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Two 1921 New South Wales coin hoards

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Introduction

Within the last five years two New South Wales coin hoards fortuitously came intact on to the market. It was immediately recognized that these modern coins dating from the Victorian period through to just after World War I were not simply accumulations or coin collections, but must have come from hoards. This supposition was confirmed with the owners. Realizing the hoards' importance, the authors recorded the coins by country (British and Australian), date, mint, and most importantly, their individual weights. This article is a report on these findings together with a statistical analysis of the weight loss of the coins during circulation. We show that for the Australian silver coins in the combined hoards, the mean percentage weight loss per year per coin by denomination follows a linear relationship, and that the smaller the coin, the larger the percentage weight loss.

Background

In July 2008 (Sale 88 (see figs 1, 2 and 4), Lots 1605 – 1672, 1758 – 1896) and early 2009 Sale 90, Lots 323 - 415), Noble Numismatics sold two hoards at auction of Australian and British coins both buried in 1921, which are consequently described as the '1921 Hoards A and B'. The facts presented were that Hoard A was claimed to be found during renovations and work in the back yard of a property on the Central Coast, less than 100 km north of Sydney, and Hoard B was claimed to be found in the southern suburbs of Sydney. The remarkable similarity of both hoards in value and mix of gold and silver tends to suggest that the hoards had a common source but this is not proved. Both hoards contain Australian and British coins that were put aside from circulation in early 1921.



Noble Numismatics Sale 88 Lot 1612 (image courtesy Noble Numismatics)



Noble Numismatics Sale 88 Lot 1623 (image courtesy Noble Numismatics)

New Silver Coins.

Following on the announcement of the intention of the British Government to issue silver coins of lesser intrinsic value than at present, similar action will probably be taken by the Commonwealth. The question was considered some time ago, but the proposal was shelved for the time being. It is known, however, that the reduction of the silver contents is favored by the Treasury in view of the additional revenue which would be derived. The amount of silver coin issued each year averages about £350,000 face value, and the adoption of the course suggested would yield a profit of nearly £170,000. Although the price of silver has fallen during the last few months, it is still high, and the Commonwealth, therefore, gets little or no benefit from this section of its coinage issue. Information was sought as to what the position would be in regard to the new British coins when passed into circulation in the Commonwealth. The answer was that not much British coin came to Australia, and the little that did arrive was brought by passengers. Being token coinage, it was accepted at its face value without regard to the silver content, and the Treasury does not look for any reimbursement.

The Richmond River Express and Casino Kyogle Advertiser, 16 November 1920. p. 4.

The relative proportions of Australian silver coins in the hoards follow those expected from the numbers struck during the different years, indicating that these were selected at random from the coins in circulation at the time. When the hoards were sold they achieved a combined hammer price of over \$210,000.

At the time of its deposit approximately 20% of the silver currency in circulation was British, some of which had been in circulation since the 1830s. The face value in the hoards of Australian silver coins was £142.1.9 (2651 coins) in Hoard A and £113.6.3 (2231 coins) in Hoard B, and of British silver coins £41.8.3 (768 coins) in Hoard A and £37.12.3 (772 coins) in Hoard B. In Hoard A there were 18 half sovereigns (1854 to 1915) and a single sovereign (1909), and in Hoard B, 13 half sovereigns (1902 – 1915) and 8 sovereigns (1904 – 1914). The total face value of both hoards including gold was £358.18.6, and the total number of coins was 6462. The presence of British coins of George V in

both hoards dated as late as 1919, with a preponderance of British florins during the war years, suggests that some of these coins were acquired in England by Australian troops returning from World War I.

No half-crowns were present in the hoard as these ceased to circulate after the introduction of regular Australian silver coins in 1910, but were recalled and stored at banks and later returned to England. While 1921M threepences featured in the hoards, no 1921 plain threepences were present as they were introduced late in 1921 from new dies without the M mintmark. Only a small number of 1920M (Melbourne

Mint) shillings (minted December 1920 - January 1921) and 1921 star (Sydney Mint) shillings (minted early in 1921) were present. This together with the overall pattern of wear suggests a hoard being put together in the period February - May of 1921.

A likely reason the hoards were put away was the fear of the possible debasement of Australian silver coins to 0.500 fine from the then current 0.925 (sterling) fineness.

Australia didn't go ahead with this debasement as the ruling world price of silver became stable, but the fineness of the silver coinage in Britain was reduced in 1920.

Hoard A and B have been carefully examined with all coins weighed and the details recorded. The hoards represent a time capsule of coins circulating at the time in the Sydney region and the nearby regional area of NSW. The amount of wear is considerable considering that most of the Australian coins had as little as ten years of circulation. The 1918 to 1921 coins showed less wear with many of the 1921 pieces close to uncirculated.

In this paper we look at the wear rates for the combined hoards. The relationship between the two hoards will be the subject of a further study as the sample sizes are relatively small.

Melbourne Mint study

The wear rates of Australian coins have been examined once before in a study of some 75,000 coins referred to in the Report of the Deputy Master of the Melbourne Branch of the Royal Mint for the year 1933, pp 105 -107.¹ We are grateful to Jim Noble for pointing out an earlier and more complete version of this article.²

The Melbourne Mint study was somewhat different. Firstly the coins had been longer in circulation. Secondly the presented results were given denomination by denomination in two-year groups up until 1921, then grouped for the respective periods 1922-1924 and 1925-1932. While coins struck with a given date were not necessarily issued in that year, such groupings make deductions about the wear rates more problematic. However, there are some interesting metallurgical observations which we reproduce here as the publication would be inaccessible to most readers:

Examinations of the silver coins withdrawn from circulation were made in England on several occasions last century with a view to determining the rate of wear and the consequent life of the coins, and to check the results thus obtained, experiments were made by tumbling coins in a barrel, it being assumed that wear was due solely to abrasion caused

1 McCay, Hugh D, Report of the Deputy-Master of the Melbourne Branch of the Royal Mint for the year 1933. Sixty-fourth Annual Report of the Deputy Master and Comptroller of the Royal Mint, 1933, Appendix No. XIII, 18th May 1934, pp. 103-107.

2 McCay, Hugh D, Silver coinage of Australia – rate of wear, Royal Mint, Melbourne in-house publication, 12th August 1933, 8 pp.

by the coins rubbing on each other or on counters and to impact when thrown down.

A general conclusion was reached that large coins wear more slowly than small ones, and that, ceteris paribus, the harder the coin the longer its life. In 1906 it was found that the wear on sixpences was much more rapid than other coins, in spite of the fact that they were harder than the larger coins, and that they had the shortest life of any, and returned to the Mint in the worst condition. They were a much more popular coin than the threepence, and so would circulate more rapidly.

In 1912 Dr. Rose investigated the relative hardness of the surface and the interior of coins, and also of that part of the surface which was raised, as against the smooth table of the coin. As might be expected, he found that the interior was much softer than the surface, and the raised portion softer than the plain table. Also, it was proved that the thinner a coin the harder it was.

In reporting the results of a further investigation in 1924, in which a small number of coins were taken from circulation, Dr. Rose wrote:-

“It is now known that the wear of coins is due to a combination of chemical and mechanical action. If simple abrasion of metal, at a rate dependent on hardness and toughness were the sole cause of wear, coins would always be clean. Dirt, however, accumulates on coins. It consists of grease mixed with various solids, including soot and dust of all kinds, and is soon contaminated with oxides and salts of the metals of which the coins consist. These compounds are the products of corrosion due to the attacks of atmospheric acid and the fatty acids of grease, together with common salt. The crust formed by corrosion is also mixed with detached particles of metal, and is easily abraded. A great part of the wear of the coins is accordingly due to corrosion, while they are at rest, followed by abrasion when they are in active circulation. Tarnishing may be regarded as the first stage in corrosion and the formation of a patina as the second stage, in which a layer of the products of corrosion mixed with dirt accumulates in the sunk part of the coin, but is removed by abrasion from the projecting parts. When the coin becomes smooth, the patina is removed almost as fast as it forms.”

It appears that, provided the hard portion is tough, the softer metal wears more rapidly, and therefore, as a coin wears the rate of wear increases. Larger coins, having less surface exposed in proportion to their weight, are less subject to wear than smaller, but against this the height of the relief of the design is less in proportion to the weight, the relief being proportional to the diameter. Further, the smaller part of the weight is in the protecting rim; and less of the weight has been hardened by the pressure of the dies, which hardens the surface only. It follows that the larger coins become unfit for circulation, owing to wear after they have lost a smaller proportion of their weight.

The New South Wales Hoards

The structure of the remainder of this paper is as follows. For the combined Hoards A and B we present graphs of the mean percentage weight loss for each denomination and each date, with the original data given in three appendices.

This study concentrates on the mean percentage weight loss (MPWL) for the coins in the hoards, defined by:

$$\text{MPWL} = \left(\frac{\text{weight of coin as struck} - \text{mean weight of coins of a particular date}}{\text{weight of coin as struck}} \right) \times 100$$

where the weight of coin as struck is the actual theoretical weight.

(a) The Australian coins

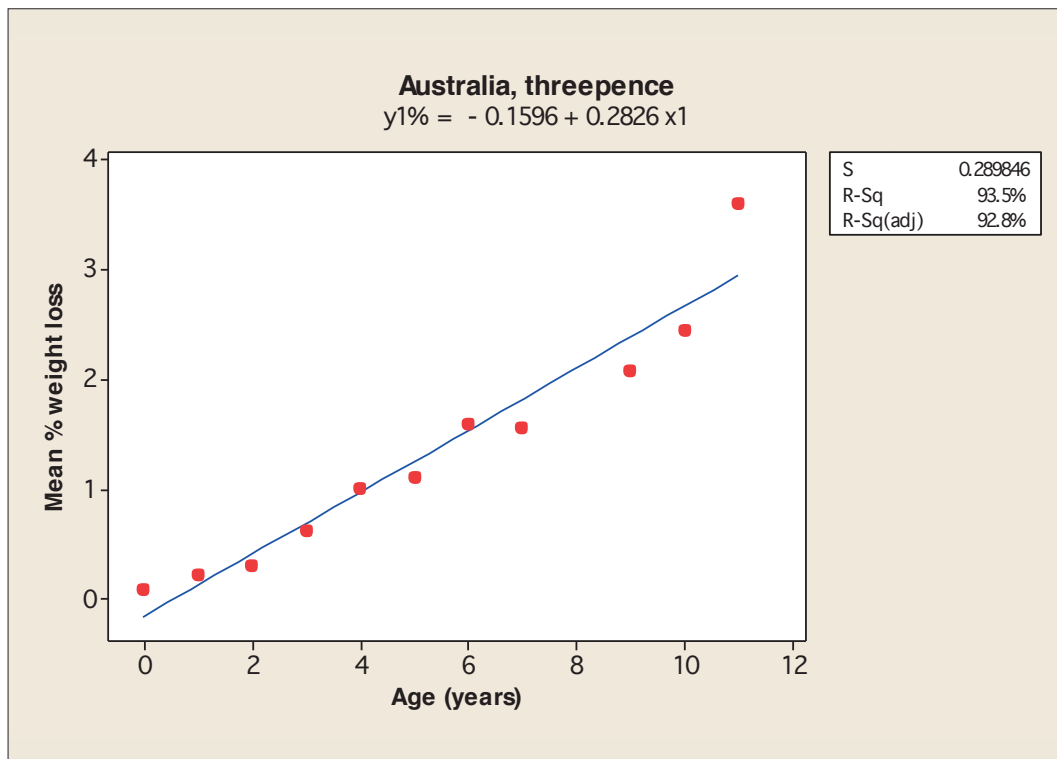
The threepence data for the combined hoards give:

Age (years)	Mean weight	Mean % weight loss
11	1.3627	3.6109
10	1.3791	2.4539
9	1.3844	2.0784
7	1.3918	1.5565
6	1.3914	1.5870
5	1.3980	1.1145
4	1.3996	1.0038
3	1.4049	0.6271
2	1.4096	0.2955
1	1.4107	0.2164
0	1.4125	0.0920

(it is convenient when charting the data to give the age in years rather than the dates themselves, note that there is no Year 8 (1913) dated Australian threepence). There is a slight difference between the mean weight of the 1921 coins and the actual theoretical weight of 1.4138g)



Noble Numismatics Sale 88 Lot 1669 (image courtesy Noble Numismatics)

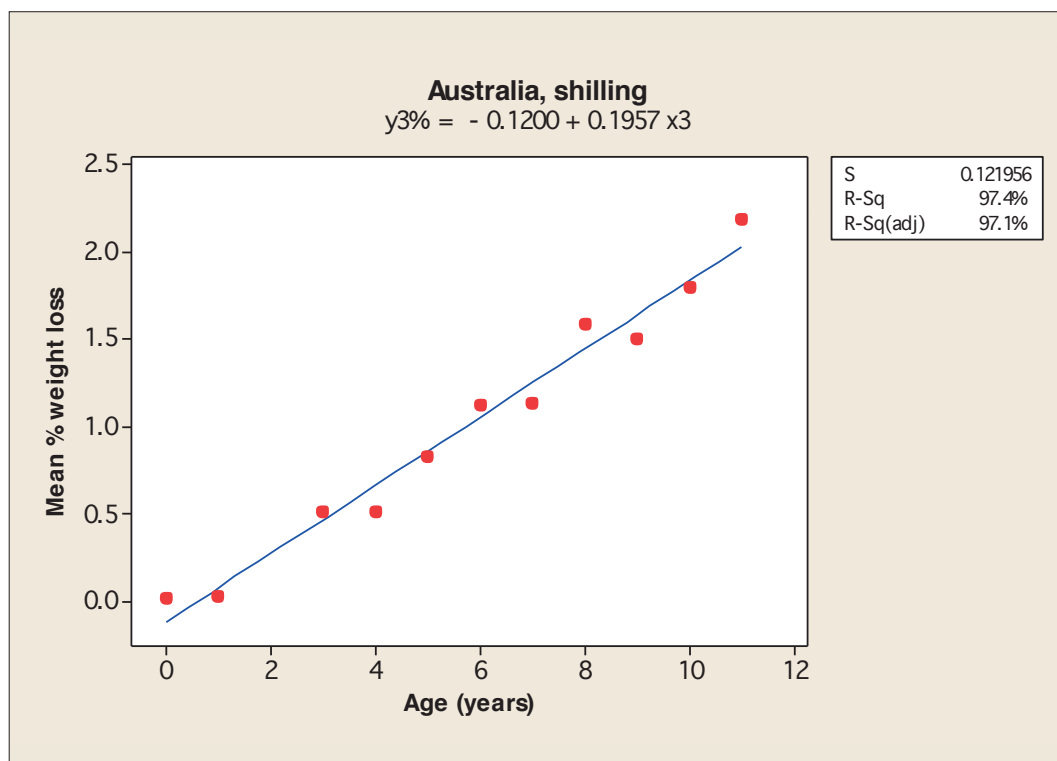
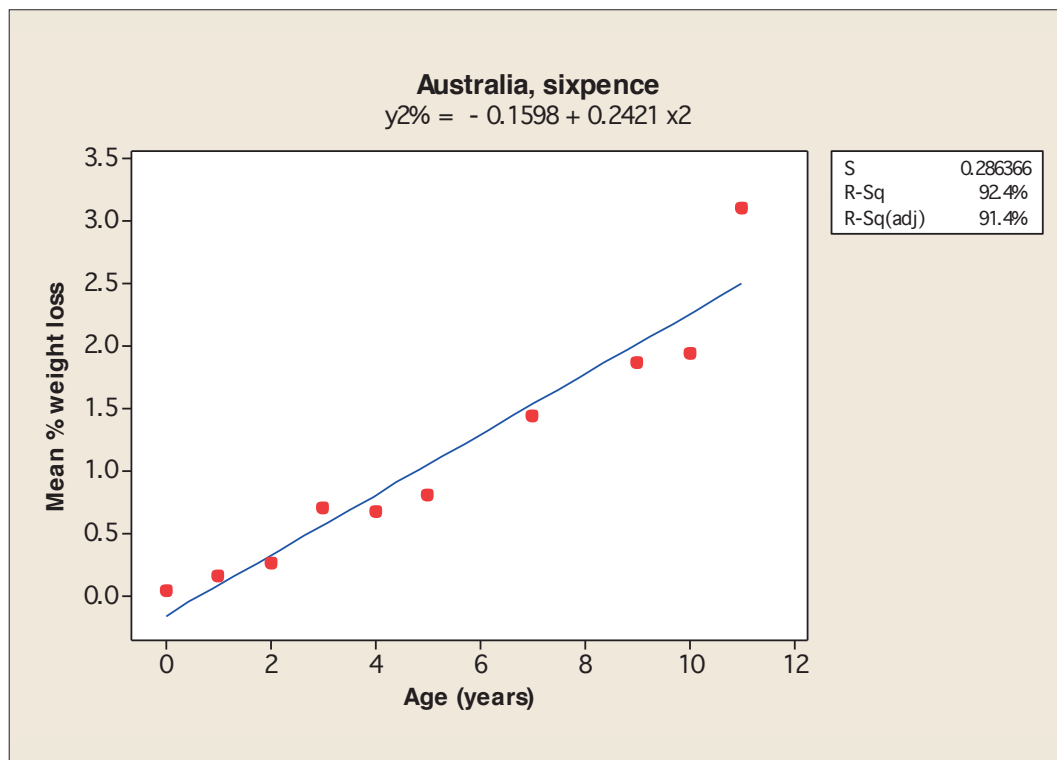


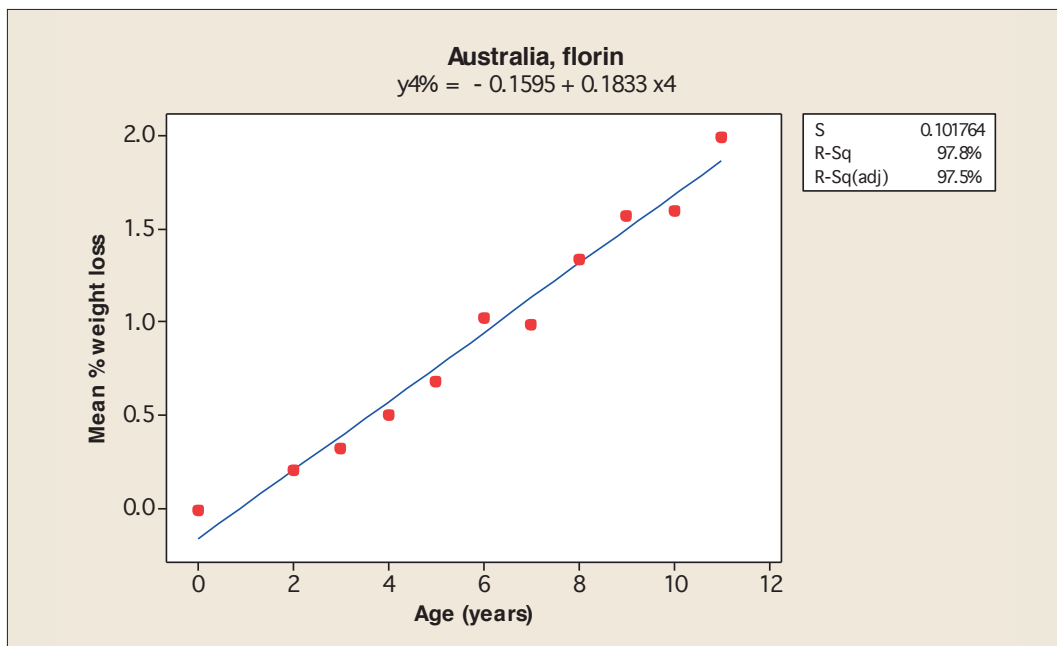
Here we have a plot of mean percentage weight loss (MPWL) versus age in years (Age). As would be expected, the older the coin, the higher the mean percentage weight loss (as found in the Melbourne Mint study). However, the relationship is close to linear within a 95% degree of confidence, *viz*

$$\text{MPWL} = -0.1596 + 0.2826 \times \text{Age}$$

With a constant (0.2826) rate of mean percentage weight loss over the period in question. This constant rate is at odds with the metallurgical statement in the Melbourne Mint report.

Carrying out a similar analysis for all four silver denominations gives the following graphs:





(in the above we have combined the numbers for 1915 and 1915H shilling, 1914 and 1914H florins, and 1915 and 1915H florins respectively). We would remind the reader that no Australian threepences were minted in 1913, no sixpences in either 1913 or 1915, no shillings in 1919, and no florins in 1920. Tabulating the regression lines for all four denominations gives:

3d	MPWL = - 0.1596 + 0.2826×Age
6d	MPWL = - 0.1598 + 0.2421×Age
1/-	MPWL = - 0.1200 + 0.1957×Age
2/-	MPWL = - 0.1595 + 0.1833×Age

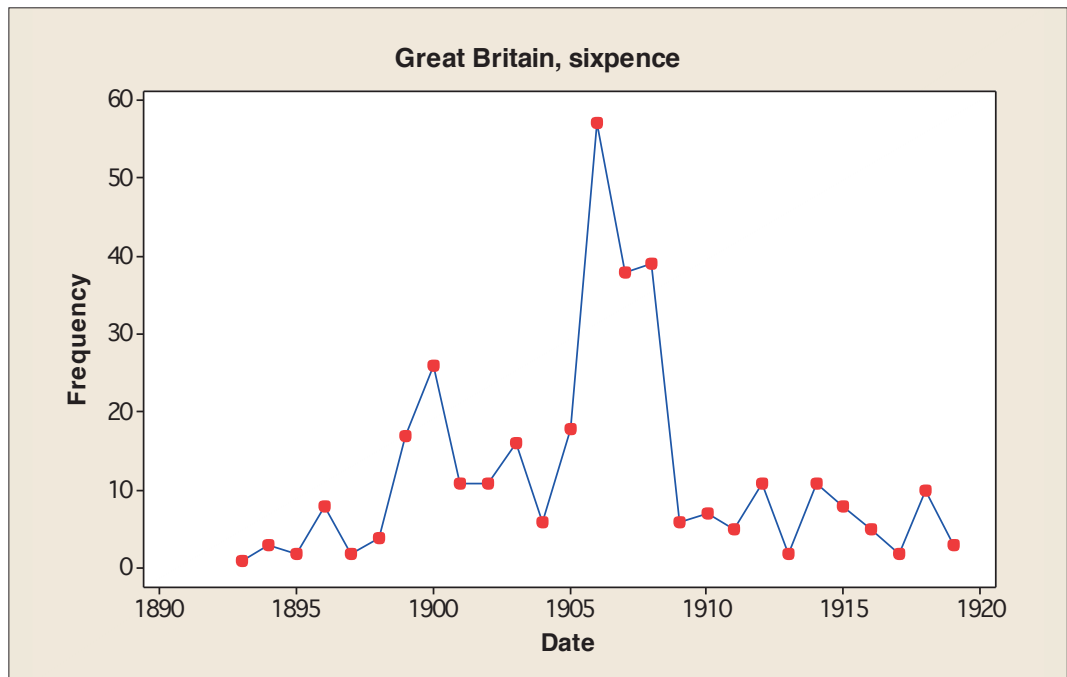
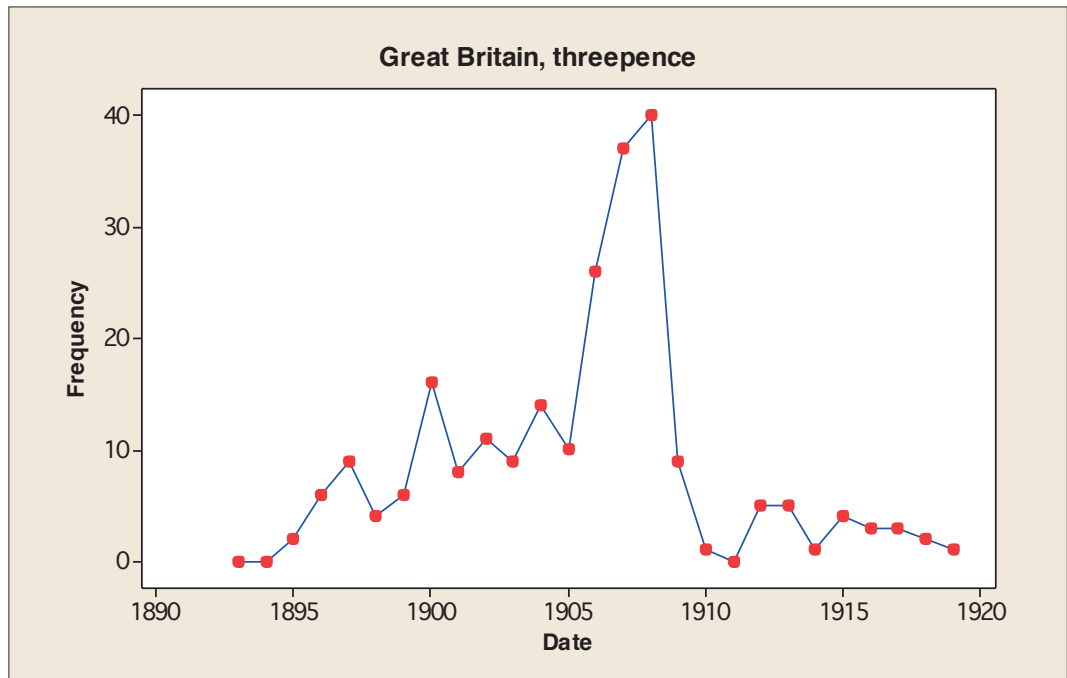
The rate of mean percentage weight loss decreases as the size of the coin increases, in keeping with early British studies as outlined in the Melbourne Mint report. The reasons for this are varied, but will depend on relative usage as well as metallurgical properties of the surface together with the proportion taken up with the design.

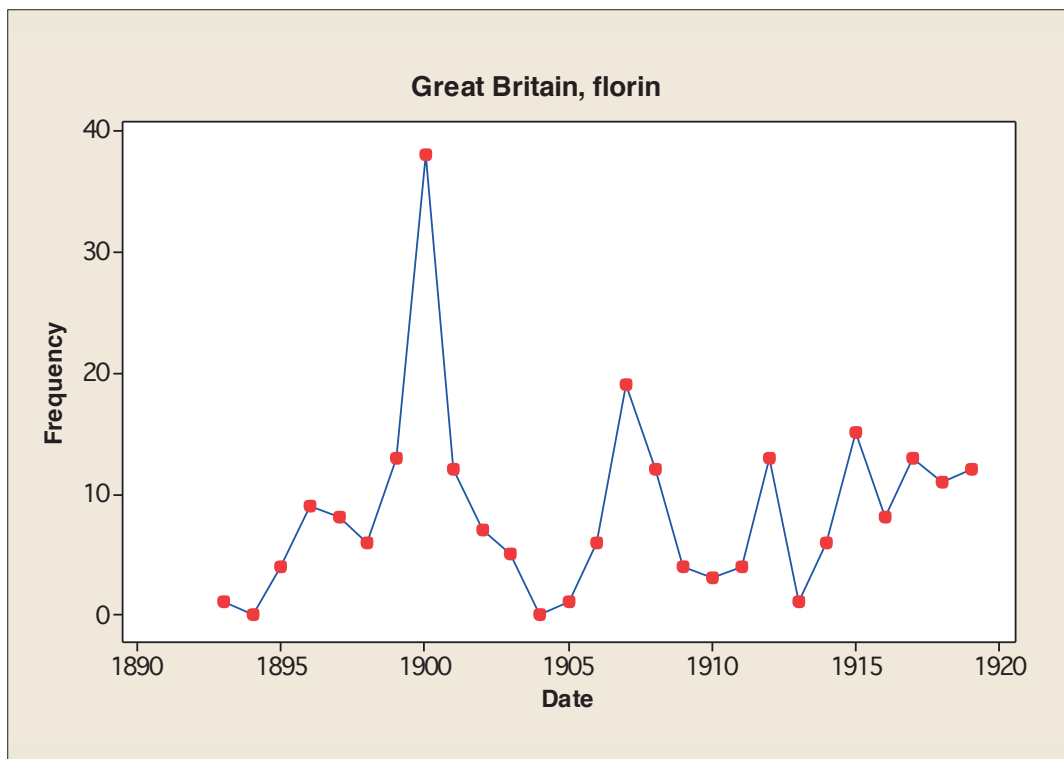
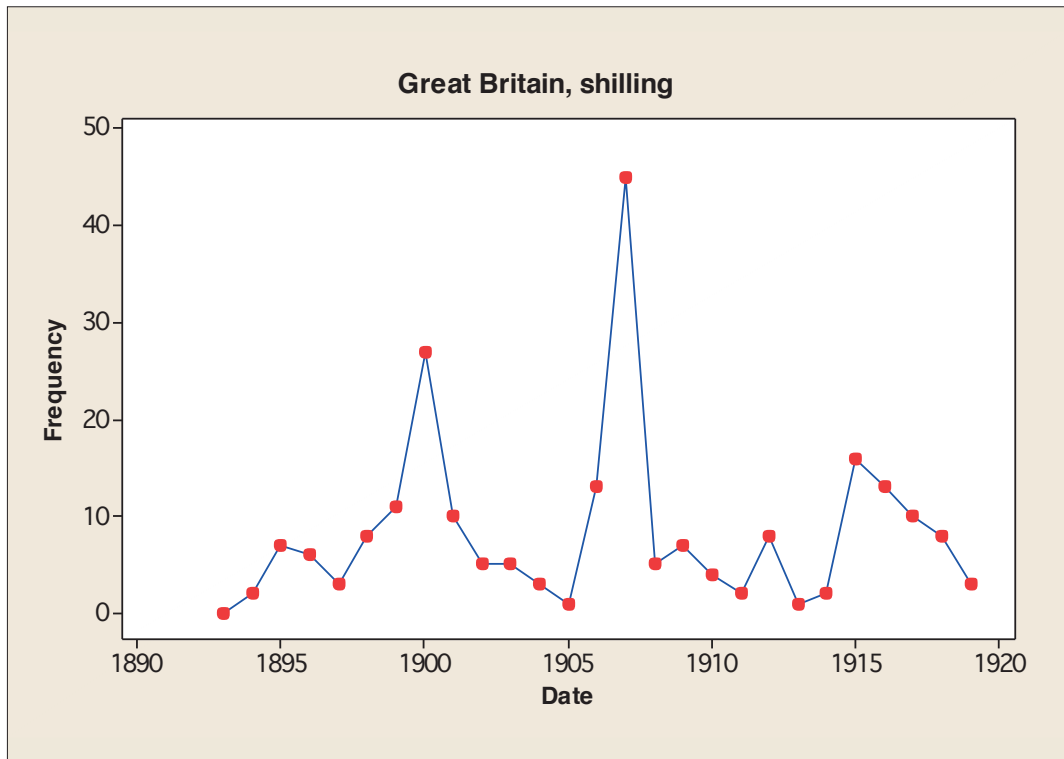
It must be remembered that the above study is on coins of a very restricted period, and essentially on relatively new coins given when they were buried. It should also be noted that these coins did not have the degree of circulation of their British counterparts, based not only on the differing population sizes, but also on the fact that Australian and British coins were circulating side by side during this period.

Can we write for certain that Hoards A and B come from the same hoard? Most likely there is little that can be said given the relatively small sample sizes.

(b) The British coins

The sample sizes are even smaller, but it is instructive to look at scatter plots for the four denominations (3d, 6d, 1/-, 2/-) appearing in the 1921 Hoards over the period 1890 to 1920.





It must be emphasized that the sample sizes are small.

The numbers of British coin in circulation would depend on what quantities were imported into Australia (with some very minor proportion brought in by travellers). One might conclude from the four charts above that there was a significant importing of all four denominations sometime later in the period 1906 – 1909, and a modest import of the first three denominations with a special importing of florins in the early part of the century. Royal Mint records would be needed to ascertain if these observations do indeed hold.

We tabulate the data for both hoards, in Appendix I the grade ranges and numbers for the Australian coins, in Appendix II the mean weights and mean percentage weight loss for each denomination, and in Appendix III the numbers for the British coins.

Conclusions

These seem to be the first recorded hoards of Australian coins, and it is remarkable that they have been put down so early in the history of Australian Commonwealth coinage along with British coinage that was circulating side by side during these years.

This has given us an almost unique opportunity to study wear rates on Australian silver coins during the period 1910 - 1921, which have been found to follow a very strong linear relationship for each of the four denominations. More importantly, the rate of wear depends on the actual size of the coin, with the smallest denominations wearing at the highest rate.

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Colin Pitchfork is a numismatic consultant who lives in Sydney and has been actively involved in professional numismatics for over fifty years. He has held the position of President of the Australian Numismatic Society (ANS) on many occasions since 1967, retiring from that position in 2008, and has been the recipient of both of the Society's highest awards namely the gold and silver medals. Colin is currently the Vice-President of the NAA and the ANS, and has been a recipient of the NAA Paul Simon Memorial Award. He is a member of the Board of the Australian Centre of Ancient Numismatic Studies (ACANS) at Macquarie University. colin@noble.com.au

Appendix I

Australia threepences

		Grade	Hoard A	Hoard B	Total
1910	EDWARD VII	G-UNC	108	103	211
1911	GEORGE V	G-EF	35	23	58
1912	GEORGE V	G-UNC	36	43	79
1914	GEORGE V	G-EF	41	43	84
1915	GEORGE V	G-gVF	8	15	23
1916M	GEORGE V	G-UNC	30	17	47
1917M	GEORGE V	G-UNC	66	52	118
1918M	GEORGE V	F-UNC	117	116	233
1919M	GEORGE V	VF-UNC	60	48	108
1920M	GEORGE V	VF-UNC	18	12	30
1921	GEORGE V		0		
1921M	GEORGE V	VF-UNC	46	45	91
TOTAL			565	517	1082

Face value £13.10.6 (\$27.05)

Australia sixpences

		Grade	Hoard A	Hoard B	Total
1910	EDWARD VII	G-VF	76	73	149
1911	GEORGE V	G-gEF	90	94	184
1912	GEORGE V	G-nUNC	52	58	110
1914	GEORGE V	G-EF	64	77	141
1916M	GEORGE V	F-UNC	75	76	151
1917M	GEORGE V	nF-UNC	76	72	148
1918M	GEORGE V	F-UNC	47	51	98
1919M	GEORGE V	VG-UNC	70	69	139
1920M	GEORGE V	VF-UNC	41	19	60
1921	GEORGE V	VF-UNC	56	33	89
TOTAL			647	622	1269

Face value £31.14.6 (\$63.45)

Australia shillings

		Grade	Hoard A	Hoard B	Total
1910	EDWARD VII	G-VF	49	33	82
1911	GEORGE V	G-VF	46	22	68
1912	GEORGE V	G-VF	19	7	26
1913	GEORGE V	G-VF	17	2	19
1914	GEORGE V	G-VF	47	38	85
1915	GEORGE V	G- F	10	6	16
1915H	GEORGE V	G- F	10	10	20
1916M	GEORGE V	VG-VF	130	83	213
1917M	GEORGE V	nF-UNC	111	112	223
1918M	GEORGE V	nF-nUNC	45	34	79
1920M	GEORGE V	VF-UNC	9	8	17
1921*	GEORGE V	VF-UNC	8	3	11
TOTAL			501	358	859

Face value £42.19.0 (\$85.90)

Australia florins

		Grade	Hoard A	Hoard B	Total
1910	EDWARD VII	G-F	52	40	92
1911	GEORGE V	G-VG	41	19	60
1912	GEORGE V	G-VG	52	44	96
1913	GEORGE V	G-VG	45	27	72
1914	GEORGE V	VG-gF	89	57	146
1914H	GEORGE V	VG-gF	15	4	19
1915	GEORGE V	VG-gF	16	19	35
1915H	GEORGE V	VG-nF	29	24	53
1916M	GEORGE V	VG-gVF	144	104	248
1917M	GEORGE V	VG-nUNC	202	167	369
1918M	GEORGE V	nF-UNC	175	155	330
1919M	GEORGE V	F-nUNC	66	44	110
1921	GEORGE V	gVF-UNC	12	30	42
TOTAL			938	734	1672

Face value £167.4.0 (\$334.40)

TOTAL Australia silver face value = £255.8.0 (\$510.80), Number of coins 4,882

Appendix II

Hoard A (Australia)

3D	Mean weight	Mean % weight loss	6D	Mean weight	Mean % weight loss
1910	1.3770	2.6029	1910	2.7440	2.9566
1911	1.3790	2.4615	1911	2.7740	1.8956
1912	1.3860	1.9663	1912	2.7810	1.6480
1914	1.3920	1.5419	1914	2.7850	1.5066
1915	1.3890	1.7541	1916	2.8060	0.7639
1916	1.4000	0.9761	1917	2.8100	0.6224
1917	1.4000	0.9761	1918	2.8080	0.6932
1918	1.4070	0.4810	1919	2.8220	0.1980
1919	1.4100	0.2688	1920	2.8250	0.0920
1920	1.4110	0.1980	1921	2.8280	-0.0141
1921	1.4120	0.1273			
Full weight	1.4138		Full weight	2.8276	

1/-	Mean weight	Mean % weight loss	2/-	Mean weight	Mean % weight loss
1910	5.5360	2.1078	1910	11.1020	1.8426
1911	5.5600	1.6834	1911	11.1280	1.6127
1912	5.5740	1.4358	1912	11.1320	1.5773
1913	5.5700	1.5066	1913	11.1740	1.2060
1914	5.6010	0.9584	1914	11.2112	0.8771
1915	5.5975	1.0203	1915	11.2267	0.7403
1916	5.6150	0.7109	1916	11.2490	0.5429
1917	5.6350	0.3572	1917	11.2650	0.4014
1918	5.6320	0.4102	1918	11.2900	0.1804
1920	5.6570	-0.0318	1919	11.3010	0.0831
1921	5.6580	-0.0495	1921	11.3180	-0.0672
Full weight	5.6552		Full weight	11.3104	

Hoard B (Australia)

3D	Mean weight	Mean % weight loss	6D	Mean weight	Mean % weight loss
1910	1.3743	2.7939	1910	2.7423	3.0167
1911	1.3787	2.4827	1911	2.7715	1.9840
1912	1.3828	2.1927	1912	2.7693	2.0618
1914	1.3919	1.5490	1914	2.7883	1.3899
1915	1.3925	1.5066	1916	2.8035	0.8523
1916	1.3941	1.3934	1917	2.8058	0.7710
1917	1.3996	1.0044	1918	2.8076	0.7073
1918	1.4033	0.7427	1919	2.8184	0.3254
1919	1.4092	0.3254	1920	2.8200	0.2688
1920	1.4108	0.2122	1921	2.8245	0.1096
1921	1.4122	0.1132			
Full weight	1.4138		Full weight	2.8276	

1/-	Mean weight	Mean % weight loss	2/-	Mean weight	Mean % weight loss
1910	5.5248	2.3058	1910	11.0658	2.1626
1911	5.5414	2.0123	1911	11.1247	1.6419
1912	5.5614	1.6587	1912	11.1341	1.5587
1913	5.5250	2.3023	1913	11.1352	1.5490
1914	5.5789	1.3492	1914	11.1826	1.1299
1915	5.5738	1.4394	1915	11.1958	1.0132
1916	5.5982	1.0079	1916	11.2123	0.8673
1917	5.6186	0.6472	1917	11.2362	0.6560
1918	5.6194	0.6330	1918	11.2577	0.4659
1920	5.6500	0.0920	1919	11.2727	0.3333
1921	5.6467	0.1503	1921	11.3087	0.0150
Full weight	5.6552		Full weight	11.3104	

Appendix III

Great Britain

Hoard A	3d		6d		1/-		2/-
1843	1						
1859							1
1860					1		
1861					1		
1862							
1863							1
1864							1
1865							2
1866					1		1
1867							
1868							
1869							1
1870							1
1871					1		
1872			1		4		3
1873			1		3		3
1874	1				4		3
1875					2		2
1876			1				
1877					3		1
1878					1		1
1879	1		1		2		3
1880			1		2		
1881			1		1		
1882					3		
1883							15
1884					1		
1885			1		2		
1886	1						
1887			3				
1887							2
1888			3		4		2
1889	2				1		3

1890			3		3		3
1891	2				4		2
1892			1				
1893	2						
1893			1				
1894			1		1		
1895	2		1		2		3
1896	3		3		3		3
1897	4		1		2		4
1898	3		1				2
1899	2		9		8		8
1900	8		9		13		20
1901	3		4		6		9
1902	1		4		1		3
1903	6		5		3		3
1904	7		1		2		
1905	2		9		1		
1906	11		25		9		4
1907	17		16		22		10
1908	20		17		3		6
1909	6		1		3		3
1910			2		2		1
1911			2		2		
1912	2		5		5		5
1913	2		2				
1914	1		5		1		1
1915	4		4		8		4
1916	1		4		9		3
1917			2		6		6
1918	2		5		3		5
1919	1		2		3		3
No visible date	15		42		9		107

Hoard B	3d		6d		1/-		2/-
1834					1		
1838			1				
1839					1		
1843	1						
1844			1				
1853							1
1856					1		2
1859							
1860			1				
1861	1						
1862							
1863							1
1864							
1865					1		
1866	1				1		
1867			1				
1868							
1869							
1870							
1871							
1872					3		2
1873	1		3		1		5
1874					3		2
1875							
1876	2				1		
1877	1		2		3		1
1878	2		2		1		1
1879			4		3		2
1880					1		1
1881			1				
1882					1		
1883	1		1		5		1
1884			1				
1885	2		2		1		
1886	1						
1887							

1887							1
1888			3		5		1
1889	3		5		1		3
1890	6		2		2		5
1891	3		1		4		2
1892	2		1				
1893							
1893							1
1894			2		1		
1895			1		5		1
1896	3		5		3		6
1897	5		1		1		4
1898	1		3		8		4
1899	4		8		3		5
1900	8		17		14		18
1901	5		7		4		3
1902	10		7		4		4
1903	3		11		2		2
1904	7		5		1		
1905	8		9				1
1906	15		32		4		2
1907	20		22		23		9
1908	20		22		2		6
1909	3		5		4		1
1910	1		5		2		2
1911			3				4
1912	3		6		3		8
1913	3				1		1
1914			6		1		5
1915			4		8		11
1916	2		1		4		5
1917	3				4		7
1918			5		5		6
1919			1				9
No visible date	6		24		3		65