopkins 1966. The introduction of coinage based currencies did not displace traditional currencies, but often changed the way in which they were used (see Bohannan 1959).
12 Reasons for introducing are discussed in the *Report of the Departmental Committee Appointed to Inquire into Matters Affecting the Currency of the British West African Colonies and Protectorates* (London, 1912).
13 See correspondence in TNA CAOG 9/170
14 For the origins of British colonial currency boards, see Schwarz 1993.
15 Huff 1989.
16 Bloch & Parry 1989, 6.
17 See for example Bohannan 1959.
18 'Livestock is a store of value resistant to most of the demands of women and dependents that make of cash such a fleeting asset in rural households', Ferguson 1992, 64.
19 For example, Guyer 2004.
20 Lucassen 2007.
21 See for example Seidman 1986.
22 Comaroff 1999.
23 See Riles 2006.
24 See Guyer 2004.
25 See for example Breckenbridge 2010.
26 Miyazaki 2003.
27 Zaloom 2003.
28 Kopytoff 1986.

Part IV

Impacting on the Public

Money for the Masses

Coins, Museums and the Public

John Orna-Ornstein, Head of London and National Programmes, British Museum

History of money

Philip Attwood, Keeper of the Department of Coins and Medals, asked me a while ago to speak about 'money and the public' at today's conference, and I must confess that I paused for a moment before saying 'yes'. I was part of the Department of Coins and Medals for several years – and loved just about every minute of my time in an engaging, forward-thinking department. But that was quite a while ago and I wasn't sure that I now had much to say on the subject. So I did what anyone who doesn't know much about a subject – or has forgotten much of what they once knew – should; I picked up a children's book on the subject. I was lucky enough to find an authoritative one: *The Story of Money* written, some years ago by none other than John Orna-Ornstein. It's still available on Amazon for the bargain price of, well very little actually.

Even a little children's book was enough to remind me of something of the history, or histories, of money. In a 30- or 40-page children's book we were able to cover topics as diverse as the origins of money, the beginnings of coinage in the East and the West and the development of paper money and then the development of currency in different parts of the world and through history – including Greece, Roman, China, India, the Renaissance and the rise of the US dollar. We talked about the manufacture of coins and banknotes, the value of coins as historical documents, trade and commerce, forgery, hoarding, superstition and belief, money as gifts, and finally ended by coming back to the study of coins and banknotes and what we can learn from the money in our pockets. I had no idea I once knew so much!

So, a starting point in thinking about coins and the public is that we have a good story to tell, the story of what Jonathan Williams called in the department's book for grown-ups, *Money: A History*, 'the single most influential factor shaping humanity' today.

Programmes

So, how do we tell these stories? We're helped, of course, by the fact that coins and banknotes are among the more accessible objects housed in our museums. The key reason for this is their familiarity. Have you ever watched people in a museum, to see what attracts and interests them? I have always thought they start with one of two things – either something spectacular or something familiar – and coins are wonderfully familiar. Granted, people don't stop to look at what's on their coins and banknotes in detail (tell me who's on the UK notes at the moment if you can) but they do have a good idea about the shorthand that is used on currency. They expect coins and banknotes to be coloured and shaped in a way that indicates their value, to carry a mark of that value, to bear a portrait, and to carry symbols of the nation or ruler that issued them. They have an idea that currency has changed in appearance over time, but also that there are lots of constants. They know that the value of coins and banknotes goes up and down, whatever they say on the front, and that £5 today does not buy what it used to. So, immediately, you have a platform to speak; to tell stories not just about that currency but about much wider local and global themes – and I will come back to that in a moment.

I once gave a talk at an ICOMON conference entitled 'Coins are small and boring'. This was inspired by a school child in a session I was teaching who felt that coins were anything but inspirational. Now, while I might disagree with that child about coins being boring he was spot on in his other point – they are small. Crucially, unlike many of the objects you see around you in the British Museum or other museums, they are made to be held in the hand rather than admired from a distance. And, like any object, they do need deciphering and explaining. So what does this mean for museums?

First of all, the starting point has got to be accessible displays – varied displays where coins and banknotes are integrated with a range of other material and clever design work creating different routes into accessing and understanding the material. A move away from serried ranks of coins (put out a row of 20 coins, and if you are lucky people will look at one). The Money Gallery at the BM was a relatively early example of this, with objects ranging from an amphora to manufacturing machinery providing context and variety for the coins and banknotes. And there are really strong examples of new displays – most recently in the wonderful gallery at the Ashmolean Museum, where there is a real emphasis on wider themes like sovereignty and identity. And, just as importantly, the opportunity to touch. Handling objects brings its challenges – typically it means using reserve or handling collections if you have them – but the wonder on somebody's face when you put a Roman denarius in their hand, and the detail they're then prepared to study the object in, mean it's worth making the effort.

Ten years ago the British Museum launched a handling programme 'Hands On'. It started with a desk in the Money Gallery, and then expanded to half a dozen different spaces. More than a million people have handled objects over the last decade, and evaluation consistently shows that it is one of the favourite things people do at the BM. That sort of handling programme is 'old hat' now – there are lots of examples across the museum world – but it is still of enormous value.

Over the last decade this museum and others have gone much further, trying hard to make our collections accessible to the widest possible audience. At the British Museum, we have run handling sessions for people with visual impairments and set up programmes for people recovering from mental health issues. We have run reminiscence workshops, where pre-decimal coins and banknotes provide the perfect stimulus to a conversation. We have used money to explore particular parts

of the world, with Katie Eagleton's Money in Africa project having a significant education element, with resources for mainstream and out of hours or supplementary schools. Financial literacy is a big issue, and is going to be a focus for the department's education work going forward.

The size of coins and banknotes also means that they are portable. This brings its own challenges in terms of security, but it has given us the freedom to take coins to community centres, to schools, to hospitals – including Great Ormond Street Hospital locally – and even to prisons, proving you can get hands on just about anywhere.

One of the first types of handling session we launched at the Museum was for schools. What made these successful was the realisation that although coins and banknotes do not feature significantly in the school curriculum, they do provide an access point to thinking about all sort of topics from gods and goddesses in the Greek world, to the nature of the Roman Empire and to day-to-day life under the Tudors.

Those handling sessions were always booked out, and they were significant for me because they gave me an insight into the breadth of the themes that you could tackle with coins, how, starting with a single object, you could go almost anywhere.

A gateway into a wider world

So, the history of money is a fascinating one to engage people with, and the BM and other museums have developed strategies to make coins and banknotes accessible to diverse audiences, through display, through handling, through programmes, through teaching and, of course, through books like the one I started with. But that's only the beginning.

The first question in a job interview is crucial. A decade or more ago I was given the perfect question to start an interview. Joe Cribb, then Keeper of the Department of Coins and Medals, passed me a 50 pence piece and asked me how I could use that object to engage a group of school children. I talked about value, and what the coin could buy, about language, about monarchy, about nationality, about trade, about manufacture. I can't remember exactly what I said (or even if it was very good) but I do remember very clearly the feeling of exhilaration that came from knowing I could go in almost any direction, across the world or back in time, and that I could probably use up a good period of the interview just answering this one question.

I had an email just a couple of days ago:

> Hello John,
> We live in New Hampshire and our son has been very much interested in coins. We found your book the story of money. Inside there is a coin on page 45 that is from England and is dated 1933. You indicated that it was one of 7. Can you help us understand why there were only 7? We have one of those coins but the date is 1921. Is there any value to it, like the one in your book? Thank you for any help. Karen

I responded, telling the lady in question what little more I could remember about the 1933 pennies, but also then saying that, while her own penny might not be worth very much, it was a fantastic starting point in exploring a crucial period in history between the world wars. I was able to take her from a single object to a global theme.

So the most exciting thing about coins, when it comes to really engaging a wide audience, is that they are a gateway into a much wider world. Coins give us an insight into history from the 1st millennium BC right to the present day (they are probably the only part of the BM's collection where there has been systematic collecting of contemporary material). They reflect every part of the world. And they make connections between what's happening locally, nationally and globally. They allow us to tell the big stories; stories about civic pride or national identity, about the rise and destruction of empires, about the movement of people, about faith and belief; stories that could never have been more relevant than they are today.

The perfect example of this is 'A History of the World', the 2010 100-part radio series that used single objects to explore expansive histories. So I think it would be worth taking a moment or two to look at a few examples of currency that featured in the series.

A gold coin of Croesus; the starting point for the history of coinage but used in the series to explore the emergence of increasingly complex states, the fall of old powers, and the emergence of new ones. A tetradrachm of Lysimachus used to access a story of empires, kingdoms and powerful rulers through a single object bearing an image of Alexander the Great. A gold coin of Kumuragupta I used to talk about the way many of the great religions of the world began reimagining the divine – creating new, human forms for the gods, in order to focus the devotion of their followers. Two gold coins of Abd-al-Malik, used to illustrate the transformation of the Middle East in the years following the death of the Prophet Muhammad; global trade seen through the lens of the Vale of York hoard – not to mention a brief foray into the idea of a developing national identity in the UK; a Ming banknote – one of my favourite pieces in the collection – and the introduction of the world's first paper money with all the issue of trust it raised; the European expansion in the 15th–17th centuries, through the portal of a piece of eight, the first global currency; a defaced penny, stamped with a Suffragette slogan, an example of the rise of mass political engagement; and finally, a Shari'a compliant credit card, 99th of the 100 objects, exemplifying the global nature of modern finance.

The future

Around one in ten of the objects selected to tell the history of the world, then, were currency. What better objects to tell the stories that help to make sense of our world – those stories link the local to the global, the past to the present, connecting one locality to another. They are stories of movement and of change, of interaction and engagement, stories that bring people together rather than push them apart. So my closing thought is that museums and the numismatic community need two things to connect their collections to the masses – a deep understanding of the objects and their context and, just as importantly, the ability to tell an interesting, relevant, and expansive, story.

When we manage to do that, we have the ability to reach audiences in their millions – particularly online. The number of downloads of 'History of the World' programmes? An astonishing 18 million and counting – 10 million from the UK. And if you don't have a global media partner then think Wikipedia for real audience reach.

I'm going to finish with a quote from Neil MacGregor. 'The message is in the money' – something he said about that tetradrachm of Lysimachus. And that's what gives numismatics and public engagement a great future.

Collections Online at the British Museum

Eleanor Ghey, Documentation Assistant and Project Curator, Roman Coins, British Museum

A brief history of documentation at the British Museum[1]

Since the foundation of the Department of Coins and Medals there has always been some form of documentation of the collection. The system was based on a combination of manuscript registers into which new acquisitions were entered and paper tickets housed with the coins. These sources of information are invaluable when researching the collections today, but had obvious limitations, such as the fact that tickets are easily misplaced in relation to the coins and the information held within the registers was not of a consistent standard, often limited in content.

With the advent of computerisation in the late 1970s, a number of database systems were introduced in the museum. BMUSE was trialled in the then Departments of Egyptian Antiquities and Ethnography before being transferred to the Museum Documentation Association system GOS. These systems could only be used at dedicated terminals. By the 1980s it had become expedient to create an inventory of the collections on a museum-wide level. The Documentation section was created with a view to overseeing the consistency and quality of the information held on the collections and to provide staff dedicated to the creation of computerised records of the collection. The system MAGUS was introduced in 1988 with a view to creating this inventory and had multiple users across the Museum. A considerable amount of effort was put into the creation of computerised records by members of the Department of Coins and Medals at this time (to enter data on this system it was necessary to fill out sheets by hand for inputting). The system held information above the level required for an inventory and formed the foundation of our current collections database. The information held on MAGUS was however somewhat limited and the system was not easily searchable.

Merlin

Conversion of records from MAGUS to Merlin (the current system designed for the Museum by System Simulation Ltd) took place in 2000–01. This system is used throughout the Museum and is the repository for the information released externally as Collections Online. Merlin displays images and is searchable on all fields. It holds a mixture of controlled terminology and free text, allowing detailed information on objects to be made available to internal users and the public. It stores information that is useful for collections management within the Museum (data on location, exhibition history and conservation treatments, for example) and has taken the place of the paper registers in the acquisition process.

Within Merlin there are a number of sub-databases for departmental collections but the same system is used for the entire range of objects held by the Museum. This 'one size fits all' approach means inevitable compromise. However Merlin accommodates the material held in the Department of Coins and Medals reasonably well, for example with the facility to create separate entries for obverse and reverse 'aspects', to define the position and content of inscriptions and to link production places and issuing authorities to controlled terminology databases.

The images embedded in the database records are housed in a separate image database, Digital Assets. This has capacity for storage of a very great number of images, both of British Museum objects and of objects not acquired by the Museum but related to its work (such as Treasure cases being reported on by curators and administered by the Treasure team based at the Museum).

There is an ongoing programme within the Department and the Museum as a whole to document the collections on Merlin, improve existing basic records transferred from MAGUS and add good quality images (through photography and scanning) to these records. In the Department of Coins and Medals this work is being undertaken by all members of staff as well as by dedicated Documentation Assistants and volunteers. There are currently (as of February 2011) over 520,000 records, 21.5% of which have images. About 40% and 50% of these respectively are of the Greek and Roman collections. The Museum as a whole has (at the time of writing) 1,926,191 Merlin records, 25% of which have images.

Online Collection Database

In the spirit of 250 years of free access to the Museum's collections, it was decided that the Museum's database should be made available to the public on the internet. The Museum-wide Merlin Plan was launched with this aim in 2006, with staff dedicated to scanning images and text to improve existing records. The online database was launched in 2007 with an initial release of two-dimensional objects and then in subsequent stages until the final two releases of material from the Department of Coins and Medals in July 2009. The decision was taken to release almost all the internal Merlin records as they were, including those not yet completed to a full standard, with a very few fields (such as administration codes, valuations and personal addresses for acquisitions) not being made externally available. The link between Merlin and the online collection database means that the online records are updated weekly as the internal ones are improved and added to.

This means of online access to the Museum's collections has helped us reach a wide audience. About 50% of the visitors to the British Museum website are from the UK, and around 50% of the users of the online collection database are from the UK and USA combined. The numbers of visits to the online database are increasing; in January 2011 it received 1,146,077 page views (about 20% of the total page views of the Museum's website). There is a facility to submit public enquiries relating

to individual records, which at the end of 2010 was generating over 300 enquiries per month. The online collection database can be accessed from the Research section of the Museum's website: http://www.britishmuseum.org/research/search_the_collection_database.aspx, and also from a search box on the front page. The basic search box on this and the front page operate as a free text search and will search all fields of all database records. Additional searches for Museum registration numbers and publication references are available from the menu on the left hand of the page. To create a more specific object search, it is necessary to use the advanced search function, which searches on controlled terminology: http://www.britishmuseum.org/research/search_the_collection_database/advanced_search.aspx.

The drop-down list on the advanced search can be used (for example) to look for particular types of objects (coin, banknote), people (including former owners, makers, issuing authorities and institutions as well as those depicted on the object), places (including find-spots, mints and places depicted on the object), materials and subjects. As a demonstration, to search for coins depicting the Colosseum in Rome it is necessary to build up a list of search terms by entering object type 'coin' and then entering place 'Colosseum'. The latter requires the user to specify which Colosseum is referred to (a number of theatres by that name have also been indexed with this place name) and to choose whether the place is intended as a find-spot or a place, before adding to term to the search.

The search results are returned on the screen with thumbnail images (for those records that have them). Clicking on one of these results will lead to the full database record, with all the information on the object held in Merlin (including descriptions, inscriptions, information about manufacture and the provenance of the object, where applicable). This screen will show a medium-sized image of the object in the top left hand corner and smaller thumbnails of any other available images. Clicking on this image will give an enlarged version on a new screen with a link to the digital image service: 'use digital image'. The digital image service allows users to register to receive a free image download for non-commercial use, provided that various criteria are met (this applies to personal use including academic or educational publications with a print-run of no more than 4,000). Photography can also be commissioned from this website if the criteria for non-commercial use are not met.

It is now also possible to view the scientific analysis and conservation treatment records for objects within their online database records. This ongoing project was made possible through a Mellon Foundation grant received in 2007 to digitise the older paper records held in the Department of Conservation and Scientific Research and link the separate databases on which conservation and science records were held by trialling semantic technology in partnership with Southampton University. A link in the online database record provides PDF format documents of scanned records where applicable.

Online catalogues

It is now possible for a selected number of database records to be grouped together on separate web pages, allowing an area of the collection to be published by the Museum as an online catalogue. This has the advantage of allowing the objects to be discussed in greater depth, with additional information presented with the records in a number of peer-reviewed short papers, creating a highly accessible, relatively cheap and easily altered or expanded alternative to publication as a book.

There are currently five online research catalogues on the Museum's website, found here: http://www.britishmuseum.org/research/online_research_catalogues.aspx. Two of these feature material from the Department of Coins and Medals: 'Paper money of England and Wales' and 'Roman Republican coins in the British Museum'.[2] The paper money catalogue features a number of short essays from different contributors in the accompanying material. Each catalogue has an 'all objects' link, presenting the entire contents of the catalogue in an order arranged by the editors, but also has the potential for this material to be presented in sections.

The Roman Republican coin catalogue presents the material with an introduction to the history of the collection and a brief summary of the development of the coinage. Released 100 years after the last *British Museum Catalogue* of the collection edited by Grueber,[3] it follows the classification of the series set out by Crawford in 1974[4] and incorporates the 2002 acquisition of the Hersh bequest, which more than doubled the holdings of the Department in this series to a total of over 12,500 coins.

This number of objects in the catalogue required a convenient method of navigating the collection, and so the 'Guide to types' pages were created in order to present the different types in a chronological sequence, by denominations and moneyers, as well as a section on the coinage of well-known individuals in the history of the Republic (in recognition of the relevance of this resource to students of classics and ancient history). These pages provide links through to other coins of that type via a browsable index of thumbnails. Clicking on an individual coin will lead to the database record and image in the same format as the main online collection database.

The online catalogues as a whole received over 100,000 page views in January 2011. This format has great strength in its accessibility and flexibility as mentioned above, but also weaknesses in that it is (at present) reliant on the format (image size, database entry layout) and search mechanisms (drop-down choices and search boxes) of the main online database site. The data (though not the essays) are vulnerable to changes made by other users of the internal Museum database but also easily altered to reflect changing information and thinking on the subject. (Future development of the Roman Republican catalogue is planned, incorporating commentary on revised dating and interpretation.)

The future

The Museum's Merlin database is constantly being improved and updated and monitored by the Documentation section for consistency and quality of information. Increasing demands are being made on the internal image database, and it is hoped that future changes to this system (and therefore the removal of restrictions imposed by the way in which it is currently linked to Merlin) will lead to an increased potential to search the data online. As mentioned above, semantic technology has been piloted in the project to make scientific data available. This involves a method of structuring the data stored on the

database that can be the same as that used by other institutions or websites, leading to improved searching and sharing of data. There is therefore great potential here for further increasing the accessibility of the information held by the Museum about its collections for 'all studious and curious persons'.[5]

Notes

1 I would like to thank Tanya Szrajber, Julia Stribblehill and Jonathan Whitson Cloud from the Documentation Section for sharing information with me. Further information on the history of British Musuem documentation can be found in: Szrajber 2008.
2 Eagleton & Manolopoulou 2010; Ghey & Leins 2010.
3 Grueber 1910/1970.
4 Crawford 1974.
5 The wording comes from the Act of Parliament in which the principle of free access to the Museum is enshrined.

Distributing the Wealth

Digital Knowledge Transfer for Numismatics

Daniel Pett, ICT Adviser, Portable Antiquities and Treasure, British Museum

In the last decade, significant steps have been made to make collections of numismatic data (in this case focused on individual records of stray coin finds, and not hoards or banknotes) available on the internet, for study by the academic and lay communities. What follows is an attempt to demonstrate how these resources can be exploited for increasing exposure of numismatic knowledge. It does not encompass the world of commercial dealerships and individual collectors' presence on the internet(primarily sources for current valuation information) and it is an expansion upon the paper presented at the Department of Coins and Medals' 150th anniversary conference.

Institutional repositories of numismatic material

The worldwide web provides instant access to a huge variety of information, from sources of varying authority. Filtering poor quality resources from this miasma is quite a task; however the numismatic world is better served than most, due to the logicality of the objects that are within their academic sphere and their ease of access. A wide array of academic numismatic resources now exists. Some have stagnated due to funding ceasing, but others continue to grow and indeed provide innovative discovery models. Some resources are integrated into overall site contents, to enrich learning experiences; for example the British Museum's child-friendly resources introducing the concepts of money.[1]

The discussion in this paper is purposefully centred on academic models, rather than the lay resources, of which there are without doubt some fine examples, many created by individuals and organisations – for example, the amazing Wildwinds site.[2] The panoply of digital resources that have been created precludes a comprehensive survey, but a simple quantitative survey of just a few of these academic resources shows the sheer volume of coins that are available for study, by the curious and studious, via the internet. **Table 1** demonstrates the volume of numismatic material held within each resource, demonstrating that over a million coins are currently available for study from the comfort of your home. Each of these resources takes a differing approach to dissemination and recording standards, a problem that is addressed below.

The repositories mentioned in **Table 1** contain a wide variety of information, with very little uniformity in interface design. However, they all produce data of a very similar structure: obverse and reverse details of coins are documented; images are sometimes available; issuer and mint details are ascribed. So, held in just these few repositories, there are well over 1.3 million coins online which can facilitate a wide range of academic and lay research. One of the challenges faced by each of these collections is to make the consumer or the internet searcher aware that these resources are there and waiting for discovery.

Examples from Portable Antiquities numismatic data

To illustrate further the online dissemination of numismatic data, this paper now focuses on the Portable Antiquities Scheme's database. Elsewhere in this publication, Kelleher and Leins discuss the impact archaeological process, public discovery and the recording of Treasure has had on the Department of Coins and Medals. The Scheme's database (which has been in operation since 1997) is now the primary source for information on all objects that come under their recording remit (Treasure and non-Treasure objects) and it contains a diverse numismatic dataset with coins from the Iron Age to relatively rare Byzantine coins, which are now being recorded in greater numbers.

Table 2 illustrates the period and quantity for all coins recorded by the Scheme's staff and members of the public and at the time of writing (28 February 2011) numismatic material accounts for 37.6% of all objects recorded (excluding coin hoards). (This large percentage probably reflects the very nature of coins: small metal objects easily lost and almost as easily found by metal detectors.)

This table demonstrates that the Scheme's data complements that of the Early Medieval Coin Corpus at the Fitzwilliam Museum, Cambridge, and following the author's rebuild of the website in March 2010, it now integrates the important datasets from the Oxford University's 'Celtic Coin

Table 1 A comparative sample of academic databases of numismatic data, coins only (the URLs for these websites can be found in the bibliography)

Repository	Number of coins
Celtic Coin Index (CCI)	37,925
Roman Provincial Coinage (RPC)	46,725
Iron Age & Roman coins of Wales (IARCW)	52,812
Numidat[3]	20,000
American Numismatic Society (ANS)	533,528[4]
Portable Antiquities Scheme (PAS)[5]	165,911
Early Medieval Coin Corpus (EMC)	10,697[6]
British Museum Collections Online	529,254
Total available	1,296,852

Table 2 The volume of coins by broad period recorded by the Portable Antiquities Scheme

Broad period	Quantity	Percentage of total
Iron Age	42,217[7]	16.50%
Roman	163,657[8]	63.98%
Early Medieval	2,242	0.88%
Medieval	27,075	10.59%
Post Medieval	19,864	7.77%
Greek and Roman Provincial	168	0.07%
Byzantine	94	0.04%
Total	255,784	100% (rounded up)

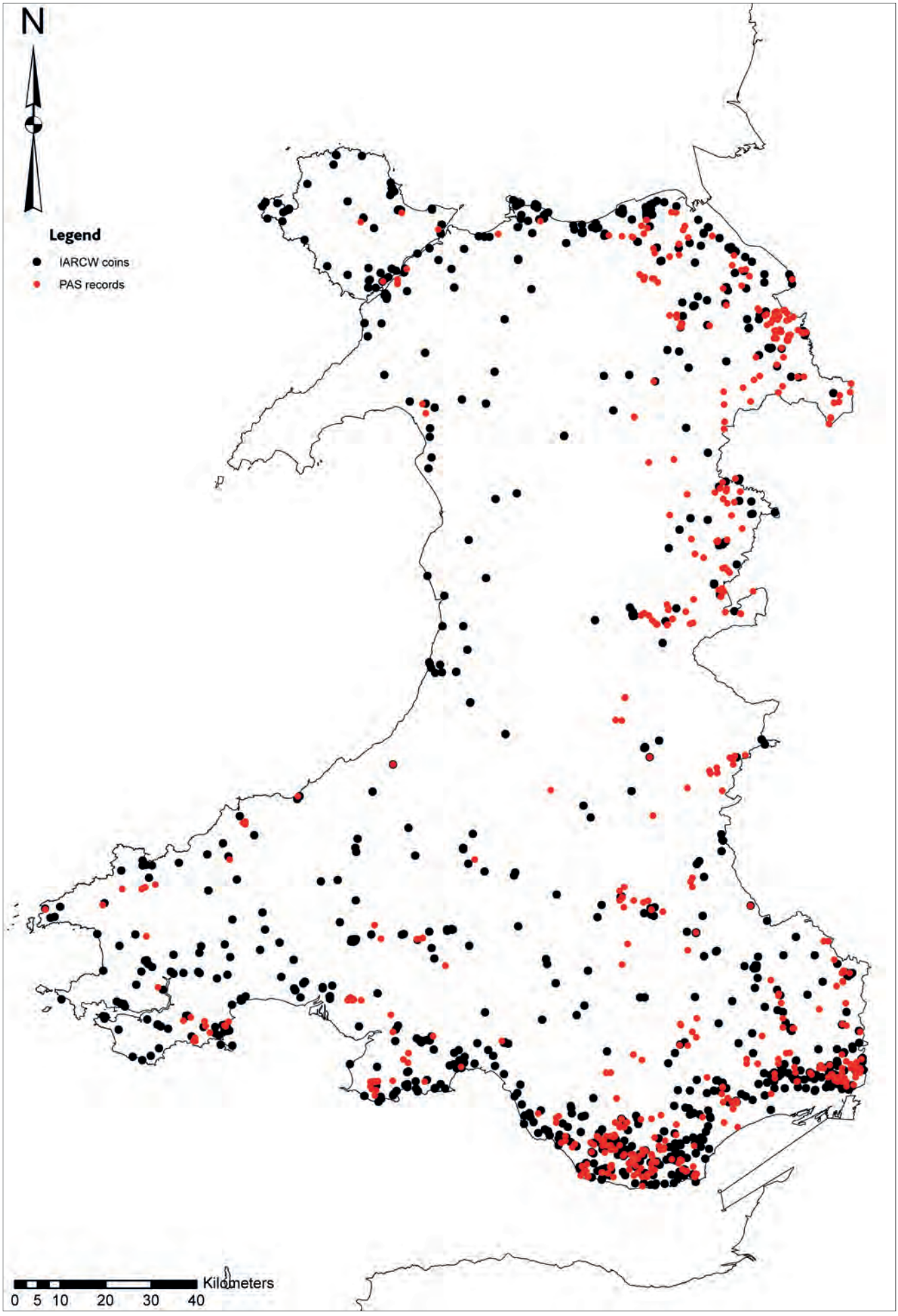


Plate1 A GIS plot of all Roman coins in Wales, demonstrating the overlap of PAS and IARCW

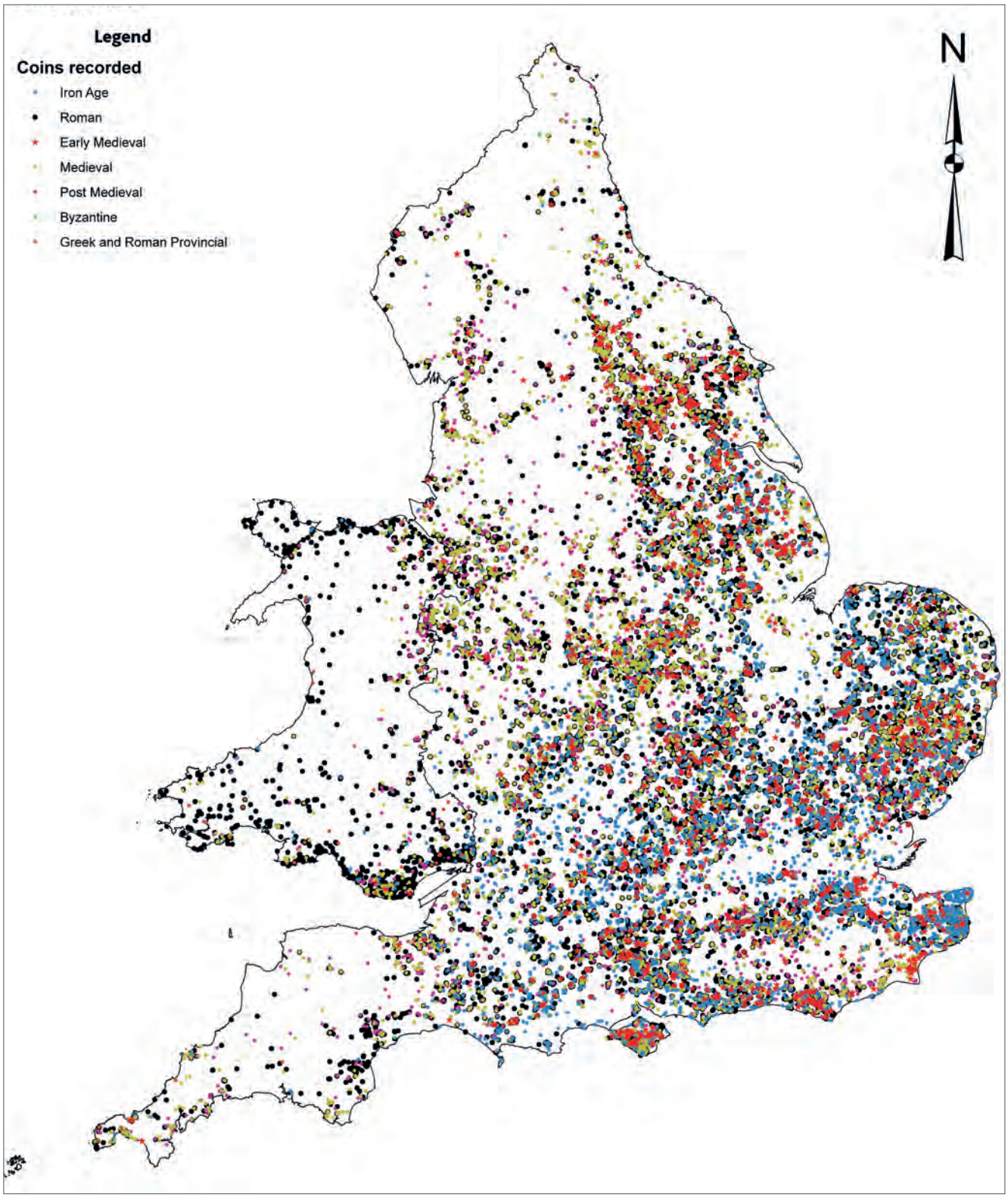


Plate 2 A plot of all coins recorded by the Scheme 1997–2010; individual period maps can be obtained from the PAS website

Index' and Cardiff University's 'Iron Age and Roman coins of Wales' (IARWC). The integration of these two data sets provides a better platform for applied numismatists to interrogate numismatic material for the entirety of England and Wales, juxtaposed with non-numismatic material. (This view was also espoused by Leins and Kelleher during their conference paper.) *Ergo*, a more holistic and indeed a national analysis of rural coin loss can be carried out,[9] something that cannot be done on any other content delivery platform in the UK.

A plot of data shown in Plate 1 demonstrates the discovery of Roman coins in Wales and shows up some interesting points. When the IARCW project was conducted (in 2003–7), it aimed to cover all known discoveries of Roman coins (and hoards) within Wales' borders. **Plate 1** shows a number of clustered areas where Roman coins have been found which were unknown during the original project duration. By combining these two datasets, it now allows researchers to construct better research questions based around the numismatic data available.

It is very easy to demonstrate the reach of the Scheme's recording efforts and this is shown via a simple GIS plot of all coins recorded overlaid by period (**Pl. 2**). Without detailed statistical analysis, a broad analysis can see biases prevalent within the data: large clusters around Finds Liaison Officer bases, the influence of topography (for example mountains, fens and roads), the influence of permission to detect (for example the south-west is low on data, numismatic and artefact, due to the extent of Duchy of Cornwall land, where detecting is forbidden) and geological features. These biases are currently being examined in detail by Katherine Robbins, in an AHRC funded collaborative PhD between Southampton University and the British Museum, and the results are eagerly awaited.

The data that the Scheme records daily is enhancing our numismatic knowledge of England and Wales rapidly; since Daubney published his work in the *British Numismatic Journal*[10] and *Current Archaeology*,[11] two Venetian Doges (Andrea Dandolo – WMID-249932, Francesco Foscari - WMID-9A8817),[12] previously unrecorded in Britain, have been recorded. Moorhead's paper on Byzantine coin discovery in argues that the evidence evinced by the recording efforts of the Scheme could point to these coins being lost in antiquity and not only modern losses.[13] Bland and Loriot used the database for substantial parts of their research to document the discovery of single gold Roman coins, and indeed without these resources, the research of all these publications would have been much harder. This work also demonstrated that the rate of recording for single gold coins in England and Wales since 1998 is mostly attributable to the Scheme's recording system.[14] By using **Table 3** one can see that of the 109 single gold coins found since 1998, 76 were recorded with either the PAS or EMC, or as Treasure (in the case of coins reused as other objects) while only 33 have come from other sources (auctions, dealers' lists or online detecting fora).

In February 2010, a rare Roman denarius struck by the governor Vindex in his rebellion against Nero in AD 68 was recorded (WAW-4497B5)[15] and in 2010 several very rare coins of the usurping emperor Carausius have been acquired by the British Museum,[16] following the generous donation of the finder after reading an article by Moorhead in a detecting magazine. Unique discoveries are being added to the Scheme's database regularly, and there are far too many to document in this paper.

Other numismatic research that has recently been completed includes Philippa Walton's AHRC funded collaborative PhD, 'Rethinking Roman Britain: an applied numismatic analysis of the Roman coin date recorded by the PAS',[17] which came to the following conclusions.

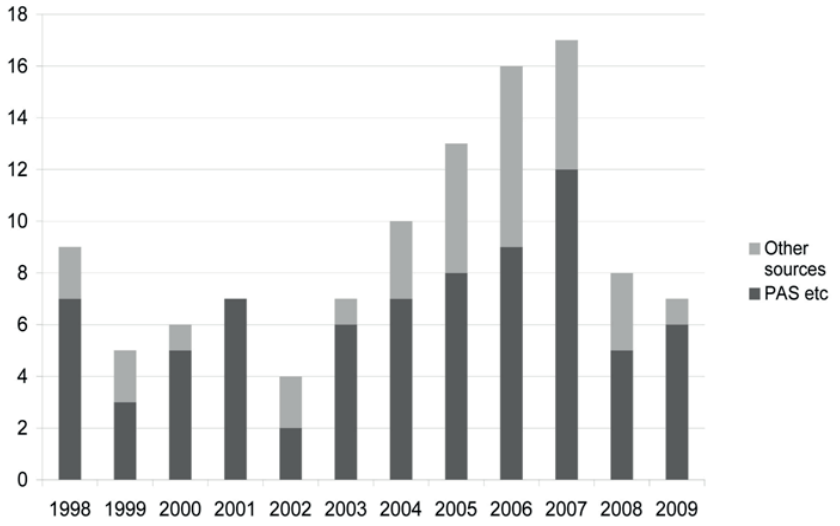
- The overwhelming majority of Republican coins were 1st century military losses.
- Claudian copies in England and Wales were firstly from military use, but then continued into the wider population in the 2nd century AD.
- It is still impossible to pinpoint the position of the 'C' mint in the reigns of Carausius and Allectus; coinage circulates far too quickly and widely to use mint marks as a way of locating the mint.
- It is possible to chart the shrinkage of coin use inwards throughout the 4th century, therefore demonstrating economic decline in Roman Britain.
- Through cluster analysis, it was possible to locate 30 new archaeological sites, using numismatic evidence alone.

In the last few years numismatic research use of the Scheme's database has been increasing rapidly; alongside Walton's PhD, two earlier presenters, Leins and Kelleher, are pursuing AHRC funded PhDs on Iron Age and medieval coins (1066–1544) respectively. The Scheme's research log lists another 27 projects in progress or nearing completion with a substantial numismatic strand within their research framework.[18]

One such completed AHRC-funded project that made use of Scheme and EMC data is the 'Viking and Anglo-Saxon Landscape and Economy' (VASLE) conducted at York University, which combined the evidence of coin finds with other artefact classes.[19] Perhaps the most pleasing aspect of the Scheme's work with young people and communities is the subsequent uptake of archaeological degrees and decisions to base their undergraduate dissertations on numismatic data. Dominic Coyne, who originally came to the British Museum on a Young Graduates for Museums and Galleries training programme (which was run from the Department of Coins and Medals),[20] is now pursuing his studies at Durham University with a thesis on the coin finds of the House of Constantine (AD 306–64 in east Yorkshire and the evidence they can provide for an economic history of the period.

To enable these research projects to be as comprehensive as

Table 3 Proportion of single finds of gold coins reported to the PAS, the EMC or as Treasure, compared with those identified from other sources



DENO-651C91 Coin

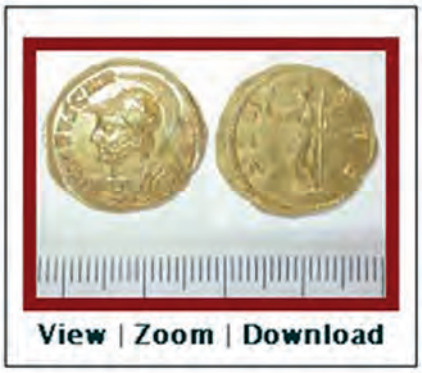
Object type certainty: (Certain)

CURATOR'S REPORT

Description of find

Roman coin; struck gold aureus of Carausius (286-293). Found in association with DENO-64DAE1.

Gold Aureus (20mm; 4.65g; Die Axis 12) London
Obverse: Helmeted and cuirassed bust of emperor facing left, looking glum. IMP T V S CAR/AVSI
Rev. Draped figure of Pax facing left, holding branch in front of her and sceptre behind. PAX AVG No mint mark



The coins

Coin data (numismatics)

Denomination: Aureus (Republic/Empire) [scope notes | View all attributed records]
Ruler/issuer: Carausius [scope notes | View all attributed records]
Reece period: Period 14 [275-296] [scope notes | View all attributed records]
Mint or issue place: London (Londinium) [scope notes | View all attributed records]
Obverse description: Helmeted and cuirassed bust of emperor facing left, looking glum.
Obverse inscription: IMP T V S CAR/AVS
Reverse description: Draped figure of Pax facing left, holding branch in front of her and sceptre behind.
Reverse inscription: PAX AVG
Die axis measurement: 12 o'clock [scope notes | View all attributed records]
Degree of wear: Slightly worn: very fine [scope notes | View all attributed records]
Reverse mintmark: No mint mark
Status: Regular

Coin references

- RIC : V 3-5

Plate 3: DENO-651C91 A struck gold aureus of Carausius (286–93)

possible, the database has to be extremely rich in the data that it captures. It exceeds the usual numismatic or collections databases that are traditionally employed and gathers a wide variety of extra information. Every numismatic record that the Scheme produces, either via professional or public data capture, is now tailored to the period ascribed to the coin. Fields are displayed as and when needed. So, for example, Reece period is shown for Roman coins and not for medieval coins and a Celtic Coin Index number is only available on Iron Age records. Each record is also accompanied by geo-spatial data, thus placing the coin in a horizontal plane and through the use of satellite data a digital elevation can be obtained. **Plate 3** demonstrates a verified coin record that has met the exacting standards implemented by the author, Sam Moorhead, National Finds Adviser for Roman and Iron Age coins and John Naylor, National Finds Adviser for medieval coins.

Every image uploaded to the Scheme's database is now available in a high resolution zoom-and-pan interface (this uses the same technology, Zoomify, but with a specific script developed for this project, as used for the National Gallery, These high resolution images allow for detailed viewing: **Plate 4** shows an aureus of Tiberius from Suffolk (SF-9E7B96).[21]



Plate 4 High resolution image of an aureus of Tiberius

Numismatic guides – a learning aid

The Scheme's website provides a significant learning tool for a new numismatic audience; curious amateurs, finders of numismatic material in the field and university students with no academic numismatic background. The Scheme itself provides extensive numismatic training (provided by Moorhead and Naylor) for a generation of archaeologists – 41 full time staff members, many volunteers and curatorial staff in several museums. It is however, through the reach of the web that the Scheme has managed to make the greatest impact on numismatic dissemination.

In early 2005, Ian Leins and the author collaborated on a project to produce an online guide to the identification of Roman coins. This proved to be extremely popular and rapidly rose to the top of the Google index, driving traffic to the Scheme's website. Following the success of this guide, it was decided to implement a similar approach for the other numismatic periods of England and Wales. However, any such guide needed to have authority, and be discoverable easily via search engines. Therefore it was decided to replicate the structure of the Roman guide and use the subsequent guides to drive the dropdowns for controlled terminology used at the time of data entry. The guides, which have been sourced from the appropriate numismatic sources (North, *Roman Imperial Coinage*, etc.) provide:

- issuing authorities
- issuing mints
- types
- reverse types
- Reece periods (Roman coins only)
- categories
- moneyers

In turn, each of these entities is expanded for scope notes, biographical details which have been sourced from Wikipedia (via dbPedia – see below), maps of find spots, portraits of issuer, latest examples recorded by the Scheme and, if available, high-resolution obverse images. A simple data model allows for the correct choices to be made by either the person entering data onto the system or the person attempting to get data out of the system.

These simple links between entities (for example Roman coins) allow one to choose a denomination, then an issuer and all the subsequent characteristics associated. **Figure 1** demonstrates one of the simple data models and a flow chart of choices when entering or searching for a Roman coin.

Other aspects of these guides include:

- articles on numismatic issues for the relevant period;
- translations of common inscriptions;
- links to recently recorded examples and the high resolution images that accompany each record.

The provision of these guides has also led to accidental entry into the Scheme's database. Internet searches for Nero have brought people to the Scheme's site, whereupon they have seen examples of his coins displayed alongside his biography. They have then trawled our database to find out more about his coins and their place of discovery.

Leverage social media for gains

The PAS has decided to promote numismatics on various social media platforms to widen the reach of numismatic information. These include Twitter, Scheme blogs and Facebook for textual dissemination of numismatic data and Flickr for dissemination of images. The PAS had considerable success using these media during the initial period of public exposure for the Staffordshire Hoard in September 2009, with over 1,000,000 views of the images in three days.[22] For example, the Scheme's Flickr sets include images of the Hackney gold double-eagle hoard, a set dedicated to Roman Emperors and their wives as depicted through numismatics and a set for the Frome Hoard, discovered in April 2010. By putting images onto this social network, they can be licensed appropriately (in the Scheme's case a Creative Commons licence) and re-use is encouraged, with images appearing around the web on blogs and newspaper websites. This platform is used as a press storage area for high resolution images, thus saving costs of using the traditional picture houses. Other heritage organisations are buying into this low cost platform, notably the 'Commons' concept of images with no known copyright restrictions, Wessex Archaeology disseminate excavation and small finds data and English Heritage now post images onto Flickr and retrieve them via meta-data tags for re-display on pages about their properties.[23] (These can even link to purchasing facilities for high resolution versions, for example the British Museum's own image bank.) Information is also regularly sent out via Twitter for extremely rare coin finds;[24] text and image links are posted onto the PAS's Facebook page wall.[25] Numismatic material can be flagged on the database as 'finds of note', which can be searched via traditional interfaces and feeds of data can be subscribed to, automatically alerting the subscriber to new or interesting discoveries. Also, within the confines of the PAS website, a facility exists for members of the public to comment and even suggest amendments to records. This two-way dialogue encourages people to interact with numismatic data and specialists.

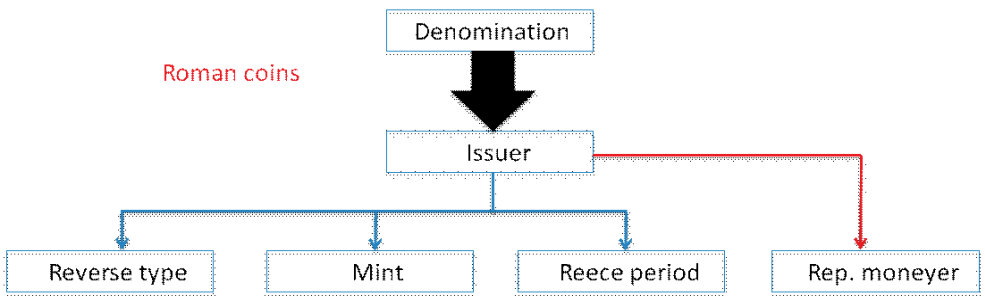


Figure 1 Structured numismatic dropdown model

Earlier in this paper, the topic of Wikipedia was mentioned with regards to enriching content. However, the Scheme has taken the opportunity provided by the innovative Wikipedian-in-Residence project hosted by the British Museum,[26] to make further steps to boost visibility on their platform. In July 2010, Somerset County Council and the Scheme announced the discovery of the immense Frome hoard (150kg of radiates of the period AD 253–90). This did not create the same impact as the Staffordshire hoard, but still attracted widespread public interest and provides a model of best practice for detectorist / archaeological interaction.[27] Prior to, and during this announcement, the Scheme passed on news, facts and images to Wikipedians and an entry was generated (predominantly by Andrew West – Babelstone) on the day of launch. By releasing much of the Scheme's social media-friendly content under a Creative Commons Attribution licence, images and text have subsequently been disseminated into an arena that can reach new and wider audiences (during launch month, the Wikipedia entry for the Frome Hoard had 10,721 views,[28] which exceeded the monthly figure for the flagship Hoxne hoard challenge piece in the same period).[29] This content seeding has also been replicated on several occasions since the Frome Hoard, with the infamous Crosby Garrett helmet perhaps the most famous example.[30] The Scheme has specifically made images available under the correct licence,so that the Wikipedia entries can be published with more comprehensive and correct information. The fact that the Scheme provided these images is cited prominently on the Crosby Garrett page, and a large amount of material has been made available in the Wikicommons archive.[31]

The Scheme is obviously not the only relevant entity engaging in social media activity. Other notable presences include the American Numismatic Society (via Facebook and Twitter) and the British Museum and BBC featured numismatic material in the widely acclaimed radio series 'A history of the world in 100 objects', with several of the objects chosen being numismatic and forming the basis of the podcasts; these were referred to eloquently by Orna-Ornstein at this conference.[32]

Standardisation

Elsewhere in this paper, the logical nature of numismatics was cited. This logicality makes it relatively straightforward to impose standards upon numismatic recording. Work has been ongoing on this topic for many years now, and the efforts of an AHRC-funded workshop in London in 2007 produced a standardised data sharing protocol – NUDS – or the Numismatic Database Standard.[33] The overarching desire of this project is to capture the very distinct properties present in numismatic material – primarily obverse and reverse characteristics. It is envisaged that this protocol will be revisited and revised over the next couple of years.[34] The XML standard that can be produced from the NUDS protocol could easily be adapted to OAI-PMH metadata and therefore make the creation of a coin portal extremely simple.[35] The use of OAI in numismatics has been ongoing for over 10 years, with Blackburn documenting how the Fitzwilliam used it to syndicate their coin resources.[36]

A need for authoritative sources of numismatic information, along the lines of the *geoNames* project could be the answer to many problems in numismatic database design.[37] If each denomination could be assigned a stable entity, and all the variant forms (in different languages) attached to this stable entity, it would enable easy navigation between disparate resources. Sebastian Heath and colleagues working from the ANS in New York have been developing models and coding concepts that are working towards this goal, with their *Nomisma*[38] project and alongside the Scheme's own website, the integration of geographical data from the derived Barrington Atlas of the Classical World (*Pleiades*) has allowed for enriched resources which cite an authoritative entity. For example both sites reference Rome with the same URL (http://pleiades.stoa.org/places/423025) which therefore leads to both websites talking about the same place. Following on from this geo-service, if a comparable service existed for denominations or issuers, then all numismatic databases could reference this endpoint (with all aliases referenced to each entity) and ensure that each disparate resource is talking about the same numismatic entity. Hence if a denomination is given a different appellation in another country, referencing the authoritative source would negate confusion.

Touching upon linked numismatic data

Earlier in this paper, the concept of linked data was introduced without the reader being apprised of the fact. The coin guides that the Scheme operates make tentative steps towards the consumption of linked data originating from Wikipedia. By using Wikipedia as a form of CMS, the Scheme has saved many hours rewriting biographical abstracts for issuers and been able to retrieve factual information from a variety of sources. This has been implemented by simply utilising the same name as used in the 'page slug' on Wikipedia, and then querying a web service called dbPedia (a database extract of the contents of Wikipedia). This returns an XML response that can be parsed and redisplayed on the Scheme's biographical pages and therefore enriches the user experience. **Plate 5** provides the example of an end result for Æthelred the Unready.

Building your own collection of data

This explosion in data visibility, and the ubiquitous idea of easy access, brings with it a few problems for many numismatists. Many are just interested in one period of coinage and would like to query multiple datasets through one interface. This is an issue that surfaces regularly in the Museum sector, with *Europeana* and *Culture Grid* being examples of multiple repositories being searchable via a unified interface. This has been met with varying degrees of enthusiasm, but it should be seen as a step in the right direction. There are indeed ways for individuals to create their own archives. The advent of Open Source technology, has led to an explosion of 'Content Management Systems' (CMS), freely available and customisable on the internet. It is now possible for institutions and individuals (researchers or collectors) to create their own repository of coin data, using the same toolset that is the underpinning of *Europeana* – the Open Archives Initiative.

Prior to producing this paper, the author created an example application using *Omeka*, a CMS produced by the Centre for History and New Media at George Mason University.[39] This powerful software has been created to allow 'scholars, museums, libraries, archives, and enthusiasts' to share their collections easily via a free and open source

Portable Antiquities Scheme

The Portable Antiquities Scheme

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- Early Medieval coins
  - Introduction
  - Issuing rulers of England
  - Foreign issuing rulers
  - Issuing mints
  - Denominations
  - Categories
  - Types
  - Search
- Other numismatic periods

Data enhanced by: calais, GeoPlanet, DBpedia

Home » Earlymedievalcoins » Rulers » Ruler details

Æthelred the Unready

Date of reign: AD 978 – AD 1016

View **all coins recorded** by the scheme attributed to Æthelred the Unready.

Wikipedia derived information



Æthelred the Unready, or Æthelred II (circa 968 – 23 April 1016), was king of the English (978-1013 and 1014-1016).

He was son of King Edgar and Queen Ælfthryth. Æthelred was only about 10 (no more than 13) when his half-brother Edward was murdered. Æthelred was not personally suspected of participation, but as the murder was committed at Corfe Castle by the attendants of Ælfthryth, it made it more difficult for the new king to rally the nation against the invader, especially as a legend of St Edward the Martyr soon grew.

Later, Æthelred ordered a massacre of Danish settlers in 1002 and also paid tribute, or Danegeld, to Danish leaders from 991 onwards. His reign was much troubled by Danish Viking raiders. In 1013, Æthelred fled to Normandy and was replaced by Sweyn, who was also king of Denmark.

However, Æthelred returned as king after Sweyn died in 1014. "Unready" is a mistranslation of Old English unræd (meaning bad-counsel) - a twist on his name "Æthelred" (meaning noble-counsel)..

Wikipedia page: http://en.wikipedia.org/wiki/Æthelred_the_Unready
This data is sourced from dbpedia, and as such should be treated with caution

Latest examples recorded



Record: **DUR-983702**
Object type: COIN
Broadperiod: EARLY MEDIEVAL



Record: **KENT-DBA817**
Object type: COIN
Broadperiod: EARLY MEDIEVAL



Record: **KENT-D96CA7**
Object type: COIN
Broadperiod: EARLY MEDIEVAL



Record: **NCL-2388F6**
Object type: COIN
Broadperiod: EARLY MEDIEVAL

Denominations issued | **Issuing mints** | **Types issued** | Findspots

- **Cut farthing**
- **Cut halfpenny**
- **Penny**

This page is available in: **xml** **json** representations.

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T: +44(0) 20 73238518 E: info@finds.org.uk

Plate 5 Æthelred the Unready's biographical page on the Portable Antiquities Scheme's website

Table 4 Position of the coin guides on Google.co.uk as at 25/2/2011[40]

Guide	Google	Bing	Yahoo
Iron Age coins	7[41]	-	-
Roman coins	1	1	3
Early medieval coins	2	2	-
Medieval coins	1	1	-
Post Medieval coins	1	-	-
Byzantine coins	1	-	-

Table 5 Long length visits for numismatic material on finds.org.uk

Search phrase	Pages views	Time spent
Enthroned Durham coin spia	519	3 hours 26 mins 52 secs
Types of Roman denarii coin	350	53 mins 49 secs
All bronze Roman coins	342	31 mins 37 secs
Probus emperor coins	249	2 hours 35 mins 12 secs
Index of Roman coins	227	1 hour 4 mins
Iron age coins Lincolnshire	186	2 hours 26 mins
Site: finds.org.uk Early medieval coin guide	192	1 hour 15 mins

software package (FOSS) and achieve high-quality results. The author installed this software on the Portable Antiquities Scheme server and by using a plug-in for harvesting OAI data feeds, data from the Portable Antiquities Scheme, the Celtic Coin Index and the Hunterian Museum were integrated in a matter of hours. The software has much potential for the numismatic community, with the ability to customise user interfaces easily and also the facility to upload data from omnipresent numismatic spreadsheets.

Measuring impact

Any resource that is created is only really successful if people use it. Advances in internet technology now mean that you can easily measure people's interaction with your content. Using free monitoring tools, such as Google Analytics or log file analysis, means that you can measure volumes of users, time spent on your resource, how they found your site.

The successful penetration of the Scheme's coin guides into the search engine market can be measured via a simple search on various engines for each of the results shown in **Table 4**, the simple phrase 'the period + coins' was entered and the position on the results page returned. These positions have been achieved with no financial outlay for search engine adverts or keywords via semantic mark-up, sensible URL structure and attention paid to meta-tags and for Google, by submission of XML sitemaps. Museum-based numismatics is generally invisible on the first pages of search engine results.

When analysis is made of search engine traffic, 45.07% of the Scheme's traffic is sent via Google, 0.69% via Bing and 0.25% via Yahoo. The *de facto* search engine for most internet users is Google,[42] with their share being 62.6% of the market; thus, the author has spent most time on cultivating search engine ranking prominence on this platform.

Since re-launch in March 2010, 9.09% of content browsed on the database relates to numismatic material, with the Roman coin guide's list of emperors being the most popular segment. However, this numismatic content seems to hook people into remaining within our information silo for a considerable period of time.

Table 5 demonstrates the longest visits by individuals, following a completed search phrase to the Scheme's website, with one viewer looking at an amazing 519 pages in a visit that lasted over 3 hours! Perhaps the pertinent question is 'did (s)he find what (s)he was looking for? Or was (s)he hooked by amazing content?' It is of course hoped that this is indeed true in both of these cases! However, web metrics are fraught with problems,[43] but this issue is outside the scope of this paper.

Using powerful analytical tools, one can thoroughly analyse whether your resources are being utilised fully or are being ignored due to search engine invisibility.

Conclusion

It is hoped that the above text has appraised the reader of the huge array of academic resources that are available for reference online. It is apparent that some excellent resources will have been ignored, and for that the author can only hope for your forgiveness.

The state of numismatic knowledge on the internet is probably in a far better state than for most other archaeological objects. The applied logical structures that can be imposed on numismatic data lend themselves to strict standardised data entry/retrieval and robust ontologies and provide a framework from which to build excellent learning tools. Projects need to continue, they need to access funding and keep improving to promote the continued prominence of high-quality numismatic learning. It is hoped over the next year or so to maintain this development path for numismatic digital data standards, particularly for methods of sharing data on coin hoards and for reviving the Numismatic Database Standard (NUDS), and that these standards can be adopted worldwide.

Abbreviations

AHRC	Arts and Humanities Research Council
ANS	American Numismatic Society
CCI	Celtic Coin Index
CMS	Content management system
EMC	Early Medieval Coin Corpus
FOSS	Free and open source software
IARCW	Iron Age and Roman coins of Wales
NUDS	Numismatic Database Standard
MLA	Museums, Libraries and Archives Council
OAI	Open Archives Initiative
OAI-PMH	Open Archives Initiative Protocol for Metadata Harvesting
PAS	Portable Antiquities Scheme
RPC	Roman Provincial Coinage
VASLE	Viking and Anglo-Saxon Landscape and Economy
XML	Extensible markup language

Notes

1 http://www.britishmuseum.org/explore/young_explorers/discover/videos/a_brief_history_of_money.aspx.
2 http://www.wildwinds.com/.
3 The Numidat database only has 200 records in the online version. Offline, 20,000 are available (pers. comm. David Wigg-Wolf, February 2011).
4 This figure is from a pers. comm. Sebastian Heath, February 2011.
5 PAS incorporates the CCI and IARCW data, this figure is excluding the totals for these resources.
6 The figure for the EMC data is for single coin finds (pers. comm. John Naylor, February 2011).
7 This figure includes the imported date from the Oxford university Celtic Coin Index, 37,925 coins.
8 This figure includes the imported data from Cardiff university's Iron Age and Roman coins of Wales project, 52,666 coins.
9 The majority of the data the Scheme collects is rural, but some of the incorporated data (IARWC and CCI) comes from urban excavation.
10 Daubney 2009.

11 Daubeney 2010.
12 For Dandolo, see http://www.finds.org.uk/database/artefacts/record/id/262227 and for Foscari http://www.finds.org.uk/database/artefacts/record/id/425736.
13 Moorhead 2010.
14 Bland & Loriot 2010, 31, fig. 22, reproduced above.
15 http://www.finds.org.uk/database/artefacts/record/id/428960.
16 See Leins and Kelleher in this volume.
17 A book of Walton's PhD research is to be published late 2011.
18 http://finds.org.uk/research/projects.
19 Naylor & Richards 2007.
20 http://www.britishmuseum.org/learning/schools_and_teachers/young_graduates.aspx.
21 http://www.finds.org.uk/database/artefacts/record/id/148551
22 Pett 2009.
23 For example, see Bolsover Castle – http://www.english-heritage.org.uk/daysout/properties/bolsover-castle/.
24 http://twitter.com/#!/portableant/status/40192330879213568 – a Faustina I denarius.
25 http://www.facebook.com/PortableAntiquitiesScheme/.posts/101644986582084 – Civil War denarius of Vindex.
26 http://www.wittylama.com/2010/03/the-british-museum-and-me/.
27 Bland, Booth & Moorhead 2010.
28 http://stats.grok.se/en/201007/Frome_Hoard.
29 http://stats.grok.se/en/201007/Hoxne_Hoard – Wikipedia stats for Hoxne.
30 http://en.wikipedia.org/wiki/Talk:Crosby_Garrett_Helmet – refer to section under picture.
31 http://commons.wikimedia.org/wiki/Category:Portable_Antiquities_Scheme.
32 Radio episodes: 25 (gold coin of Croesus); 31 (coin of Lysimachus with head of Alexander); 42 (gold coin of Kumaragupta I); 46 (gold coins of Abd al-Malik); 56 (Vale of York hoard); 80 (pieces of Eight); 95 (Suffragette defaced penny).
33 Heath 2010.
34 Pers. comm. Heath, February 2011.
35 OAI-PMH: Open Archives Initiative develops protocols for disseminating disparate resources efficiently. It is a model used by MLA sponsored Culture Grid and the European Union funded project Europeana.
36 Blackburn 2005.
37 http://www.geonames.org/.
38 http://nomisma.org/.
39 http://7pillarsofwisdom.co.uk/omeka.
40 The Celtic Coin Index is also run from the Scheme's domain, and ranks higher.
41 Following Google's search index reorganisation, these figures might change. For more information on the changes, see: http://googleblog.blogspot.com/2011/02/finding-more-high-quality-sites-in.html.
42 Shiels 2010.
43 Chan 2008.

The British Museum and Numismatics

The Future

Philip Attwood, Keeper of Coins and Medals, British Museum

I realise that it is now over seven hours since a good number of you first sat down. It has been a long day but, I hope you agree, a most interesting and instructive one, and I would ask you all to bear with me for this final presentation. Much of what I want to mention has already been touched upon today by our various speakers, but what I would like to do in the time available is to try to bring these strands together and say something about how those of us who work in the British Museum's Department of Coins and Medals see the way forward for the Department and the role it should be playing in the numismatic world of the future. I will divide what I have to say into three broad areas: firstly, research and the advancement of knowledge and understanding – what will our contribution be?; secondly, partnerships – who will we be working with?; and thirdly, access – how will we share both our collection and our knowledge more broadly?

In speaking about research, the first point to be made is the fairly self-evident one that the British Museum's unrivalled collections must be at the heart of what we do. Robert Bracey talked about the coin studies upon which he and Joe Cribb engaged, which will completely reshape our understanding of the history of a particular part of south Asia. This project represents an important 21st-century example of the process allegorised in medal reverses of the 19th and early 20th centuries showing numismatics as the helpmate of history. But there are different sorts of history and the relationship between numismatics and other disciplines can take different forms. Luke Syson has brought to the subject an art historian's way of thinking and today has reminded us just how important a consideration of coins and medals is for an understanding of cultural history, whilst Katie Eagleton has discussed the value of bringing economic history and an anthropological perspective into our studies.

The traditional taxonomic numismatic approach remains the core of much of what we do but the ability to contextualise and think in interdisciplinary (or multidisciplinary) terms has never been more important. The Museum has recently identified six broad overarching research themes, which we believe will help us approach our research more strategically and enable us to arrive at a more profound knowledge of the cultures we study by revealing those parallels and differences, those convergences and divergences that help us understand both past and present. Particularly relevant to the Department of Coins and Medals are the themes of image and authority, of ocean trade and connections, and of seeing the divine. Some of our existing projects fit neatly within these themes and other areas of research will undoubtedly be suggested by them. We look forward to the increased possibilities that this new framework will give us for thinking more cross-culturally and for working more closely with our colleagues both in other museum departments and in the broader scholarly community.

At the same time it is important that the collection that forms the basis of this research continues to grow in order to reflect new discoveries and new developments. Gareth Williams has spoken about this and Ellen van Bork and Duncan Hook have outlined some of the possibilities for the future in terms of the conservation and scientific study of the objects in our care. As Gareth has said, we are continually adding to the collection both through purchases and through donations. In the present financial circumstances donations have come to assume a much greater significance, and we are most grateful to those individuals – some, I know, present today – who have given us objects and even entire collections. These gifts are often accompanied by a great deal of knowledge, acquired by the collector while building up the collection, and this is something from which we are always happy to learn. As you know, the British Museum's collection is global in its range, but I would particularly like to mention a recent initiative, the establishment of the British Museum's British Coin Fund, which is intended to act as a focus for our efforts in acquiring coins of importance to the numismatics and history of Britain; you will find more information about this exciting development on the desk outside.

Of course, there are objects that we cannot acquire. Some discretion is given in the cases of coins that can be classed as (to quote) 'minor objects', if there is no particular reason to suspect illegal activity. But any object that cannot be designated a 'minor object' and that may have been either illegally excavated or illegally brought into the country in recent years cannot be countenanced – and indeed international and national museum guidelines state clearly that not only can we not acquire such objects but neither can we borrow or offer advice on them. Difficulties may arise when a curator is abroad, if the practice of a museum that he or she is visiting differs from those agreed internationally. This is a thorny issue and one that we are currently discussing within the Department, our aim being to produce guidelines for our own use. The important point is that we adhere closely to the principles and practices set down by UNESCO and endorsed by the UK government and such organisations as the Museums Association and the British Museum itself. This course of action may mean that opportunities are sometimes lost and in some cases our knowledge and understanding will not grow as rapidly as we would wish, but the alternative is to collude with practices that are wholly destructive of that knowledge and understanding.

In the British Museum we see our role not only as undertaking our own research but also as enabling others outside the Museum to complete theirs, and this is one of the reasons that we make the collection available through the study room and the internet. Eleanor Ghey has just been describing what is available online. The Coins and Medals

study room has not been mentioned today but will be known to many of you and is now once again fully open following five months of restricted capacity while a new fire alarm was fitted. A recent addition to the room is a terminal where students can access both the BM collections online and the online catalogue of our numismatic library. As Eleanor has indicated and as you can imagine, the process of placing the collection online is going to be a long one. The same can be said for the library catalogue. Our library is one of the best numismatic libraries in the world but its size means that it will be some years before it is fully catalogued in digital form. The work of placing both the collection and the library catalogue online is largely dependent on the contributions of benefactors, and we are again fortunate in the assistance we are receiving from a few generous individuals who want to be able to access the catalogue or a part of the collection from their home or office and at the same time to help us in our aims.

This brings me to the second of my themes: partnerships. We heard at the beginning of the day about the numismatic role the British Museum has played – and should play – in both the international and national spheres. Christel Schollaardt mentioned the various international organisations to which the BM is committed not only to supporting but to playing a major role within. Curators within Coins and Medals have direct contacts with colleagues in all parts of the world and the international numismatic research projects in which we play a leading role or are closely engaged involve our working collaboratively with scholars in Europe, North America, China, Japan, Iran – I could go on, and, indeed, earlier this afternoon we heard Robert Bracey talk about our engagement with colleagues in Central and South Asia and Katie Eagleton on recent collaborations in Africa. Other joint ventures, such as *Roman Imperial Coinage*, are more longstanding.

This engagement with colleagues in other countries is, of course, set to continue, and, if possible, we would hope to broaden it even further, expanding to include other activities such as, for example, exhibitions centred on coins and medals. Our objects are relatively easily transportable and in the past we have sent themed numismatic exhibitions to countries as diverse as Belgium and Japan, but it would be good to work with partner museums abroad in the development of touring exhibitions. In the UK we already have a partnership along these lines with Birmingham University's Barber Institute of Fine Arts, and the next exhibition for Birmingham on which we are working is *Cityscapes*, a new version of a show that some of you may have seen a few years ago at the BM.

Nick Mayhew spoke earlier of the role of the British Museum in the UK, and what I wish to say will act as a sort of supplement to his remarks. One of the major tools through which we want to ensure greater cohesion within UK numismatics is the new *Money & Medals* newsletter, which we at the BM are producing in association with colleagues in other museums, with the national numismatic and medallic societies, and with the British Numismatic Trade Association. We are hoping that we will soon also be able also to involve the British Association of Numismatic Societies, as our goal is to connect with as many people as possible. As many of you will know, the newsletter has been created out of the old *CCNB Newsletter*, which has been given the more immediately comprehensible title, *Money & Medals*, with the explanatory strap line: the newsletter for numismatics in Britain. If anyone has not seen the newsletter, there are copies outside, which contain details of how to subscribe.

The change in the newsletter is an important one and is part of a larger project on which we have embarked to make numismatics more accessible to all. The other part of the project is the Money & Medals website, which went live just a few weeks ago. We are still very much in the early stages of building this, but do take a look. The address is www.moneyandmedals.org.uk. Richard Kelleher, who spoke earlier, is website manager as well as editor of the newsletter. Our aims are that both the newsletter and the website should act as an information exchange for all those with an interest in the subject and also that they should draw in others. One of the features that we plan to include on the website is a database of UK public numismatic collections both large and small, which will be put together largely by staff from the BM's Department of Coins and Medals, working with curators in the museums concerned. Any museum that wants to be involved should contact either me or Gareth Williams – or indeed any of our colleagues. It is hoped that this mapping exercise will help bring together curators and other professionals and enthusiasts both nationally and locally. It will also enable us to form a network of museum curators whose collections include numismatic material, many of whom may not be numismatists. This network will be well placed to make the broad case for the potential of numismatic collections and the importance of numismatic expertise for bringing those collections effectively to a wide audience. Another advantage of the exercise will be that it will enable us to identify any gaps in expertise, which then can be something we would address in training sessions held at the BM, so that any curator whose collection includes a particular series of coins or medals can develop further his or her knowledge.

While speaking of training, it is self-evident that the future of numismatics depends wholly on the full engagement of the next generation, and at a time when numismatic teaching in universities appears to be on the decrease this too is an area that we are addressing, notably in the summer school on classical coins run by Amelia Dowler (who is chairing this session). Generous support from the Robinson Charitable Trust, the Classical Association and other organisations has meant that we can continue to hold this event. Now in its third year, the 2011 school is being expanded from the usual one to two weeks. The Department of Coins and Medals is also participating in the Museum's Future Curators programme, an HLF-funded scheme overseen by John Orna-Ornstein that takes five people a year as trainee curators, working in the British Museum for six months and then moving to a partner museum where they can put into practice their new-found expertise. One of the first of these recruits will from April work on Asian coins in the BM with Helen Wang before moving to Manchester Museum for a year. We hope to continue our participation in this scheme in future years and thereby help ensure that new experienced numismatic curators come into the field. The collections mapping exercise that I mentioned earlier should help us identify museums where specific areas of knowledge would be useful and direct the training offered accordingly.

Turning to the question of access, I would begin by

reminding you that from its beginnings in 1753 the British Museum has seen its audience as – to use the eighteenth-century terms – the 'curious' as much as the 'studious'. Today we recognise very clearly that we have a duty to engage directly with the general public as well as with the academic world. This was the theme of this afternoon's final session, and our speakers – John Orna-Ornstein, Eleanor Ghey and Daniel Pett – have indicated some of the ways in which we do this and given us some pointers for the future. As they have indicated, the internet is central to these efforts. As a more generally accessible alternative to the online scholarly catalogues mentioned by Eleanor, which can be found in the Research section of the Museum's website, non-specialist visitors can instead go to the Explore section, where they will find online tours in which a dozen or so objects are grouped around such themes as 'The wealth of Africa' or 'Michelangelo: money and medals'. Or they can search by gallery, choosing the Money Gallery, where they can find images and brief discussions of many of the objects on display, or one of the many other galleries in which coins and medals are displayed in the context of the cultures that produced them.

For visitors to the Museum building, these displays, spread over more than 20 galleries, include the broadest imaginable range of objects, from the earliest coins to medals commemorating the construction of the Channel Tunnel. As the galleries around the Museum are refreshed, we work with our colleagues in the other collections departments and with designers and interpretation officers to find new and ever more effective ways to present coins and medals to the public. The results can be spectacular, as anyone will testify who has visited the recently redesigned Medieval Europe Gallery and seen the Fishpool hoard of medieval gold coins. This mass of gold is for many visitors an irresistible draw and, while they are admiring it and finding out about it, they hardly notice that they are being given a history lesson in the Wars of the Roses. The Museum is now embarking on a renewal of the Early Medieval Europe Gallery, in which our curator of early medieval coins Gareth Williams is closely involved.

For those visitors who wish to know more about coins and other sorts of money – how they have been made, how they have been used (and misused), the different forms they have taken – the Museum's Money Gallery (Room 68) is the place to go. Situated on a major thoroughfare through the Museum, the gallery receives over two million visitors each year. Some of these visitors come specifically to learn about the history of money but most are passing through on their way to another part of the Museum when their attention is attracted by one of the diverse range of objects displayed. The gallery was created in 1997 and was made possible by sponsorship from HSBC, which allowed us not only to create the display but also to employ a curator who could take care of it and run educational programmes around it. Fourteen years later that sponsorship is about to come to an end and we are now very hopeful that a similarly enlightened institution will soon take up this opportunity.

When the gallery was set up, it was truly ground-breaking. Before then numismatic displays had focused on the history of coins and medals. Joe Cribb's idea of creating a gallery that instead tells the history of money resulted in a narrative with a broad appeal that engages the general public as well as the specialist. The gallery has been so successful and so widely imitated in the years since it opened, with similar galleries and entire money museums springing up around the world that it is difficult now to appreciate just how revolutionary it was back in 1997.

In parenthesis, I should like to point here to one important consequence of this change of focus that is not often addressed, but which I, as a medal specialist, would like to see discussed more widely. It is of little concern in a larger museum such as the British Museum that the move from a coins and medals gallery to a money gallery effectively excludes medals to a large degree, for there are generally other galleries in which medals can be shown, notably, in the case of the BM, the suite of galleries devoted to post-medieval Europe. Specific money museums, however, do not always have this possibility, and it seems to me that a coin and medal cabinet that rebrands itself as a money museum can sometimes face a real problem, and that is what to do with its medals? The worst scenario would be for a collection of international importance to be in effect moth-balled. Each museum will have its own solution to this problem. One answer would lie in the formation of partnerships with other institutions, but I do not propose to go further into this question here – it is a complex issue and I merely want to flag it up for further discussion within the international numismatic community.

The undisputed success of the BM's Money Gallery, made clear by the acclaim it has received, means that, once a new sponsor has been confirmed and we come to redo the gallery, we certainly do not plan to alter the central purpose behind it. Looking at it now, it has held up surprisingly well over 14 years. However, the various evaluations that we have conducted over the years and more general developments in our understanding of how galleries are received by the public mean that there are certain changes that we wish to see. Some are obvious, such as the need to have a larger font size for the label text to bring it into compliance with the Disability Discrimination Act. Others are more subtle. The messages need to be clearer; the overall number of objects needs to be reduced, so that individual pieces have room to breathe; the pace of the gallery needs to be made more varied; and the notion that a coin can be a beautiful object worthy of admiration for its own sake should be given greater emphasis. This will make the gallery more immediately accessible to those visitors categorised by the Museum as 'spiritually and emotionally motivated' as well as to those who come more purposefully to learn. Some of you may know of the practice, often followed by museum evaluations, of dividing visitors into four categories: browsers, followers, searchers and researchers. We need to display the objects in such a way as to stop the casual visitor in their tracks, to engage them, and then to convert them from a browser, that is, someone who engages only superficially with the display, into a follower, i.e., someone who wishes to follow the narrative offered, and perhaps ultimately into a searcher or a researcher. The careful use of relatively unobtrusive screens with moving images may also be helpful here, for example, to illustrate modern coin production. Another important element will be the inclusion of a greater number of flexible displays, which will enable us to incorporate new acquisitions and respond more readily to new developments and new discoveries. Alongside this we are also planning a general book that will approach the history of

money from a very new perspective.

Alongside the permanent displays, there are our temporary exhibitions, which similarly allow us to present the results of our research to a broader public. Some of those we are planning belong within the blockbuster category. A large Viking exhibition, which we are working on along with colleagues in Copenhagen and Berlin, will be one of that type. The smaller exhibitions in the gallery just outside the Department and the shows held occasionally in the prints and drawings gallery, such as 2009's *Medals of Dishonour*, also offer outlets for new research as well as giving us a chance to showcase different areas of the collection and respond to outside events. The current exhibition in our own gallery, on the designs for coins, medals and stamps of Eric Gill, and the next two that we will be putting on in that space give an indication of the range we are planning. Later this year we will open an exhibition on the cost of living, which will answer the question we are so often asked: how much was x worth in (add the year of your choice). This will be followed by an exhibition of money and medals related to Shakespeare, which will accompany a major BM exhibition planned to coincide with the 2012 Olympics. As these examples show, our focus will be very much on finding new approaches to coins and medals and on thinking across periods and cultures.

This has been a rapid and necessarily summary review of what we are planning for the future. It has to be said that this anniversary does not come at a time greatly conducive to celebrations. The recently announced cuts in public spending mean challenging times ahead for museums. National museums face a reduction of 15% in government funding over the next four years, whilst the position of regional museums is even more worrying, as local authorities decide how best to manage their declining resources. Meanwhile the well-publicised financial difficulties facing universities and uncertainties over future levels of funds awarded by the Higher Education Funding Council for England have the potential to affect adversely the activities of university museums. Set against these dispiriting developments, however, are other more positive signals for numismatics. As I understand it, the commercial sector continues to do good business, as collectors continue to add to their collections. As we have heard, detectorists continue to make extraordinary finds. And public interest in such discoveries as the Frome hoard is at an all-time high, with newspaper reports and television programmes regularly covering new finds. There is much for those who work in museums to build on.

Actively searching for funds that will supplement public funding is an absolute priority. Government funding for core costs is essential, but we have to continue to search elsewhere to help us with the things we want to do and we know need to be done: to trusts, such as the Robinson Charitable Trust and the UK Numismatic Trust, whose generosity has allowed this conference to take place, to corporate partners, and to individuals. As I have said, our plans for the future of the Money Gallery depend upon the future involvement of a large corporate organisation. Other activities can take place only as the result of the altruism of private individuals, and indeed our curator of South Asian coins is a post currently funded by one such generous person.

I will conclude by gathering together some of my main points. The British Museum's Department of Coins and Medals is committed to continuing to develop its research programme, forging ever-closer links with colleagues working in other disciplines. We also intend to work closely with the rest of the numismatic community to make the case for the importance of numismatic research and numismatic collections and to bring our particular area of interest to the notice of a wider public. That numismatic community is made up of curators, scholars, collectors, dealers, auctioneers, manufacturers, artists, Finds Liaison Officers working within the Portable Antiquities Scheme, and many others around the country. The institutions with which many of these individuals are associated constitute a broad range, including societies both local and national, businesses, charitable bodies, museums and universities. The Money & Medals network and newsletter offer ways of bringing all these people and institutions together, of putting real meaning into that phrase 'numismatic community', and we at the British Museum will continue to play an active role in those initiatives.

The BM's Department of Coins and Medals began to operate 150 years ago this month, but, as Andrew Burnett explained, the Museum has been a centre of numismatic activity for much longer than that – for 258 years. We look forward to continuing that tradition for many more years, and, for those of you who were here this morning for Andrew's talk, we will be acting more in the spirit of a Taylor Combe or a Reginald Stuart Poole than a Richard Southgate.

Part V

Appendices

Numismatists at the British Museum

This list is intended to encompass British Museum staff with a record of numismatic scholarship and publication. Unavoidably missing are the many scholars who have worked as volunteers and special assistants over the decades. Current staff members are listed in the final section.

Dept of Manuscripts (1753)
Andrew Gifford, 1756–84, Asst Librarian
Richard Southgate, 1784–95, Asst Librarian

Dept of Antiquities (1807)
Taylor Combe, 1803–26, Keeper from 1807
Edward Hawkins, 1825–60, Keeper from 1826

Dept of Coins and Medals (from 1861, for current staff see opposite)
William Vaux, 1841–70, Keeper from 1861
Reginald Stuart Poole, 1852–93, Keeper from 1870
Barclay Head, 1864–1906, Keeper from 1893
Herbert A. Grueber, 1866–12, Keeper from 1906
Percy Gardner, 1871–87
Francis Keary, 1872–87
Stuart Lane Poole, 1877–92
Warwick Wroth, 1878–1911
Edward Rapson, 1887–1906
(Sir) George Hill, 1893–36, Keeper from 1912, Director from 1931
John Allan, 1907–49, Keeper from 1931
George Brooke, 1908–34
Harold Mattingly, 1910–47
(Sir) Stanley Robinson, 1912–52, Keeper from 1949
John Walker 1931–65, Keeper from 1952
Derek Allen, 1935–47
Kenneth Jenkins, 1947–77, Keeper from 1965
Robert Carson, 1947–82, Keeper from 1977
Michael Dolley, 1951–63
Joan Martin, 1953–76
John Kent, 1953–90, Keeper from 1983
David MacDowall, 1956–60
Nicholas Lowick, 1962–86
Marion Archibald, 1963–97
Martin Price, 1966–94
Joe Cribb 1970–2010, Keeper from 2002
(Sir) Mark Jones, 1974–92, Keeper 1990–2
Andrew Burnett 1974–2002, Keeper 1992–2002, Deputy Director from 2002
Edward Besly, 1977–86
Ian Carradice, 1977–91
Roger Bland, 1979–2005
Virginia Hewitt, 1979–2005
Venetia Porter, 1989–2000
Luke Syson, 1991–2004
Richard Hobbs, 1991–3
Ute Wartenberg, 1991–8
Jonathan Williams, 1993–2005
John Orna-Ornstein, 1994–2004
Andrew Meadows, 1995–2007
Cecile Bresc, 2001–4
Laura Phillips, 2005–8
Kirsten Leighton-Boyce, 2001–9
Megan Gooch, 2009–10
Jennifer Adam, 2009–10

Dept of Portable Antiquities and Treasure (2005–)
Roger Bland, 2005–, Head of Department
Sam Moorhead, 2006–
Philippa Walton, 2007–

Staff in the Dept of Coins and Medals, February 2011
Philip Attwood 1979– , Keeper from 2010
Barrie Cook, 1985–
Janet Larkin, 1988–
Helen Wang, 1991–
Elizabeth Errington, 1993–
Vesta Curtis, 1995–
Gareth Williams, 1996–
Amanda Gregory, 1997–
Richard Abdy, 1998–
Ian Leins, 2000–
Elvina Noel, 2000–
Mary Hinton, 2001–
Catherine Eagleton, 2004–
Richard Kelleher, 2004–
Keith Lowe, 2004–
Elizabeth Pendleton, 2005–
Paramdip Khera, 2006–
Amelia Dowler, 2007–
Henry Flynn, 2007–
Benjamin Alsop, 2008–
Thomas Hockenhull, 2008–
Robert Bracey, 2009–
Eleanor Ghey, 2010–
Maxim Bolt, 2010–
Leigh Gardner, 2010–

Numismatic Publications of the British Museum

Mary Hinton, Library Administrator, Department of Coins & Medals, British Museum

This appendix seeks to cover numismatic publications produced by the British Museum, published by the Museum's own press or otherwise designated as published by order of the Trustees, or in association with the British Museum. It covers full-length volumes which either have exclusively numismatic content or else which include an important dedicated section or chapter on numismatics.

Guides to the Department of Coins and Medals

A guide to the Department of Coins and Medals in the British Museum, preface by Barclay V. Head, 1901.
A guide to the Department of Coins and Medals in the British Museum, 2nd edn, 1911.
A guide to the Department of Coins and Medals in the British Museum, 3rd edn, preface by George F. Hill, 1922.
A guide to the Department of Coins and Medals in the British Museum, 4th edn, preface by John Allan, 1934.

General and historical

Anderson, R.G.W. & Syson, L (eds) 2003, *Enlightening the British: knowledge, discovery and the museum in the eighteenth century* (British Museum 250th anniversary conference).
Besly, E. (ed.) 1981, *Department of Coins and Medals: new acquisitions 1, 1976–1977* (British Museum Occasional Paper, no. 25).
British Museum 1920, *Grains and grammes: a table of equivalents for the use of numismatists*, preface by G. F. Hill.
Burnett, A. 1991, *Coins* (Interpreting the Past series).
Burnett, A. & Reeve, J. (eds) 2001, *Behind the scenes at the British Museum*.
Caygill, M. (ed.) 1997, *A.W. Franks: nineteenth century collection and the British Museum* (chapter by L. Syson, 'Franks as numismatist').
Cheesman, C. & Williams, J. 2002, *Rebels, pretenders & imposters*.
Cribb, J. 1990, *Money* (Dorling Kindersley in association with The British Museum).
Cribb, J., with Francis, T. 1986, *The Money Fun Book*.
Eagleton, C. & Williams, J., with Cribb, J. & Errington, E. (eds) 2007, *Money: a history* (amended 2nd edn of Williams 1997).
Jones, M. 1992, *Why fakes matter: essays on problems of authenticity*.
Leins, I. 2003, *Treasure Activity Book*.
London 1986: Money: from cowrie shells to credit cards (exhib.cat.), ed. J. Cribb (translated into several languages), London.
London 1990: Fake? The art of deception (exhib. cat.), M. Jones, with P. Craddock & N. Barker (eds), London.
MacGregor, A.(ed.) 1994, *Sir Hans Sloane: collector, scientist, antiquary, founding father of the British Museum*, published in association with Alistair McAlpine (chapter by M.M. Archibald, 'Coins and medals').
Mattingly, H., Burnett, I.A.K. & Pollard, A.W. 1915, *List of catalogues of English book sales, 1676–1900: now in the British Museum*.
Orna-Ornstein, J. 1997, *The Story of money* (translated into several languages).
Orna-Ornstein, J. (ed.) 2001, *Development and evaluation of the HSBC Money Gallery at the British Museum,* (British Museum Occasional Paper, no. 140) London. Available online at http://www.britishmuseum.org/research/research_publications/online_research_publications/hsbc_money_gallery.aspx.
Price, M.J. (ed.) 1980, *Coins: an illustrated survey 650 BC to the present day,* London.
Sloan, K. (ed.), with Burnett, A. 2003, *Enlightenment: discovering the world in the eighteenth century* (chapter by A. Burnett, 'The king loves medals'), London.
Syson, L. & Thornton, D. 2001, *Objects of Virtue: art in Renaissance Italy*.
Williams, G. (ed.) 1998, *World of Money* CD-ROM.
Williams, J., with Cribb, J. & Errington, E. (eds) 1997, *Money: a history.*

The Classical world

Catalogues of the collection

1. Catalogue series

A catalogue of the Greek coins in the British Museum, series ed. R.S. Poole
Vol. 1: Poole, R.S. 1873, *Italy*.
Vol. 2: Gardner, P., Head, B.V. & Poole, R.S. 1876, *Sicily*.
Vol. 3: Gardner, P. & Head, B.V 1877, *The Tauric Chersonese, Sarmatia, Dacia, Moesia, Thrace, &c*.
Vol. 4: Gardner, P. 1878, *The Seleucid Kings of Syria*.
Vol. 5: Head, B.V. 1879, *Macedonia, etc*.
Vol. 6: Gardner, P. 1883, *Thessaly to Aetolia*.
Vol. 7: Poole, R.S. 1883, *The Ptolemies, kings of Egypt*.
Vol. 8: Head, B.V. 1884, *Central Greece (Locris, Phocis, Boeotia and Euboea)*.
Vol. 9: Wroth, W. 1886, *Crete and the Aegean Islands*.
Vol. 10: Gardner, P. 1887, *Peloponnesus (excluding Corinth*).
Vol. 11: Head, B.V. 1888, *Attica-Megaris-Aegina*.
Vol. 12: Head, B.V. 1889, *Corinth, colonies of Corinth, etc* .
Vol. 13: Wroth, W. 1889, *Pontus, Paphlagonia, Bithynia, and the Kingdom of Bosporus*.
Vol. 14: Head, B.V. 1892, *Ionia*.
Vol. 15: Poole, R.S. 1892, *Of Alexandria and the nomes*.
Vol. 16: Wroth, W. 1894, *Mysia*.
Vol. 17: Wroth, W. 1894, *Troas, Aeolis, and Lesbos*.
Vol. 18: Head, B.V. 1897, *Caria, Cos, Rhodes &c*.
Vol. 19: Hill, G.F. 1897, *Lycia, Pamphylia, and Pisidia*.
Vol. 20: Wroth, W. 1898, *Galatia, Cappadocia, and Syria*.
Vol. 21: Hill, G.F. 1900, *Lycaonia, Isauria, and Cilicia*.
Vol. 22: Head, B.V. 1901, *Lydia*.
Vol. 23: Hill, G.F. 1904, *Cyprus*.
Vol. 24: Head, B.V. 1906, *Phrygia*.
Vol. 25: Hill, G.F. 1910, *Phoenicia*.
Vol. 26: Hill, G.F. 1914, *Palestine (Galilee, Samaria, and Judaea)*.
Vol. 27: Hill, G.F. 1922, *Arabia Mesopotamia, and Persia : (Nabataea, Arabia Provincia, S. Arabia, Mesopotamia, Babylonia, Assyria, Persia, Alexandrine Empire of the East, Persis, Elymais, Characene)*.
Vol. 28: Robinson, E.S.G. 1927, *Cyrenaica*.

Catalogue of Roman provincial coins
(Joint publication with the Bibliothèque nationale de France)
Vol. 1: Burnett, A., Amandry, M. & Ripolles, P.P. 1992, *From the death of Caesar to the death of Vitellius (44* BC-AD *69)* (reprinted with corrections 1998).
Vol. 2: Burnett, A., Amandry, M. & Carradice, I. 1999, *From Vespasian to Domitian (*AD *69–96)*.
Burnett, A., Amandry, M. & Ripolles, P.P. 1998, *Roman provincial coinage: supplement 1.*
Vol. 7: Butcher, M. Spoerri 2006, *De Gordien Ier à Gordien III (238–244 après J.-C.), Province d'Asie*.

Coins of the Roman Empire in the British Museum
Vol. 1: Mattingly, H. 1923, *Augustus to Vitellius* (2nd edn 1976, prepared by R.A.G. Carson).
Vol. 2: Mattingly, H. 1930, *Vespasian to Domitian* (2nd edn 1976, prepared by R.A.G. Carson).
Vol. 3: Mattingly, H. 1936, *Nerva to Hadrian* (2nd edn 1976, prepared by R.A.G. Carson).
Vol. 4: Mattingly, H. 1940, *Antoninus Pius to Commodus,* (2nd edn 1968).
Vol. 5: Mattingly, H. 1950, *Pertinax to Elagabalus* (2nd edn 1975, prepared by R.A.G. Carson & P.V. Hill).
Vol. 6, Carson, R.A.G. 1962, *Severus Alexander to Balbinus and Pupienus*.

2. Other catalogues

Allen, D., (Kent, J. and Mays, M. eds) 1987–1995, *Catalogue of the Celtic coins in the British Museum : with supplementary material from other British collections, vol. 1, Silver coins of the East Celts and Balkan peoples; vol. 2, Silver coins of North Italy, South and Central France, Switzerland and South Germany; vol. 3, The bronze coins of Gaul*.

Bagwell Purefoy, P. & Meadows, A. 2002, *Sylloge Numorum Graecorum (Great Britain). The British Museum. Part 2, Spain*.

Christiansen, E. 1991, *Coins of Alexandria and the Nomes: a supplement to the British Museum*, eds V.H. Hewitt & M.J. Price (British Museum Occasional Paper, no. 77).

Combe, T. 1814, *Veterum populorum et regum numi qui in Musèo Britannico adservantur*.

Grueber, H.A. 1874, *Roman medallions in the British Museum*.

Grueber, H.A. 1910, *Coins of the Roman Republic in the British Museum, vol. 1 Aes rude, aes signatum, aes grave, and coinage of Rome from B.C. 268*; vol. 2 *Coinages of Rome (continued), Roman Campania, Italy, The social war and the provinces*; vol. 3. *Tables of finds and cognomina, indexes, plates, etc.* (2nd edn 1970, prepared by R.A.G. Carson & M.H. Crawford).

Ghey, E. & Leins, I. (ed.), with contribution by Crawford, M. H. 2010, *A catalogue of the Roman Republican Coins in the British Museum, with descriptions and chronology based on M.H. Crawford, Roman Republican Coinage (1974)*. http://www.britishmuseum.org/system_pages/holding_area/research/rrc/roman_republican_coins.aspx.

Hobbs, R. 1996, *British Iron Age coins in the British Museum*.

Price, M.J. 1991, *The coinage in the name of Alexander the Great and Philip Arrhidaeus: a British Museum catalogue,* 2 vols.

Price, M.J. 1992, *Sylloge Numorum Graecorum (Great Britain). The British Museum. Part 1, The Black Sea*.

3. Other publications

Abdy, R. 2008, *The British Museum pocket dictionary of the Roman Army*.

Allen, D. 1988, *An introduction to Celtic coins*.

Besly, E. & Bland, R., with Carradice, I. & Gingell, C. 1983, *The Cunetio treasure: Roman coinage of the third century* AD.

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Carradice, I. 1978, *Ancient Greek portrait coins*.

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Carson, R.A.G. 1978, *Principal coins of the Romans, vol. I, The Republic c. 290–31* BC.

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Guest, P.S.W. 2005, *The late Roman gold and silver coins from the Hoxne Treasure*.

Head, B.V. 1932, *A guide to the principal coins of the Greeks: from c. 700* BC *to* AD *270*.

Head, B.V. 1880, *A Guide to the principal gold and silver coins of the ancients from c.* BC *700 to* AD *1* (later edns 1881, 1889, 1895, 1909).

Head, B.V. 1880, *A guide to the select Greek and Roman coins exhibited in electrotype*.

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Hill, G.F. and Robinson, S. 1959, *A guide to the principal coins of the Greeks: from c. 700* BC *to* AD *270, based on the work of Barclay V. Head*.

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