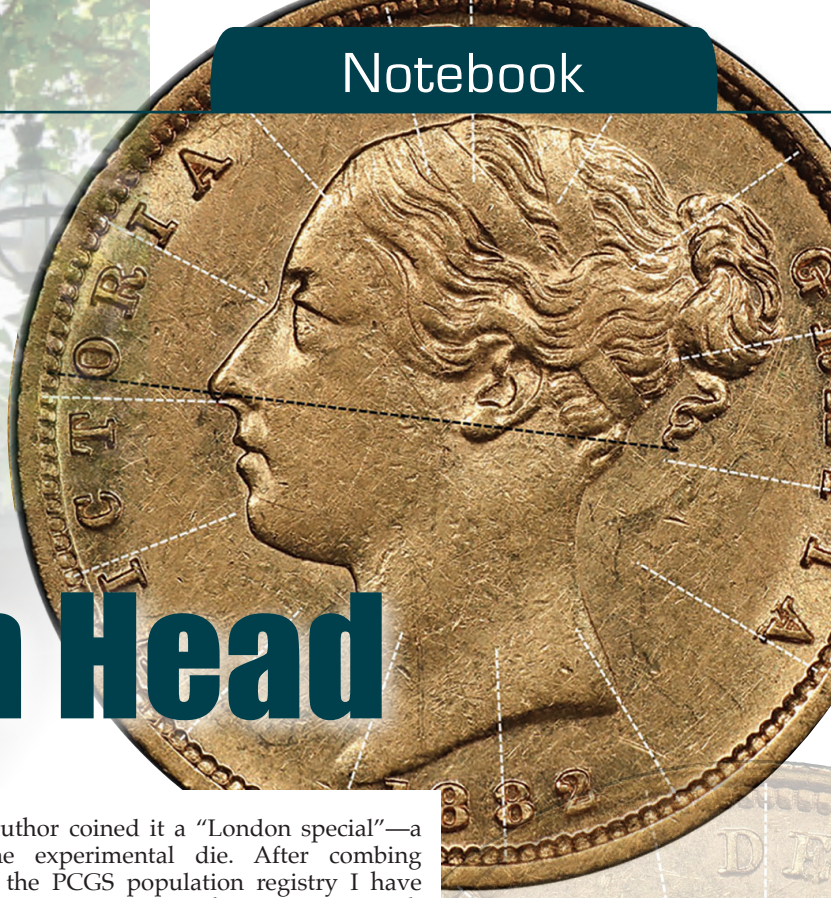
LESLIE ROBINSON

1882 Melbourne Half Sovereign— The Sixth Head



AUSTRALIAN numismatics is a paradox of thrift and cutting edge. For example, in the production of half sovereigns at the Australian Branch Mints, we witness the continued production of type 3 reverse half sovereigns after the introduction of the type 4 reverse by the Royal Mint in 1880. One can hypothesise that the need for a few thousand additional coins during this period of the Long Depression was better served by reusing old reverse dies, rather than spending significant sums on a new one (and in the process, creating a valuable variant for collectors today).

Yet in the same period do we find a seemingly single die variety being sent to *those Colonials*, probably for the purpose of testing on production machinery that was superior to the Royal Mint's at that time. What collectors' books fail to appreciate is that following in the nomenclature of obverse types 1 through 5, the modifications made that gave rise to what we call a fourth head variant is in effect a new die —the sixth head obverse. This article elaborates on the trials and tribulations of half sovereign production and those processes that give rise to the various types, including the sixth head.

Waiting to be updated in Michael Marsh's *The Gold Sovereign* is the creation of the fifth head obverse, used by the Sydney Mint in 1880 and the Melbourne Mint in 1881, not 1882. Understanding the Royal Mint's penchant for orderly control of the realm's monetary production, the release of a defunct obverse die two years after being superseded raises questions that can only be answered by examining the minting records of the time. Dr David Briggs has fortunately done the groundwork at the Melbourne Mint and has been able to provide the answers.

In our initial conversation, Dr Briggs picked me up on what I had failed to do—count the rim denticles. This was before I had picked up a copy of McDonald's price guide and seen a cryptic reference to the 1882M fourth head variant. Dr Briggs's response to this published variant is that it is factually incorrect and of no importance.

The author coined it a "London special"—a one time experimental die. After combing through the PCGS population registry I have been unable to locate a UK half sovereign with similar rim beading—thus this status of a unique obverse die appears to be correct. This 1882M obverse should be placed in chronological order with the other recognised obverse variants, making it the sixth head. The question of why this is the case is what shall now be elaborated upon.

Making a Die

I thought it worth a couple of paragraphs to bring the less experienced collectors up to speed on the basics of die production for the minting of coins. The following is reproduced in its entirety from an email exchange with Dr Briggs, with just a little editing:

Once you get the "hang" of coin making you will easily understand.

1. The first means for producing a coin is to make a plaster model—the plaster model is a positive image.

2. The second step is to make the plaster into a hardened form and this is called a Galvano made in Copper—also positive.

3. The Galvano is then reduced by a Janvier or such reducing machine to the required size in steel—still positive (can be called a Master Hub or Punch).

4. This Master Hub is then squeezed into the Master DIE—which is usually undated or has the first number—the 1 without any more of the date.

Very experienced steelworkers can engrave straight into a Hub or Punch and leave out steps 1 and 2. After World War II the copper Galvano was changed to an epoxy template.

We are now left with a Master Die both not fully dated and without any mintmark. The Master Die is used to make the Punch (or Hub—interchangeable term) in the Hobbing press. It is this Punch (Hub) which then determines everything. The Mint can only remove things from a Punch. (It can't remove something from a Die as it would require filling a hole, which always fails.)

Fig. 1. 1879 Sydney half sovereign showing the broken jewel on the reverse.

Fig. 2. 1864 London half sovereign with the same broken jewel on the reverse.

Fig. 3. The broken jewel on the reverse of an 1872 half sovereign struck in London.

Fig. 4. 1879 Sydney half sovereign obverse with die crack.

Fig. 5. 1880 Sydney half sovereign reverse—note the fat beads and the 1 in REGINA.

The Punch cannot have anything added except rim beads as you can't punch a number or a mintmark into a positive image. The Punch is then squeezed in the Hobbing press to produce the Working Dies (the negative image of what will become the coin). You can look at the final coin as the last Punch.

Now to add numbers such as the 882 to a coin they must be punched into a Die and back then this was the Working Die which was going to make the coins. Therefore to make a new Die you need to remove anything positive on a Punch, in this case the rim beads or denticles and fuse the new ones in. To add the date you need the working Die to punch in the numbers and mintmark. Therefore positive image—remove. Negative image—add.

Changing the Die by Changing the Punch

The key to understanding 1882M as a sixth head is by following the *nomenclature* (the term or terms applied to someone or something) of the various obverses and the nature of those changes. As explained earlier, the master die is used to make the punch—*which determines everything*. This can be demonstrated most concretely by illustrating a finding on the denticled variety reverse sovereigns. From the early 1860s the crenulated reverse die has consistently been minted with a broken jewel in the centre of the Queen's crown.

The example illustrated in figure 1 is an 1879 Sydney half sovereign, figure 2 is a London-struck 1864 followed by 1872 (figure 3) sourced from PCGS. That broken jewel die marker continues until the end of the Young Head series in 1887. What this illustrates is that modified reverses that are catalogued as die reverses 1 through 4 are new dies resulting from the modification of a punch. As Dr Briggs explained, a mint worker cannot subtract from a die, which is a negative image. All modifications are made to a punch, which is a positive image.

If you look at the 1879 Sydney coin illustrated (figure 1) as the last punch—a coin is a positive image—then you can look at the changes made by Royal Mint workers with the introduction of the fourth head. Notice the constant rim change during the period 1864 to 1879. The inner design remains much the same but the rim and denticles change, with a much thicker outer rim by 1879.

So looking at that coin (a positive image) allows the reader to imagine the master punch (also a positive image) being stripped of its rim and border beading to fuse on a different rim, while retaining the same engraving in the centre. This is a clue to understanding how the variants "cross-buried" and "cross-not-buried" were born.

It is also how the Birmingham reverse on Australian pennies was born, as Paul Holland (*JNAA* 28, 2017 p.37) explains:

> *"The surprising change to a new reverse B master die type in 1912 appears to have arisen almost accidently [sic]. This occurred when problems (guttering) were encountered in hardening a punch taken from the original reverse A master die while producing a derivative master die dated 1912 for the Heaton Mint in Birmingham. The problem was addressed at the Royal Mint by the simple expedient of grinding off the defective beads and cleaning up the edge, and then using this punch to produce a new master die with the addition of 177 border beads in place of the 174 that were on the original version. The new 'accidental' Birmingham reverse die type then became standard for all pennies from 1912–15, as well as many of the other years that George V pennies were struck, including the final coinage years from 1932–36."*

Create variations in the die and a new coin is created—thus we have reverse type 1 through 4 and obverse type 1 through 5. The single die 1882 Melbourne should be rightfully called the type 6 obverse and is likely unique. With perhaps 36,000 examples minted from this die, it is also one of the rarest varieties.

It appears that die instabilities in obverse type 4, illustrated with the impressive die crack in the 1879 Sydney illustrated in figure 4, stimulated efforts to improve die structure. Dr Briggs' understanding is that it was standard practice at the Royal Mint to change the dies, beading and milling in order to improve stability in minting. Little did the Royal Mint understand the engineering deficiencies that were plaguing their efforts to produce this denomination. Changing the dies did little to fix those problems.

Returning to the reverse dies, we see type 4 introduced in 1880 Sydney (figure 5). Note the fat beads almost merging to create a huge reverse rim. 1879 sports a rim as large as the orb on the crown. The rim and beads on this reverse are now double the orb's size. It's another variant change in an attempt to improve half sovereign production. Incidentally, this example is also an unpublished variety in having an Arabic number 1 in place of Roman letter I in REGINA.

1882 Melbourne—A "London Special"

In another email Dr Briggs sheds some tantalising hints of issues facing the Royal Mint and why they might have fostered this single, sixth obverse die type on Melbourne:

> *Hello Les*
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> *I have just had a look at some very hard to read hand written notes which were scribbled down by someone at the Melbourne mint. In 1877 it has 25 Half Sovereign Dies arriving on 12/7/1876 for 1877 h/s. Dies tended to collapse in the centre at first and then crack—problems due to unequal hardness of steel. Moulds therefore irregular and hard to strike coins with good margins.*
>
> *The 25 dies are not divided into reverse or obverse but if these jotting are correct the number of Melbourne produced mintage figures way larger than 80,000. Obviously way less Sovereign and Half Sovereigns dies made it through to production than the dies sent out.*
>
> *The other thing we know is that the Melbourne machinery produced by Taylor and Challen was of the latest type and superior to that in London (in the 1872 report). From this I think we can conclude that the enormous number of coins (both Sov. And Half Sov.) returned to London for the Trial of the Pyx were actually sent back for study in London.*

A couple of important details will jump out at the attentive reader. Renniks et al record 1877 Melbourne as having produced 140,000 half sovereigns, yet a review of Melbourne Mint records by Dr Briggs tells a different story of numerous die failures, issues with the stamping

Fig. 6. Left, the 1882M head superimposed on a London 1877 half sovereign and right the 1882M half sovereign.

press and poor blank production from the bars. These issues led to an actual total of 80,000—not 140,000 coins being produced. Approximately 12 pairs of dies outputting 80,000 total production are pressing only 6,666 coins each—an unbelievably poor production rate.

By comparison, 1882M required only three die pairs and produced 36,281 coins per pair. This illustrates the issues that the Royal Mint had with their steel, but also opens the possibility that an excess of type 3 reverse dies were available for use in Sydney and Melbourne following the introduction of the type 4 reverse. That's research for another article.

In the context of this brief overview of the difficulties the Royal Mint faced during this period, does the single die "London Special" become more apparent. Dr Briggs' suggestion that poor London steel, which kept failing efforts to produce cost effective half sovereigns in all mints, led to constant changes to improve the dies. Enter the sixth head 144 rim bead obverse.

Characteristic cracking in the fourth head 1879 Sydney half sovereigns resulted in a redesign and a fifth head die being produced by 1880. Yet 1882 Melbourne appears to be a competing effort—inevitably sanctioned by the Royal Mint—using a fourth head punch that had its rim and beading removed and replaced with an alternative assembly. This resulted in Melbourne producing a half sovereign that appears to be unique in the realm.

Technical Differences

I superimposed the 1882M sixth head on a UK 1877 fourth head and orientated the two as closely as possible (figure 6). A simple rim bead count illustrates the differences. The black line running from the tip of the pony tail along the top of the nasal passage illustrates a very minute difference in legend orientation. The primary differences between the fourth head and the sixth are the wider rim and larger, compact rim beads. This thicker rim has encroached upon the obverse legend, while the date has encroached upon the truncation of the neck in the obverse portrait. The fourth head obverse die was constructed with 146 narrower, tooth-like denticles. In the sixth head a wider arrangement of 144 rim beads was constructed. The milling on the coins edge—an integral part of stabilising the planchet in the die collar during the strike—changes from 104 to 110.

An interesting subject to be continued elsewhere was on the nature of the final A in GRATIA—a key marker for identifying an authentic 1882M type 6 (figure 7). It comes from a defective punching of the die in the hobbing press. The die was initially softened and struck with a punch, then heated and struck again incorrectly. Dr Briggs labels this a *hubbing spread*.

Dr Briggs provided me with some insight into solving the issue of denticled reverse dies that I have been attempting to identify following the introduction of the type 4 reverse. That is each mint mark is individually stamped into the working die, providing a unique placement marker that a collector can use to identify the number of working dies. 1882M type 6 obverse shares the low centre M mint mark (figure 8), although it is not clear if any other reverse was used with said obverse.

In his book, Dr Briggs has also included an easy to understand comparison of the type 5 and type 6 obverse (figure 9). Figures 8 and 9 comes directly from Dr Briggs' book.

Production of 1882 Melbourne Half Sovereigns

Dr Briggs's extensive research—including annual bar and blank production—is also illustrative of the difficulty, and subsequent rarity, of the half sovereign. If we compare sovereign and half sovereign metal production for 1882 Melbourne, we get:

Half Sovereigns:
Bars to blanks% 57.15
Good blanks% 72.36
Bars to coins% 41.19

Sovereigns:
Bars to blanks% 71.40
Good blanks% 92.67
Bars to coins% 65.68

It's clear from looking at the above statistics that producing half sovereigns was difficult — which was the case with all mints! In 1882, full 8 gram sovereigns had a greater than 60 per cent success rate in quality controlled production—from bar to coin—compared to the 4 gram piece

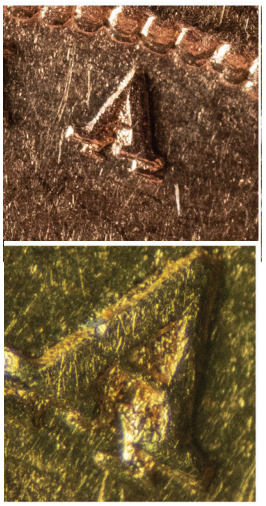

Fig. 7. Enlargements of the final A in GRATIA on the 1882M half sovereign.

High centre

Low centre

Left side

Fig. 8. The positioning of the mint mark—both types come with either and the dates are the same with both showing that the last part attached to the Die for Australia was the mint mark. (Image courtesy of Dr David Briggs.)

Fig. 9. You can tell the differences between type 5 and 6 in the truncation on the neck. Type 5 (left) has large area and date does not interfere with the base line. Type 6 has small area and slight dint in baseline. Date is the same. (Image courtesy of Dr David Briggs.)

Fig. 10. The type 5 obverse.

at the Melbourne Mint, which were reportedly equipped with more modern machinery than their counterparts in the Royal Mint.

Three half sovereign die pair were delivered. All dies appeared to have lasted approximately the same amount of time, which would average 36,281 coins per die pair. There were two type 5 obverse dies and one type 6 die. The following production figures are recorded:

Type 5 equalling 71,721 coins

Type 6 equalling 35,861 coins

The discrepancy between the average die production quoted and the sum of the two types can be addressed by the Melbourne's Mint quality control. From a production figure of 108,843 coins produced, approximately 1,261 examples were withdrawn and melted down. The final sum of 107,582 coins placed into circulation is slightly higher than the 106,000 published by Renniks.

Compare these figures to the full sovereign production for that year. 39 die pairs were delivered with an average output of 63,225 coins per die. The Melbourne Mint was only able to achieve these outcomes in half sovereign production with relatively modern machinery. I'd be very interested to hear from any researcher studying the difficulties and outcomes at the Royal Mint.

Trial of the Pyx and Conflicting Information

The Trial of the Pyx was the Treasury's means of controlling the quality of the money supply, dating back centuries. What Dr Briggs made clear to me was the increasing number of coins sent back for the trial, which pointed to an increased interest from London in the quality of Melbourne's coinage. In one email I was sent the following information:

1881—42,000 half sovereigns minted, 7 sent for the Trial of the Pyx.

1882—107,500 half sovereigns minted, 22 sent for the Trial.

Shortly afterwards another email provided figures as follows: 1873M, 34; 1877M, 16; 1881M, 81, 1882M, 82. Dr Briggs's hypothesis is that the higher figure may be those coins sent from the Mint. But the knowledge that the English Treasury didn't trust any of the colonial mints leads to the suggestion that on London's order, the Victorian Governor may have been supplying the small quantity of coins, having taken them from the Mint's production line himself. Dr Briggs was unable to find material proof on the matter in Melbourne Mint archives.

Note the huge increase in coins in 1881 and 1882 sent to the Trial of the Pyx. Requesting a huge increase in coins for quality control in London from a colonial mint that had modern minting equipment is also another indicator for quality control issues the Royal Mint may have been suffering from. Examining English coinage and production archives from the period could prove useful in future analysis.

Conclusion

Perhaps at some point in the future we may be able to elucidate the success of the type 6 obverse in archives at the Royal Mint or records from the Trial of the Pyx, if they exist. Ultimately, the type 5 obverse, already in use since 1880 (figure 10) becomes the norm until the Jubilee series in 1887.

The half sovereign reverse dies changed with minor shield redesigns and major rim denticle changes—from 120 (type 1) to 122 (type 2) to 147 (type 3 and 4). The rims were literally cleaned off a punch and tacked on differently to create a new reverse die. It's the same for the type 6 obverse.

It's time to remove it from being a footnote in the type 4 information in the guidebooks and take its place as possibly the only type 6 obverse die used to produce half sovereigns in the British Empire. This overlooked variant is evidence that a humble colonial mint was punching above its weight as a producer of quality coinage; so much so that the Royal Mint appears to have sent it an entirely new die type for a trial run.

The author, Leslie Robinson, welcomes constructive comments and can be contacted at topendcoins@gmail.com. *The author wishes to acknowledge the invaluable aid of Dr David Briggs in the research and writing of this article.*