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Daito (2017, 98) discussing the sugar trade in the Persian Gulf, reports that in April 1729 an English merchant ship *Edward* left Basra with a full cargo of old copper and Iranian copper coins worth 297,500 guilders, which would equate to about approximately 200 tons of copper for the coins and the copper combined.

Ships of the Verenigde Oostindische Compagnie (VOC) and the East India Company (EIC) and private vessels were usually 600- to 1,000-barrel ships, and Matthee et al. (2013, 164, table 5.6) report that the VOC alone exported a total amount of 520 tons of Persian copper coins and 60 tons of other copper ware from Iran between 1732 and 1740, and the figures were no doubt similar for the British ships.

Certainly this practice, which continued for decades, seems to have led to the almost total disappearance of Persian copper coins, explaining their rarity today.

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1862 dotted rupee paradox

Amit Surana and Yatin Sawant

Abstract After the British Crown took over the government of the Indian territories from the East India Company the coinage was revised and showed the crowned head of the monarch for the first time. The first coin in the series was issued in 1862, and this date on the coinage was retained until 1874. There are many varieties in terms of obverse and reverse design, and additionally the appearance of tiny dots in particular places on the reverse. These were said to represent the year of coining. In this article the authors enumerate the different designs and dot patterns to provide an attempt at a catalogue of the types.

The British Indian coinage series is an interesting series to collect and study for any serious numismatist. The British Crown took over the Indian administration from the East India Company in 1858 as a fallout of the failed mutiny (First War of Independence) and the coinage underwent major changes. For the first time the colony could see their monarch wearing a crown, the symbol of the British paramountcy, on the coins. The first coin in this series was the 1862 rupee, and, unusually, the date was retained on the rupee until 1874; hence it is sometimes called the ‘frozen’ date for the series until the decision was taken to implement a continuous annual dating system.

The 1862 rupee was minted prolifically at the then active mints of Calcutta (now Kolkata), Bombay (now Mumbai) and Madras (now Chennai). The Madras Mint closed down in 1869. Reference works regularly refer to the huge output of these coins, using numbers as high as 709.6 million for the total mintage of 1862 1 rupee coins. The dies used for the coinage of the 1862 rupee have been catalogued to a great degree. During the 1860s the English newspapers (in England) had raised a furore over the state of English gold and silver coinage resulting from wear and tear and the amount of weight lost in circulation. Lieutenant Colonel H. Hyde, the then Calcutta Mint Master, considered it a matter of importance for India too, and as a means of ascertaining accurate information about the wear of the currency at some future date, proposed introduction of a cipher system. He proposed in January 1870 that a very small cipher, identifiable for each of the two mints,

Bombay and Calcutta, representing the year in which the coin was struck should be introduced under the date of the coinage. This was approved by the viceroy on 22 March 1871, but the idea never took off and was probably abandoned when it was learnt that the Bombay Mint had, from the first, adopted a date marking system on their rupee dies (Pridmore 1980, 60).

The dot (often called a ‘bead’) was used as a mint mark by the Bombay Mint from 1874 when a continuous dating system was adopted. Earlier the mint mark used by Bombay Mint varied from an incuse dot in the case of the 1835 ¼ rupee, or the incuse ‘v’ on the Queen Victoria bust on the 1862 ¼ Anna. The use of the bead or dot for the 1862 1 rupee, however, was not as a mint mark, but a method of dating the coins. It was not until almost 30 years later that the *Times of India* published the explanation that the dots were added to indicate the exact year of coining, to avoid confusion caused by the retention of the 1862 date. This was in response to rumours that the dot rupees were counterfeit or spurious (Pridmore 1980, 53–4). Despite this, arguments among collectors and numismatists regarding the significance of dots being used by the Bombay Mint have continued (for example, Sharif 1979, 835) but the series is yet to be fully catalogued. The authors are here attempting to present a survey of the varieties.

Obverse and reverse dies of the 1862 rupee

The obverse and reverse dies used for the 1862 1 rupee series are listed here for convenience, following the classification first published by Eric Wodak in 1957 and others later.

1862 rupee obverse types



A The head is smaller and the letters of the legend are smaller and more narrowly spaced than obverse B.

The jabot (a ruffle worn at the neck) is divided into $3\frac{3}{4}$ sections and there are only two dividing lines below the lowest loop of pearls of the necklace. In the lowest section, which is incomplete, there is a five-petal flower in the left corner. At the bottom, in about the centre of the bust, there is a small mark shaped like a thin 'v'.



B The head is slightly larger and the letters of the legend are larger and more widely spaced than obverse A.

The jabot is divided into $4\frac{1}{4}$ sections, and there are three horizontal dividing lines below the lowest loop of pearls of the necklace. The fourth or lowest complete rectangular section has a four-petal flower on the right. At the right of the jabot there is a small symbol resembling a 'v' with an inserted bead or dot.



C This design is a modification of obverse A, on which there are only $3\frac{1}{3}$ sections in the jabot. The bust therefore is shorter and appears to be cut off at the bottom. The whole design is somewhat heavier and the letters of the legend are thicker. Border ornaments are slightly larger and longer.



D L. C. Wyon's revised die of 1863 pattern rupee. There are $4\frac{3}{4}$ panels in the queen's jabot and distinctive double lines to the curves of the crown. Popularly called the 'five-panel' obverse.



'C' 'JL' Revised die of the 1867 pattern rupee. It has the mature-looking bust of Queen Victoria, giving a good representation of how she looked. The hair plait commences at the point where the crown rests on her forehead, the lower band or circlet of the rim of the crown is plain, and the embroidery of the bodice is thick and bold. The central jewel of the crown is plain, and the initials 'C' and 'JL' are arranged prominently in a triangular pattern at the base in the centre of the jabot.



Note This obverse has not yet been found paired with a reverse having a dot.

1862 rupee reverse types



I The arrangement of the petals of top flower is larger, curved outside and more blunt. It is identified as the 'open top flower'.

The volute or the whorl in the bottom flower is curved downward resembling the horns of a ram. The whole bottom flower is narrower and more elongated.

The top of the 'A' in 'INDIA' is flat and the figure 1 of the date has a short horizontal serif.

The flowers on the either side of the date within the wreath have five petals each with raised veins.



II The design is styled after the Wyon patterns. The main identifying features are found in the centre top and bottom flower ornaments. The top flower has five petals, the top three of which form a group that points almost straight up. Slightly below is a pair of larger petals, one left and one right. It is identified as 'closed top flower'.

The bottom flower has below its centre a volute which looks like a slightly, spread, thick 'v'. The bottom spikes of

this ornate are pointed unlike the other two reverse.

The top of the letter 'A' in 'INDIA' is pointed and the figure 1 of the date has an oblique top serif.

The flower on the left side of the date within the wreath has five petals while the right one has three petals with each flower having incused veins.

The flower buds above 'ONE' and the second 'E' of 'RUPEE' are plain.

Note Variations in these flower buds having pineapple-like pattern do occur but since these types of reverse have not been found yet, with dots, they have not been described in detail here.



III The top flower has eight petals. There is one petal each at the top and bottom centres and the other six are arranged in pairs, three on a side, the lowest pair being smaller. These petals are almost straight, pointing slightly upward. This design can be identified as 'half open top flower'.

The volute in the bottom flower is curved sideways more, resembling a bird in flight.

The top of the 'A' in 'INDIA' is flat and the figure 1 of the date has a short horizontal serif.

The flower on the either side of the date within the wreath has five petals each with the raised veins. This reverse is closely related to reverse I.

Note This reverse not yet found with a dot.

Die-use chronology

Before we start to discuss the dot-dating system hypothesis, it is important to understand the sequence of the obverse and reverse types. The die chronology is enumerated in table 1.

Calcutta supplied the Bombay and Madras Mints with punches and dies for the rupee in September 1862 and all three mints commenced the new 1862 coinage from November 1862. The B/II die paired rupees were the first to be minted. As is known from all sources, the matrices provided by the Royal Mint were found to be unsatisfactory for use and even the local matrices made by the Calcutta Mint were unsuitable. The Bombay Mint tried to make their own 5-panel obverse D. Meanwhile, as the Calcutta Mint had the sole responsibility for the preparation of the matrices and punches, around March 1863, it sent the revised punches and dies to the Bombay Mint of obverse B and reverse III. It seems that the Bombay Mint master, Lieutenant Colonel J. A. Ballard, was senior in military rank to Lieutenant Colonel H. Hyde, master of the Calcutta Mint, and therefore complaints of Ballard regarding unsuitability of the matrices caused some friction within the mints. In June 1863 the Calcutta Mint sent the punches of obverse A and reverse I to the Bombay Mint. (Pridmore 1980, 54, 60, 111, 112 and 115.)

Dots or beads as date markers

Noting this sequence of obverse and reverse types, we now turn to the topic of dots or beads seen on certain 1862 1 rupee coins. It was James Atkins who mentioned for the first time that 'Upon the reverse of the Rupee, immediately above a shell-like ornament, which forms the centre scrollwork border, and just under the date, will be found small dots numbering from one to ten, which denote the year of the issue. These dots do not occur upon the smaller pieces (Atkins 1889, 185.) Later George Falcke and Robert L. Clarke, who ascribed the mint attributions of the 1862 rupees using diameter and ridge count, thereby established the reasons behind why the dot belongs to the Bombay mint and why it denotes the year (Falcke and Clarke 1970, 20–9.) Fred Pridmore (1980, 114) developed this and affirmed that the dots indeed are the markers of dating system. All these works have given their reasoning behind the hypothesis.

Table 1 Chronology of the dies used on the 1862 rupees

<i>Date of origin</i>	<i>Obverse</i>	<i>Reverse</i>	<i>Die engraver</i>	<i>Mint</i>	<i>Known die pairings</i>	<i>Remarks</i>
September– November 1862	B	II	Kashinath Dass	Calcutta	B/II	L. C. Wyon's original punches altered by Calcutta engravers. Minting of B/II rupees stopped in February 1863 at Calcutta (Pridmore 1980, 54 and 110)
January– February 1863	—	III	Johannes Lutz	Calcutta	B/III	This reverse incorporates certain characteristics of reverse II (the original reverse). Limited use suggests it was unsatisfactory (Falcke and Clarke 1970, 15–16)
April 1863	A	—	Johannes Lutz	Calcutta	A/II, A/III	Letter 'J' was introduced in right hand bottom corner of the bust; no Royal Mint matrices and punches were used and so it may be considered as the distinctive design of the Calcutta Mint (Falcke and Clarke 1970, 16)
Latter part of 1863	—	I	Johannes Lutz	Calcutta	A/I	Reverse I is closely related to reverse III, hence the same engraver. Both obvers A and reverse I have 124 bead ornaments around their borders, which seems to indicate that they were prepared to be used together. (Falcke and Clarke 1970, 16)
August 1863– May 1864	D	—	Babaji Ramset	Bombay	D/II	Revised die of the 1863 Royal Mint proof/pattern; experimental coinage (Pridmore 1980, 54, 111)
1868–70	CJL	—	Johannes Lutz	Calcutta	CJL/I	Revised die of the 1867 Royal Mint proof/pattern; (Surana 2019)
1873–74	C	—	Raghunath Luxumon	Bombay	C/II, C/I	Shortened version of obverse A bust used (Pridmore (1980), 114)

Surprisingly, two Indian works, both published in 1979 separately, by K. N. Sharif and D. Chakravarty, do not fully support the idea that the dots belong to Bombay mint and that they are used to denote the year of minting. In fact, Sharif mentions that there is a theory that the dotted 1862 rupees were minted by a goldsmith in Kutch, Gujarat, on the sly, and that he put his mark of each dot in order to keep a count for every 100,000 coins. Sharif further adds that there are about 1.2 million dotted rupee coins (Sharif 1979, 83–7).

Chakravarty (1979, 34) states that the dot at the top position indicates the mint (one dot for Bombay and two dots for Madras) and the lower dots may indicate the coining year. Neither of the counter theories about dots not being used for the dating system offer a reason why not, or an alternative theory.

The *Times of India* report noted above clearly says that the dots were for dating, and it is difficult to see why their comments would be incorrect, especially if rumours about them being counterfeit coins were rife.

Position of dots

The dots or beads appear at different places on the reverse. The authors have recorded the following positions where the dots/beads are found.



a-i Above the N of 'ONE' but closer to the top flower and sometimes even within the wreath



a-ii Above the N of 'ONE' and nearer to it.



b Within the top flower design



c Above and around the bottom flower design, below the date



d Within the bottom flower design, compare with c above

The dots show wide variations not only in where they were placed but also in their size. It would seem that the dots were incorporated by modifying individual coin dies that had been used before with a sharp tool. This probably accounts for the wide variations in the size, location and distribution of the dots (Chakravarty 1979, 34–5).

Dot pattern identifying numerals

The authors are themselves collectors of the dot series and have physically seen or own the enumerated die-dot combinations in table 3 below. The nomenclature for the dot pattern has been retained as devised by Falcke and Clarke initially, viz. for '1/1' the first numeral stands for number of dots at the top above N of 'ONE' or in the top flower, and the second numeral stands for the number of dots at the bottom below the date but above the bottom whorl. The authors have also added to this when some dots were found on the bottom whorl so such a dot pattern is represented by 0/4/1, where the third numeral suggests the number of dots on or in the bottom flower.

First year of dot use

We now try to establish that these beads or dots were indeed used as marks to indicate the year of the coin. It is understood from the India Office Records in the UK that a letter from the officiating mint master of the Bombay Mint, dated 3 April 1871, stated that a private mark to distinguish the year of coinage had been used in the mint since 1864 (Bombay Financial Proceedings, 1871, P/496 entry 305, no. 499). As already mentioned above, the cipher system although approved by the Viceroy in March 1871 was never brought in force as by that time the Calcutta Mint had become aware of the fact that the Bombay Mint had been using a system to denote date, a fact officially conveyed to UK in April 1871. It can be presumed that the bead or dot was indeed the private mark used by the Bombay mint to indicate the year of coining. We also know that the financial (official) year was from May to April until 1865 and April to March from 1866 onwards, and this was considered as the year of coining. After the adoption of the continuous dating system from 1874 the mint masters were informed that the coinage year would be the calendar year and not the financial (official) year (Pridmore 1980, 61). So when the India Office record states that private mark was introduced in 1864 by the Bombay mint it can also be assumed that the first dot which was used to denote 1862+1 was probably used in the first four months of 1864 of the official year 1863–4, if not earlier.

Die-dot combinations explained

Let us now examine how the marking of the dots denote the coinage year. The die-dot combinations are enumerated in table 3 along with the rarity as understood from the authors' combined experience of 30 years.

1863 1/0 dot pattern

It seems that the first coin to be marked 1863 by the Bombay Mint started with the single top dot placed above the 'N' of 'ONE' (1/0). This is found with the B/II combination. This is the first die pairing with which all the mints started the 1862 coinage. No die pairing of obverse A with any reverse having the dot at 1/0 position has been found as yet. The likelihood of finding such a pairing is probably very slim. The reason is that the Bombay Mint received the obverse A die some time in June 1863 or later (table 2). The new Bombay Mint was opened in January 1864 and the coinage therein commenced with the new obverse A design on the rupee while the old mint continued to use up its existing type B dies. (Fred Pridmore, *Page 108*.) So the dot was not paired initially in the first year

with the obverse A and continued with the B/II pairing from the old mint. One can see in figure 1 how the dot is very near the base of the top flower.



1

1864 2/0 dot pattern

Later on, the next year was denoted by adding one more dot at the top position, so we have common B/II–2/0 dots and then later the very rare A/II–2/0 dots. This is the first use of obverse A by the Bombay Mint with the dot variety, and from the new mint. It is pertinent to note here that the initial dots placed at the top are of small size and closer to the base of the top flower, i.e. further away from the ‘N’ of ‘ONE’ (type a-i in the position of dots). Given the rarity of A/II–2/0 dots, it is quite possible that the first coinage from the new mint would have been A/II–No dot series and in the later part of the year 1864 after the new official year started, one more dot was added at the top to denote the next coining year. The following two pictures show how the dot position varies but is near the base of the top flower.



2a



2b

1865 3/0 dot pattern

For the third year, 1862+3, a single dot was again added to the prolific B/II pairing to denote it as B/II–3/0 dots. It seems that there was some difficulty in adding the third dot in the top position where two smaller dots were already accommodated. From the three pictures below it can be seen how the third dot was sunk.



3a



3b



3c

The mint therefore decided to change the position of the dot from top to bottom, i.e. below the date, above and around the bottom flower design (type c in the position of dots). This B/II–3/0 dots is a rare variety to find proving that the difficulty in sinking the extra dot on top was noticed immediately and the decision to shift the dot position was taken accordingly.

1865 0/3 dot pattern

The change in position of the dot from top to bottom resulted in some interesting varieties which have puzzled collectors. This confusion was as a result of using up stocks of serviceable but already marked dies of a previous year, and adding the current year marking. It was also due to errors on the part of the die sinker (Pridmore 1980, 114). With the B/II pairing the 0/3 dot pattern is seen and is a common variety. This emphasizes the fact that the previous B/II pairing continued with just the change in dot position from top to bottom. Again, for the 0/3 dot pattern, use of A/II die pairing is also seen but is an extremely rare variety. In table 2 it can also be seen that

reverse I was shipped to Bombay in the latter part of 1863. This was now used in 1865 and was paired with both the obverse B and A. Both the varieties B/I–0/3 dots and A/I–0/3 dots are extremely rare, which shows that the combination was used almost at the fag end of the three dot coinage year. Figure 4a shows the reverse II with 0/3 dot pattern arrangement.



4a

Figure 4b shows the reverse I with 0/3 dot pattern arrangement.



4b

One of the most popular coins of the 1862 series is a mule rupee (figure 4c, table 2 note 1). An obverse die of a ½ anna was paired with a reverse die of a 1 rupee type II, 0/3 dots. A shortage of dies, due to frequent breaking of dies of obverse B, and the delay in the arrival of the obverse A designed by Lutz, may have lead to this pairing. I believe it to be an emergency mule as die pairing of dies of two different denomination is extremely rare and not seen in the later part of the series.



4c

1866 0/4 dot pattern

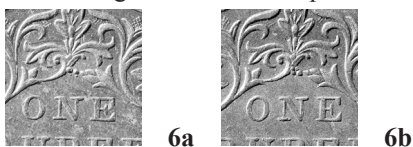
Similarly, for the next year, 1866, four dots were added at the bottom. One can now see that the die pairing of A/II–0/4 is the most common of the dot variety found, even today, in India. This shows that the obverse A was now used prolifically for minting from 1866. Surprisingly, the mint also used B/II–0/4 dots and paired reverse I with both the obverse. All these other 0/4 dot varieties are scarce types and as already mentioned the A/II–0/4 dot variety was minted in abundance. It needs to be mentioned that, as already pointed out, the obverse A designed by Johann Lutz had arrived from Calcutta and it seems was used by the Bombay mint by removing the initial ‘J’ on the bust. But in the A/I–0/4 dot an extremely rare variety with the ‘J’ has also been seen by the authors. This shows that while pairing with the reverse I the Calcutta privy mark of ‘J’ was left as it is. Figure 5a shows the reverse II with 0/4 Dot pattern arrangement.



Figure 5b shows the reverse I with 0/4 dot pattern arrangement.

1866 4/0 dot pattern

The mint it seems had not given up on using the dots at the top position too. So it tried putting two additional dots at the top above the 'N' of 'ONE' using up stocks of serviceable but already marked dies of reverse II-2/0 dots. This is the B/II-4/0 dot variety. Figures 6a and 6b are the best specimens of the two types of arrangement of 4/0 dot pattern.



1867 0/5 dot pattern

For the next year, 1862+5, many interesting dot patterns are seen. Initially, we see the simple addition of one dot to the existing 0/4 reverse die. This is found in B/II, A/II and A/I pairings. Figure 7a is a 0/5 dot pattern with reverse II having clear 5 dots at the bottom. Figures 7b and 7c are with one additional dot on the 0/4 dot of reverse II and I respectively



1867 2/3 dot pattern

Another engaging variety was B/II-2/3 dots which most cataloguers describe as 'where the workman failed to notice that there were already two dots above or forgot to remove

them' (Falcke and Clarke 1970, 26). But as we have found B/II-4/0 this also seems to be a case where the three dots were added at the bottom to the old 2/0 dot reverse II die, on purpose in fact, not because the workman was negligent. Figure 8 is an example of 2/3 dot pattern.



1867 1/4 and 0/4/1 dot pattern

Another very peculiar position where the mint tried to place a dot was found at the 'top dot in the centre of the bud of the top flower' and is added to 0/4 dots die having a combination of A/II-1/4 dots which is again extremely rare variety to find. This is the type **b** position of dot. Probably, this was not found convenient and a new position to place a dot was created on the bottom ornate at the lowest point of the whorl. This the authors have found not only in A/II but also in B/II pairing. This has been named as 0/4/1 dot pattern, the type **d** position of dots. Figure 9a is that of the top dot in the centre bud of the top flower in 1/4 dot pattern.

Figure 9b is that of the 0/4/1 dot pattern arrangement.



1868 0/6 and 2/4 dot pattern

For the year 1862+6 again interesting combinations of dot patterns are seen. The normal obverses B and A with the reverse II and newly sunk 6 dots at the bottom is found, figure 10a. Also, it is seen that for the reverse I, two small dots have been sunk in the old 0/4 dots die to make it 0/6 dots, figure 10b. It is also seen that, one small dot has been additionally sunk in the old 2/3 dots die and used with B/II pairing, figure 10c. Moreover, the old reverse II, 2/0 dots die was also used to add four large dots at the bottom, figure 10d





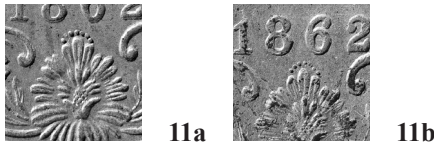
10c



10d

1869 0/7 dot pattern

For the year 1862+7, we have the common A/II pairing and newly sunk 7 dots at the bottom. These obverse A varieties are available with and without the letter 'J' on the bust. The B/II-0/7 dots is the rarer variety. Figure 11a is the reverse of obverse A and 11b is that paired with obverse.



11a



11b

1869 4/3, 2/5 and 0/4/3 dot pattern

Again, the convention of the mint to combine the using of old dies for sinking additional dots to denote years is seen. We have the three dots been added at the bottom position to the old 4/0 dots die (figure 12a) and five dots been added at the bottom position to the old 2/0 dots die (figure 12b). It has also been noticed that three dots have been placed at the lowest point of the bottom whorl to the old 0/4 dots die.



12a



12b

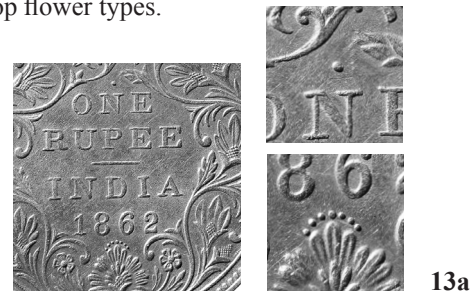
1870 onwards

We have seen that gradually obverse B dies ceased to be used or were only very rarely used generally from 1866 to 1867, some two years after the introduction of obverse A. No obverse B is noticed in 1870 and 1871, but it has reappeared in 1872 and 1873. This late occurrence was probably during a period when current die stocks had been exhausted, and

to avoid disrupting production some serviceable dies of old obverse B were brought into temporary use (Pridmore 1980, 108). This explains the general rarity of these varieties.

1870 1/7 dot pattern

Fascinating combinations were seen for the year 1862+8. Probably, the experiment of placing singular dot at the centre bud of the top flower in the A/II-1/4 dot being not so successful, the top dot to the 0/7 die was added in the top flower in a different position. Surprisingly, in addition to the top dot in the top flower another effort was made to add top dot above the 'N' of 'ONE', the type a-ii position of dots. It is relevant to note that the top dot in the latter case is larger in context of type a-i and the bottom year seven dots are tinier. Figures 13a and 13b are examples of normal top dot and top dot in top flower types.



13a



13b

1870 and 1871 0/8 and 0/9 dot pattern

Unlike previously, fresh dots were not sunk on fresh reverse II dies for 1862+8 and 1862+9 year coins. For the former one dot was added to the 0/7 dots die and for the latter three dots were added to the 0/6 dots die both in the A/II pairing. As mentioned earlier no obverse B types were used in these two years. Figures 14a, 14b and 14c are examples of different types of 0/8 dot patterns and figures 15a and 15b are the two types of 0/9 dot patterns.



14a

14b

14c



15a

15b

1872 0/10 dot pattern

Surprisingly, the next year, 1862+10, a fresh ten tiny dots were struck on reverse II dies and also erased the old 0/7 die, figures 16a and 16b. The latter becoming microdots sometimes visible under the ten dots give an appearance of eleven to even seventeen dots, figure 16c. This year we have the use of

obverse B being recommenced along with obverse A.



1873 0/11 and 1/10 dot pattern

For the next year, 1862+11, more confusion was created. There is the normal method of adding one dot to the 0/10 dots die. This is found in both B/II and A/II pairings, figure 17a.



A similar exercise of adding a single dot as in the 1/7 dots varieties in the top flower (type **b**) and in the normal top position (type **a-ii**) is also seen in the A/II pairing. In the former one can see top dot added to old 0/7 dots die and in the latter the top dot is to be seen added to an old 0/10 dots die. The latter top dot is larger and away from the top flower as described for the type **a-ii** position of dots. (figures 17b and 17c).



1873 1/1 dot pattern

A typical change in the dot pattern that occurred this year is that 'by the time ten dots had been added to the die, space was running out and a "ten year" value dot was placed below the top "ornament" with a "unit" dot in the bottom position-1/1 meaning 10/1, or eleventh year. In some instances the die sinker became confused as to the correct position and significance of the dots; also, like the previous position change, existing stocks of serviceable but already marked dies were corrected by removing the earlier dots and inserting the new "unit" indicator' (Pridmore 1980, 114). So now we have the B/II-1/1 dots and the A/II-1/1 dots, all revealing to the left and right of the single dot at the bottom two or three tiny pinpoint dots in a circular arrangement like that on the rupees with larger dot groups (figures 18a and 18b).



This evidence suggests that these pieces were struck from altered dies which originally had higher dot groups. We also have assigned the A/II-0/1 dot variety (figure 18c) to 1873 as it also shows the same peculiarities, and we strongly believe that the workman who removed excess dots from an old die with the intention of converting the reverse to 1/1 dot failed to punch the top dot (Falcke and Clarke 1970, 28).



There are other combinations in this year, but they are merely mint errors. It is significant to understand here that the singular dot above the 'N' of 'ONE' is now large and nearer to the 'N', suggesting that the larger dot is indeed used to denote eleventh year and is placed on a used die. The difference in size brings about the chronological order when the dots used initially in 1/0 or 2/0 varieties denote a 'unit year' at the initial phase of dot-dating system. The larger top dot in 1/1 indicate the top dot being used to denote a 'ten-year' period.

1874 0/12 and 1/2 dot pattern

For the last dot marking year, 1862+12, we see the introduction of the additional two dots in the old 0/10 dots die (figures 19a and 19b).



We also see the continuation of the 1/1 dot series by addition of a 'unit' dot at the bottom in both the A/II and A/I pairings. The same method of removing the old 0/7 or 0/10 dots from the dies is followed here, thereby sometimes giving the impression of more dots and the erroneous inclusion by collectors in the bottom 'dot' count (figures 19c and 19d).



1874 The introduction of obverse C with 1/2 dot pattern

The introduction of obverse C is seen in this year. This bust is shortened version of obverse A. 'Initially it might have

Table 2 Die-dot combinations

No.	Date	dot	Pattern	Combination	Rarity	Combination	Rarity	Combination	Rarity	Combination	Rarity
				<i>seen</i>		<i>seen</i>		<i>seen</i>		<i>seen</i>	
1	1862+1	1/0	B/II	C	—	—	—	—	—	—	—
2	1862+2	2/0	B/II	C	A/II	RR	½ ANNA / II ¹	RRR	—	—	—
3	1862+3	3/0	B/II ²	R	—	—	—	—	—	—	—
		0/3	B/II	C	B/I	RRR	A/II	RRR	A/I	RRR	—
			D/II ³	RRRR	½ ANNA/II ¹	RRR	—	—	—	—	—
4	1862+4	4/0	B/II ⁴	RR	—	—	—	—	—	—	—
		0/4	B/II	S	B/I	R	A/II	C	A/I ⁵	R	—
			½ Anna/II ¹	RRRR	—	—	—	—	—	—	—
5	1862+5	0/5	B/II ⁶	RR	A/II	C	A/I ⁶	RR	—	—	—
		2/3	B/II ⁷	RR	—	—	—	—	—	—	—
		1/4	A/II ⁸	RRR	—	—	—	—	—	—	—
		0/4/1	B/II ⁹	RRRR	A/II ⁹	RRR	—	—	—	—	—
6	1862+6	0/6	B/II	RR	A/II	C	B/I ¹⁰	RRR	—	—	—
		2/4	B/II ¹¹	RR	B/II ¹²	RRRR	A/II ¹²	RR	—	—	—
7	1862+7	4/3	B/II ¹³	RRRR	—	—	—	—	—	—	—
		0/7	B/II	RR	A/II ¹⁴	C	—	—	—	—	—
		2/5	A/II ¹⁵	RRR	—	—	—	—	—	—	—
		0/4/3	A/II ¹⁶	RRRR	—	—	—	—	—	—	—
8	1862+8	1/7	A/II ¹⁷	RRR	A/II ¹⁸	RR	—	—	—	—	—
		0/8	A/II ¹⁹	RRR	—	—	—	—	—	—	—
9	1862+9	0/9	A/II ²⁰	RRR	—	—	—	—	—	—	—
10	1862+10	0/10	B/II	RR	A/II	C	A/II ²¹	RR	—	—	—
11	1862+11	0/11	B/II ²²	RRRR	A/II ²²	RR	—	—	—	—	—
		1/1	B/II	RRR	A/II ²³	C	A/I ²³	R	—	—	—
		0/1	A/II ²⁴	RRR	—	—	—	—	—	—	—
		1/10	A/II ²⁵	RR	A/II ²⁶	RRR	A/II ²⁷	RRR	—	—	—
		2/1	A/II ²⁸	RR	—	—	—	—	—	—	—
		3/1	A/II ²⁹	RRRR	—	—	—	—	—	—	—
12	1862+12	0/12	A/II ³⁰	RR	A/II ³¹	RR	-	-	-	-	-
		1/2	A/II ³²	S	A/I ³²	R	C/II ³³	C	C/I ³³	RR	—

C=Common; S=Scarce; R=Rare; RR=Very Rare; RRR=Extremely Rare; RRRR=Unique or less than 5 pieces known.

Notes to table 2

- 1 The obverse used is that of the copper half anna die with the reverse II. A mule variety.
- 2 One dot added to 2/0 die.
- 3 Reverse II used here is not the normal reverse, but the revised die of L. C. Wyon's 1861 pattern reverse. Since it is only found for this experimental coinage the reverse is not defined separately in this article.
- 4 Two dots added to 2/0 die.
- 5 Obverse also found with 'J' or 'crescent' but extremely rare.
- 6 One dot added to 0/4 die.
- 7 Three dots added to 2/0 die.
- 8 Top dot in the centre of the bud of the top flower and is added to 0/4 die.
- 9 One dot in bottom ornate added to old 0/4 die.
- 10 Two small dots underneath the four large dots.
- 11 One small dot added to 2/3 die.
- 12 Four dots added to 2/0 die.
- 13 Three dots added to 4/0 die.
- 14 Obverse seen with and without 'J' or crescent.
- 15 Five Dots added to 2/0 die.
- 16 Three dots added to bottom ornate on old 0/4 die.
- 17 Top dot above N of ONE added to 0/7 die.
- 18 Top dot in top flower added to 0/7 die.
- 19 Eight dot added to old 0/7 die.
- 20 Three dots added to old 0/6 die.
- 21 Ten dots struck on erased old 0/7 die. Microdots visible under the ten dots giving an appearance of eleven to even seventeen dots.
- 22 Eleventh dot added to old 0/10 die.
- 23 Obverse seen with and without 'J' or 'crescent'.
- 24 One dot added on erased old 0/7 die. Obverse has 'J' or 'crescent'. Mint error in failure to insert 'ten year' top dot.
- 25 Top dot above N of ONE added to 0/10 die.
- 26 Top dot in top flower added to 0/10 die.
- 27 1/10 Dots struck on erased old 0/7 die. Microdots visible under 10 dots giving the visible appearance of 11 to 17 dots.
- 28 Correctly 1/1 dot but a tiny dot is noticed closer to the top dot which was probably not sunk properly hence been re-located leaving impression of improper erasure.
- 29 Erroneously used old die of 2/0 dots and added 1/1 dot in 1873.
- 30 Two dots added to old 0/10 die.
- 31 All dots in a curve.
- 32 Obverse seen with and without 'J' or 'crescent'. Some are struck on old dies of 0/7 dots giving an illusion of 1/3 or more such dots.
- 33 Some are struck on old dies of 0/7 or 0/10 dots giving an illusion of 1/3 or more such dots.

been the result of a repair to a slightly damaged punch, which was trimmed down to permit continued use during the last few months of the “dot-dated” issue’ (Pridmore 1980, 114). Although, the mint had been directed to start the continuous dating system from January 1874, the late introduction of further dot-dated varieties, especially the obverse C, indicates that the Bombay mint was delayed in sinking new reverse dies bearing the correct year of manufacture (1874). Reverse II and I with 1/2 dots can be seen paired with obverse C. This proves that the dots were indeed used as date markers, since we do not find any pairings of obverse C with any reverse without the dots. As mentioned, the obverse C is found with 1/2 dots combination, proving that obverse C was introduced at almost the end of the dot-dating system and hence comes only with 1/2 dots. There is no 1/1 dot pattern found with obverse C, which indicates that the bottom dot was indeed used for ‘unit year’ as with the late introduction of obverse C in 1874 just 1 bottom dot was added to the 1/1 reverse II die. Obverse C occurs later at Bombay Mint issues of the correctly dated series of 1874 and 1875.

Summary of die–dot combinations

In table 1 the authors have attempted to cover all the noticed die-dot combinations of the 1862 1 rupee coinage.

It can be seen from the die pairings used with the dots in the reverse are all distinctive Bombay mint die pairings. Even the diameter of the dot rupees is similar as compared to the dotless Calcutta mint rupee diameter. It is also seen that the Calcutta mint had been satisfied with the A/I No dot variety developed by Johann Lutz and continued using the same combination until 1885–6. There was no necessity to put any dots, neither was there any need for experimentation. The Bombay mint had general issues regarding the dies and kept on experimenting for many years. From this it is clear that the dot is seen only on the Bombay mint coins and therefore can be attributed to the Bombay mint only.

The case of the dotted 1862 ¼ anna

The Bombay Mint accepted the dot as its mint mark after the adoption of the continuous dating system from 1874. For the 1862 1 rupee, though, the dot was a date marker.

The only exception to this rule is one variety of the 1862 Bombay Mint ¼ anna, which has a dot. It is to be noted that all the silver coinage, including fractions, from 1874 from Bombay, with the continuous dating system is found with the dot as a mint mark. The ¼ anna series of the fixed date series of 1862 has about six recorded different varieties from all the three mints. Out of these two varieties are attributed to the

Bombay Mint. The mint record states that the copper ¼ anna was produced at the Bombay Mint during 1864–5 and 1865–6. No further copper coinage occurred until 1874–5. It is pertinent to note that there is no recorded 1874 dated ¼ anna of the Bombay Mint. So it can be concluded that the coinage commenced with dies dated 1862, but now distinctively marked with the bead or dot, thus corresponding to the silver issues. In addition to the dot on the reverse, the obverse of the coins are also marked with a tiny incuse ‘v’ at the point of the shoulder on the truncation of the bust. Other 1862 coins occur with the ‘v’ incuse mark only, and so do Bombay Mint issues dated 1875. This ‘v’ incuse is undoubtedly a privy mark of the Bombay Mint (Pridmore 1980, 145). Hence, the dot used on the reverse of the 1862 ¼ anna is a mint mark and not a date marker.

Conclusion

The 1862 1 rupee coins are an interesting series to study and collect. The authors hope the arguments presented here are a convincing explanation for the dots. The non-dotted 1 rupee series is also very interesting but that is a separate study yet to be made.

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