

Volume 32

# Journal of the Numismatic Association of Australia



# Numismatic Association of Australia Inc.

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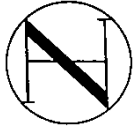
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Front cover: Photo of Mr. Billing's Gold Medal for Law (see article Figure 2 page 88).

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# NUMISMATIC ASSOCIATION OF AUSTRALIA INC

## President's Report

You are looking at Volume 32 of the *Journal of the Numismatic Association of Australia* (JNAA). It is a result of authors who have been sufficiently excited about a numismatic topic to carry out original research and put 'pen to paper', reviewers who have been willing to offer constructive criticisms to make the manuscripts the best they can be and the efforts of the editor who shepherds all the articles through the whole process and adds a 'final polish'. I acknowledge everyone involved, with special thanks to Managing Editor Gil Davis and Production Editor Barrie Newman for their continued efforts at maintaining a high-quality journal.

Much has happened since the last president's report published in Volume 31. The opening up of COVID-19 restrictions saw a welcome return to the NAA conference (NAAC2023), which was held in Adelaide at the Naval, Military & Air Force Club on the weekend of 19 – 20<sup>th</sup> October 2023, and hosted by the Numismatic Society of South Australia (NSSA). The conference was preceded by the 1000<sup>th</sup> meeting of the NSSA on the evening of Friday 18<sup>th</sup> October 2023. I would like to congratulate the NSSA for reaching this impressive milestone and for their major efforts in hosting the 9<sup>th</sup> NAA conference. The conference was an outstanding success, with attendees from every state of Australia and New Zealand. The conference program consisted of an opening talk by Ms Lainie Anderson (author of the *Long Flight Home*), two plenary lectures, 12 regular talks and a short talk. All talks were of a high standard and highlighted the diverse interests of the Australian and New Zealand numismatic community.

One of the highlights of the conference was the dinner, during which the Ray Jewell Silver Medal was awarded to the JNAA Managing Editor, Associate Professor Gillan Davis. This important award for 'outstanding contribution to Australian numismatics and the Numismatic Association of Australia' recognises Gil for his services to the NAA, and his numismatic research in Australia and overseas for which he is internationally renowned. Given that Gil is only the 8<sup>th</sup> recipient since the award was first presented in 1998, I have asked Walter Bloom to prepare a separate short report based on his presentation speech, which can be found in this volume.

The AGM, held at the conference, saw a ‘changing of the guard’, with Walter Bloom and Lyn Bloom handing over the reins as president and treasurer respectively. I personally want to thank Walter and Lyn for their tireless efforts in maintaining the local and international profile of the NAA over many years, including during the difficult COVID-19 period.

The following Office Bearers were elected at the 2023 AGM:

Treasurer – Rachel Mansfield

Secretary – Bridget McClean

President – Richard O’Hair

Vice President – Walter Bloom

Managing Editor – Gil Davis

I would like to thank our sponsors for their continued support of the NAA: Noble Numismatics (Gold), Coinworks, Downies (Silver), Drake Sterling, Mowbray Collectables and Sterling & Currency.

Finally, a valuable part of NAAC2023 was a round table discussion on the future of the Numismatic Association of Australia. Prior to the conference, clubs and societies were asked to send their feedback on the following:

- Any views of the Society/Club about the NAA, especially its activities and how these serve Australian numismatics.
- What would the Society/Club like to see from the NAA in the future?

The feedback received and the discussions had at the conference were valuable and the Council will work through the issues raised. The most important issue which was identified is one with which many societies are grappling: how to maintain an active membership that is willing and able to volunteer to help out with the various activities required to maintain the society. So, I would encourage all of you to think about how you might contribute to your local club or society and the NAA. We welcome your submissions to the JNAA and hope to see you at the NAAC2025 (details to appear in 2024)!

Professor Richard A. J. O’Hair

President, NAA

27 November 2023

# Report on the Silver Ray Jewell Award to Associate Professor Gillan Davis

We acknowledge the important work that Associate Professor Gillan Davis, as Managing Editor of the *Journal of the Numismatic Association of Australia (JNAA)*, has undertaken for the NAA over the past 11 years. Gil has been Managing Editor of each of the Journals consecutively since 2011 – Volume 22 through to Volume 31 in 2023, and has almost completed finalising the articles for JNAA32, 2023. His contribution for all these Journals has been outstanding.

The Journal is now recognised internationally, and Gil has been instrumental in sourcing contributors and assessing their input. His attention to detail and editorial work is unsurpassed and we believe Gil should be recognised by the NAA for his support and services to the Association by being awarded the silver Ray Jewell Award.

Gil has included an Editor's Letter or Note in all the NAA Journals issued since the 2012 edition (No 23) in which he has highlighted the Journal as the showcase of the NAA, the peak body for numismatics in Australia.

He strongly promotes the NAA through each Journal and through his involvement with Macquarie University and its Australian Centre for Ancient Numismatic Studies (ACANS) and students.

Gil has sourced many of the unique articles from highly qualified Australian and international numismatic authors and supported Australian PhD students in their numismatic research in digs in Israel and the Middle East. He has ensured that there is a good mix of modern and ancients coverage throughout each Journal.

Gil was instrumental in introducing the Journal electronically in 2015 and it is now readily available to members and the public alike on our website. Through his efforts the Journal has now become a major teaching aid in subjects such as history and humanities, as he has highlighted in Journal No 30, 'teaching with numismatics – coins are useful teaching tools'.

Gil has truly supported the NAA in all his endeavours and is most deserving of the Ray Jewell silver award.

Gillan (Gil) Davis has given me (in my previous role as President) excellent advice on many issues arising in the NAA outside of his editorial expertise. I always value his input, and indeed continue to do so.



After Gil moved to the Australian Catholic University, where he is the Director of the Ancient Israel Program at the Australian Catholic University which offers a full major and minor in Archaeology to students in Arts, Education, Theology and the Ramsay Centre for Western Civilisation together with an annual dig in Israel and school outreach, he faced establishing a new degree programme, supervising students and liaising with ACANS, continuing with his Middle Eastern digs, and being an important member of the European Research Council (ERC) Advanced Grant titled ‘Silver Isotopes and the Rise of Money’, based in Lyon, which is geolocating and isotopically identifying ancient silver ore sources and matching them with coins and silver artefacts.

Gil is a personal friend and we are in frequent contact, but still I continue to be impressed about how he has managed to fit in all of these activities after a change mid-life from Real Estate to academia.



**Figure 1:** Presentation of the silver Ray Jewell Award by Professor Walter Bloom to Associate Professor Gillan Davis at the dinner of the NAA Conference 2023 in Adelaide, 19<sup>th</sup> August 2023.

Professor Walter Bloom  
12 December 2023



# Editor's note

This is an eclectic volume covering a wide range of interesting topics. The concentration is on modern material while the 'ancients' deal with Roman coins and medals. Many of the papers were also given as presentations at the highly successful Numismatic Association of Australia conference held in Adelaide earlier in the year. As always, it is a pleasure to see domestic scholarship supplemented by overseas contributors from the United States, the UK, Italy and New Zealand.

Paul Holland gives us interesting information about that perennial Australian favourite – the 1930 penny, providing details of the mint records and earliest numismatic literature. Mint records are used in another way by Eric Frazer in his analysis of the patterns of coin circulation in Australia over the last two decades. He quantifies the decline in the number of coins in circulation per person speculating on the probable phasing out of 5 and 10 cents coins. Eric provides a second and complementary article analysing the circulation of foreign coins among Australian decimal coinage and their sources of origin; the list may surprise you.

A topic that intrigues ancient through to early modern numismatists is estimating the production rate of mints. This is essential for quantification studies and it is fair to state that opinions are greatly divided. So, it is with interest that we present a detailed study by Pierluigi Debernardi on the production of denarii of Crepusius, an otherwise unknown moneyer in the Roman Republic dated to 82 BCE. The software that he has developed provides a mintage model which successfully matches the coin evidence.

While in the Roman period, we have an article by Bruce Marshall on the so-called 'Restoration' coins of the CE first century emperors Vespasian and Titus which, he argues, by reviving Augustan types, served as propaganda to justify their seizure of power. Andrew Chugg takes us into the second century with a short note updating his earlier article (*JNAA* 31) on the authenticity of some of the specimens of the medallion struck by the emperor Hadrian to commemorate his lover and favourite, the youth Antinous, who drowned in the Nile in CE 130.

Vaughn Humberstone usefully provides a comprehensive and fully referenced listing of the 45 New Zealand trade tokens issued between 1857 and 1875 together with background on the circumstances which led to them being struck despite never being legal tender and interesting details on the merchants and the dies they employed. Across the ditch and almost exactly contemporaneously, NAA President Richard O'Hair has contributed a study of the gold medal for law awarded by Mr Billing at the University of Melbourne. The research was prompted by the discovery of one of the 15 medals awarded between 1858 and 1874.

Finally we have a pair of articles dealing with remembrance by two stalwarts of the NAA. Barrie Newman, our Production Editor, shares a lovely story of his proposal to sell commemorative ingots to the United Arab Emirates for his company, The Adelaide Mint. Sadly, it did not end well. Channelling Marcel Proust à la recherche du temps perdu, Walter Bloom, President of the NAA for many years, narrates the story of his numismatic life. It is like walking through a wonderful antiquarian bookshop with a friend. Along the way, he tells the story of numismatics and coin dealers and medallists in this country, as well as his personal, often quirky, research and collecting interests.

As always, I sincerely thank the many anonymous reviewers who have reviewed the papers with special thanks to Barrie Newman for his careful attention to the role of Production Editor and John Melville-Jones for proofreading many of the articles.

On a personal note, I thank the selection committee of the NAA for awarding me the Ray Jewell silver medal which I shall always treasure.

Associate Professor Gil Davis  
Managing Editor

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*Articles must comprise original research on numismatic material including but not limited to Australasian numismatics (coins, tokens, medals, banknotes) or ancient or mediaeval numismatics. Manuscripts can be emailed to any member of the Editorial Board in your area of research, along with a copy to the Managing Editor.*

# An Analysis of Foreign Coins in Circulation with Australian Decimal Coinage

Eric J Frazer

## Abstract

*The appearance rate of foreign coins with Australian decimal circulating coins was assessed by measurements at a major Victorian currency processing facility. A total of 14,017 foreign coins were collected and analysed from 75.6 million coins processed over the period January-March 2021; this represents an appearance rate of 185.4 foreign coins per million (CPM) Australian decimal coins. New Zealand coins were the most prominent and contributed 23.4% of the total (43.4 CPM). The top ten countries represented were New Zealand, Thailand, USA, United Kingdom, Singapore, Eurozone, United Arab Emirates, Korea, Fiji and Malaysia; these accounted for 80.5% of the total (138.8 CPM). The rate of appearance of foreign coins could be correlated with the annual number of short-term visits by Australian residents to the various countries. Results were compared with a local sample collected over 11 years in metropolitan Melbourne. The top ten foreign coin denominations encountered were 1 Baht (Thailand), \$1 (New Zealand), \$2 (New Zealand), 1 Dirham (United Arab Emirates), 25c (USA), 10c (Singapore), 50c (Eurozone), 10p (United Kingdom), 100 Won (Korea) and 10c (USA).*

## Keywords

[Australian decimal coinage] [foreign coins] [currency processing] [overseas visits] [tokens]

## Introduction

Over the years, many Australian residents will have encountered foreign coins in their change. The most commonly found in circulation were the pre-2006 New Zealand coins,<sup>1</sup> particularly the 5c, 10c and 20c denominations which were virtually identical in size and weight to the Australian equivalents; indeed, the obverse had similar portraits of the monarch. The situation was reflected in New Zealand where it was estimated that Australian coinage represented approximately 5% of the total number of coins.<sup>2</sup>

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1 In 2006, New Zealand replaced the existing 5c, 10c, 20c & 50c cupronickel coins with new 10c (copper-plated steel), 20c and 50c (nickel-plated steel) coins; the 5c denomination was discontinued. The existing \$1 and \$2 coins (aluminium bronze) were retained.

2 Coin Change Marks End for Foreign Invaders, Massey University Press Release, 2 June 2006, Scoop Independent News: <http://www.scoop.co.nz/stories/BU0606/S00037.htm>. Accessed 10 June 2021.

Some might also have noticed ‘stray’ coins from the USA and the United Kingdom, both popular overseas destinations for Australians.

During previous surveys of Australian circulating coins at a major Victorian currency processing facility in 2008 and 2012,<sup>3</sup> it was noted that a small number of foreign coins appeared in addition to New Zealand coinage. Unfortunately, these observations came from processed samples of only 5,000 coins per denomination with most foreign coins having already been rejected from the feed.

The currency processing facility essentially operates as a ‘coin pool’ for banks and commercial customers (e.g., transport companies, supermarkets). The input coinage is counted and separated into the various denominations by high-speed counting machines which reject mutilated Australian coinage, foreign coinage and tokens. The ‘cleaned’ coinage is packaged into the familiar sachets or rolls for distribution to banks and commercial customers. New make-up circulating coin sourced from the Mint is added to the feed as necessary to satisfy demand.

## Methodology

This study was conducted during the period January-March 2021 during which time the facility processed a total of 75.6 million coins of all six denominations into sachets and rolls. A total of 14,017 foreign coins were collected; for convenience, these were sorted and analysed in weekly batches of approximately 1,000 coins. The coins were sorted by country, and by denomination for countries appearing at more than about 1% of the total. Note that, as of 2020, the following countries form the Eurozone (i.e., using the Euro as currency): Austria, Belgium, Cyprus, Estonia, Finland, France, Germany, Greece, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, The Netherlands, Portugal, Slovakia, Slovenia and Spain.

## Results

### *The Top 20 Foreign Countries*

The top 20 countries are presented in Table 1, representing almost 93% of the total number of foreign coins. Indeed, the top 10 countries contributed more than 80% of the total. Perhaps not surprisingly, because of relatively free movement between Australia and New Zealand, the latter contributed more than 23% of the total number of foreign coins. This was followed by Thailand (a favourite holiday destination), then the USA and UK (both traditional destinations), Singapore (an international airport hub) and the Eurozone (which includes countries such as Belgium, France, Germany, Greece,

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3 Frazer, E.J. and van der Touw, J., ‘The Attrition Rate, Lifetime and Hoarding of Australian Decimal Coins’, *The Australian Economic Review*, vol. 49, no. 3, 2016, pp. 290-303.

Italy, Portugal and Spain). It is suggested that the United Arab Emirates appears in the list by virtue of tourist transits through Dubai International Airport.

**Table 1:** The numbers of coins encountered from the Top 20 countries as a percentage of the total and CPM Australian decimal coins (sample size 75.6 million coins)

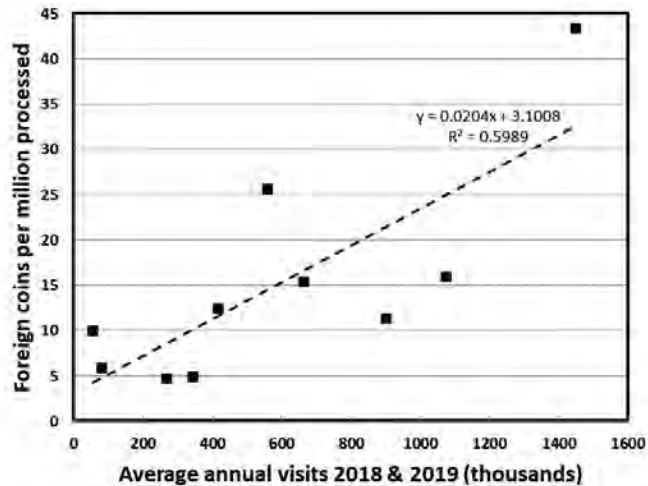
Order	Country	Number	%Total	CPM
1	New Zealand	3,278	23.39	43.4
2	Thailand	1,937	13.82	25.6
3	USA	1,201	8.57	15.9
4	UK	1,160	8.28	15.3
5	Singapore	935	6.67	12.4
6	Eurozone	857	6.11	11.3
7	UArabEmirates	748	5.34	9.9
8	Korea	445	3.17	5.9
9	Fiji	370	2.64	4.9
10	Malaysia	353	2.52	4.7
11	Philippines	294	2.10	3.9
12	Japan	246	1.76	3.3
13	Canada	223	1.59	3.0
14	Hong Kong	203	1.45	2.7
15	China	177	1.26	2.3
16	Indonesia	146	1.04	1.9
17	Switzerland	142	1.01	1.9
18	India	126	0.90	1.7
19	Croatia	98	0.70	1.3
20	New Caledonia	91	0.65	1.2
	<b>Total Top 10</b>	<b>11,284</b>	<b>80.50</b>	<b>149.3</b>
	<b>Total Top 20</b>	<b>13,030</b>	<b>92.96</b>	<b>172.4</b>
	<b>All coins</b>	<b>14,017</b>	<b>100.00</b>	<b>185.4</b>

The Australian Bureau of Statistics (ABS) collects monthly and annual data for the number of short-term visits by Australian residents to foreign countries. It accounts separately for visits to Austria, France, Germany, Greece, Ireland, Italy, The Netherlands, and Spain so these data were aggregated to give an estimate for visits to the Eurozone. Figure 1 shows that there is a correlation between the number of coins from each foreign country (expressed as coins per million (CPM) Australian coins) and the average annual number of visits to those countries made in 2018 & 2019.<sup>4</sup> The plot uses the data for the

4 Australian Bureau of Statistics, Overseas Arrivals and Departures, Australia, May 2020. <https://www.abs.gov.au/statistics/industry/tourism-and-transport/overseas-arrivals-and-departures-australia/may-2020#data-download> [Table 9: Short-term Movement, Residents Returning – Selected Destinations: Original] Accessed 16 June 2021



Top 10 countries shown in Table 1. Given differences in relative coin versus note usage in the various countries, a stronger correlation is unlikely; usage is probably influenced by the buying power of the highest coin denomination. (It was assumed that foreign visitors to Australia would eventually repatriate their own coins.)



**Figure 1:** Foreign coins per million processed at a major currency processing facility versus average annual short-term overseas visits by Australian residents in 2018 & 2019. Each point represents one of the Top 10 countries listed in Table 1.

Given that there was minimal international travel in 2020 and 2021 due to the pandemic, one might wonder why foreign coins were still appearing with Australian coins during the sampling period. One could speculate that money boxes, jars and bottom drawers are gradually emptied of foreign coins over a number of years. Indeed, pre-Euro coins (i.e., pre-1999) and pre-2006 New Zealand coins made up almost 5% of the total number of coins in the present sample. Of course, hoarding or longer-term storage, even of useful coins, is not unusual in the Australian context.<sup>5</sup>

### *Comparison with a 'Longitudinal' Local Sample*

The author is fortunate to live in the Port Phillip Bay area of Melbourne which includes the suburb of St Kilda. While the current population of the whole of the City of Port Phillip is about 116,000, St Kilda is a very popular destination which welcomes about two million visitors per year (1.1 million domestic, 0.9 million international).<sup>6</sup> Thus, the effective population density and foot traffic in the general area is very high, particularly during the summer months.

5 Frazer, E.J. and van der Touw, J., "The Attrition Rate, Lifetime and Hoarding of Australian Decimal Coins", *The Australian Economic Review*, vol. 49, no. 3, 2016, pp. 290-303.

6 Melbourne tourism statistics 2020, <https://www.budgetdirect.com.au/travel-insurance/research/melbourne-tourism-statistics.html>. Accessed 4 August 2021.

Over many years, the author has indulged in 6-7 km weekday walks in the St Kilda area. Finding lost/discarded (principally Australian decimal) coins was such a common occurrence (>400/year) that a study was conducted to analyse what factors were involved in the losing and finding of coins.<sup>7</sup> Following the conclusion of that study, the foreign coins found on walks over the period 2009-2019 were put aside as ‘generally interesting’. The extended pandemic lockdowns experienced in Melbourne during 2020 provided an opportunity to analyse the accumulated coins.

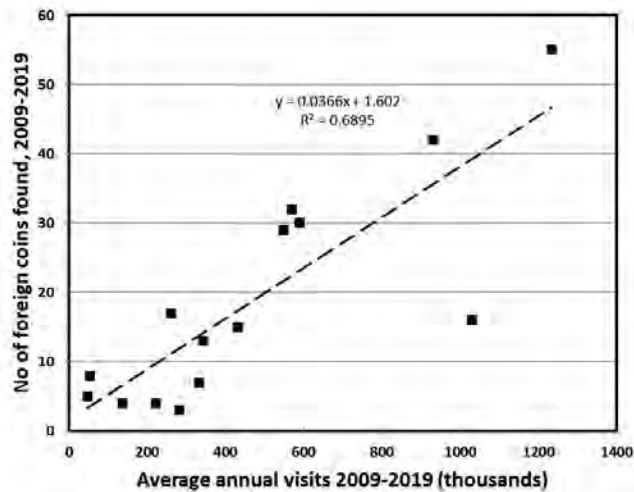
A total of 319 foreign coins were collected over the 11 year period (an average of 29 per year) representing 42(!) different countries. The 15 countries appearing at more than ~1% of the total are shown in Table 2 and they account for almost 88% of the total; all these countries, except Taiwan, also appeared in Table 1.

**Table 2:** Foreign coins collected in the St Kilda area over the period 2009-2019

Order	Country	Number	%Total
1	NZ	55	17.24
2	USA	42	13.17
3	UK	32	10.03
4	Eurozone	30	9.40
5	Thailand	29	9.09
6	Malaysia	17	5.33
7	Indonesia	16	5.02
8	China	15	4.70
9	Singapore	13	4.08
10	Taiwan	8	2.51
11	Fiji	7	2.19
12	UArabEmirates	5	1.57
13	Canada	4	1.25
14	Hong Kong	4	1.25
15	Japan	3	0.94
	Other	39	12.23
	<b>Total</b>	<b>319</b>	<b>100.00</b>

Perhaps surprisingly from such a small sample, the correlation between the number of coins from each country and the average annual resident visits over the 11-year period is similar to (or perhaps slightly stronger than) that found from the currency processing facility discussed above (see Figure 2).

7 Frazer, E.J. and van der Touw, J., “‘The Random Walk’: A Study of Coins Lost and Found in an Urban Environment”, *The Numismatic Chronicle*, vol. 170 (2010), pp. 375-405.



**Figure 2:** Number of coins found from a range of countries in a local metropolitan area over the period 2009-2019 versus average annual short-term overseas visits by Australian residents over the period 2009-2019. Each point represents one of the 15 countries listed in Table 2.

### *The Top 20 Foreign Coin Denominations*

As data collection at the currency centre progressed, it became apparent that a number of foreign coin denominations were very prominent, notably the Thailand 1 Baht and the New Zealand \$1 and \$2 coins. Do these coins possess certain characteristics that influence how successfully they circulate with Australian decimal coins?



**Figure 3:** The Top 20 foreign coin denominations found at a major currency processing facility with the current Australian decimal coinage for comparison. (1st row: Nos 1-5; 2nd row: Nos 6-10; 3rd row: Nos 11-15; 4th row: Nos 16-20; 5th row: current Australian coinage)

Figure 3 shows the reverse of the Top 20 coin denominations plus the current Australian coin set for comparison. Table 3 shows the Top 20 coin denominations, the number found, the percentage of the total and the rate of appearance per million coins (CPM). The Top 20 coin denominations together account for almost 70% of the total number of foreign coins and come from only 11 of the Top 20 countries, with New Zealand being by far the largest contributor. The table also shows the diameter and colour of the foreign coins and their best nominal match to Australian coin denominations using similarity in diameter ( $\pm 10\%$  of the Australian coins) **and** colour (grey box = silver coloured coins; yellow box = gold coloured coins) as the simplest criteria for comparison. Table 4 shows the diameters of Australian coins and the  $\pm 10\%$  diameter range.

**Table 3:** The Top 20 foreign coin denominations showing best matches with Australian decimal coin denominations in terms of size and colour (sample size 75.6 million coins; grey = silver coins; yellow = gold coins)

Order	Country	Denomination	Number	%Total	CPM	Diam (mm)	Match (silver)	Match (gold)
1	Thailand	1 Baht	1,724	12.30	22.8	20.00	5c	
2	New Zealand	\$1	1,347	9.61	17.8	23.00		\$1
3	New Zealand	\$2	1,001	7.14	13.2	26.50		\$1
4	UAE	1 Dirham	691	4.93	9.1	24.00	10c	
5	USA	25c	643	4.59	8.5	24.26	10c	
6	Singapore	10c	547	3.90	7.2	18.50	5c	
7	Eurozone	50c	464	3.31	6.1	24.25		\$1
8	UK	10p >2012	449	3.20	5.9	24.50	10c	
9	Korea	100 Won	431	3.07	5.7	24.00	10c	
10	USA	10c	387	2.76	5.1	17.91	5c	
11	UK	5p >2012	322	2.30	4.3	18.00	5c	
12	New Zealand	50c	268	1.91	3.5	24.75	10c	
13	UK	£1 <2017	264	1.88	3.5	22.50		\$1, \$2
14	Philippines	1 peso <2018	209	1.49	2.8	24.00	10c	
15	Eurozone	20c	197	1.41	2.6	22.25		\$2
16	Thailand	5 Baht	175	1.25	2.3	24.00	10c	
17	New Zealand	50c <2006	175	1.25	2.3	31.75	50c	
18	New Zealand	20c	171	1.22	2.3	21.75	10c	
19	Canada	25c	146	1.04	1.9	23.88	10c	
20	Japan	100 Yen	144	1.03	1.9	22.60	10c	
	<b>Total</b>		<b>9,755</b>	<b>69.59</b>	<b>129.1</b>			

**Table 4:** Diameters of current Australian decimal coins and the  $\pm 10\%$  range (mm)

Denom	Diam (mm)	Diam-10% (mm)	Diam+10% (mm)
5c	19.41	17.47	21.35
10c	23.60	21.24	25.96
20c	28.65	25.79	31.52
50c	31.65	28.49	34.82
\$1	25.00	22.50	27.50
\$2	20.50	18.45	22.55

For gold-coloured coins, the New Zealand \$1 & \$2, the Eurozone 50c and the UK £1 “match” with the Australian \$1 coin; the UK £1 and the Eurozone 20c “match” with the Australian \$2 coin. The smallest silver coins (Thailand 1 Baht, Singapore 10c, USA 10c and UK 5p) match with the Australian 5c coin. Surprisingly, ten different foreign coin denominations in the Top 20 match with the Australian 10c coin.

The Australian 50c coin is the largest coin in circulation in Australia with a ‘diameter’ of 31.65 mm (across flats). The only match in the Top 20 is the pre-2006 New Zealand 50c which is round with a diameter of 31.75 mm. Other close matches found in the overall foreign coin sample included the pre-2009 Fiji 50c (identical in size and shape), the pre-1994 UK 50p (seven-sided, 30 mm diam.) and the current Switzerland 5 Fr (31.45 mm). Depending on current exchange rates, this large Swiss coin has a value some 15 times the Australian 50c coin!

### ***Tokens in the Currency Processing Facility Reject Stream***

As mentioned above, the reject stream in the currency processing facility consists mainly of mutilated Australian coins, foreign coins and a small quantity of common metal tokens (e.g., carwash, game, supermarket trolley). The foreign coins are separated from the reject stream by hand for potential exchange; the mutilated Australian coins are returned to The Royal Australian Mint for accounting; and the tokens are stored for later disposal as metal scrap.

**Table 5:** Summary of metal tokens accumulated from the reject stream  
(total metal tokens analysed ~1,000)

Type	% of total
Carwash	43.6
Game	27.5
Trolley	17.8
Generic	5.1
Laundromat	3.2
Water	1.1
Telephone	0.9
Golf	0.3
Monorail	0.3
Vacuum	0.3
<b>TOTAL:</b>	<b>100.0</b>

For general interest, a quantity of about 1,000 tokens that had accumulated over several years was analysed before disposal. The results are shown in Table 5 as a percentage of the total analysed. Together, carwash, game and trolley tokens accounted for almost 90% of the total number; given modern lifestyles, the proportions of the various types seem unremarkable. Finally, a small quantity of souvenir, commemorative and sporting (e.g., football, cricket) medals were encountered which are not reported in the above results.

### Concluding Remarks

The present study offers a glimpse into the workings of just one section of a major currency processing facility. One might wonder at the appearance of foreign coins and tokens at such a facility given that most should have been rejected by vending machines and by retail staff handling cash transactions. Indeed, the quantum of foreign coinage *actually* 'in circulation' with Australian decimal coinage is unknown. In general, it is assumed that much of the foreign coinage is stored somewhere in the household and eventually combined with the contents of the 'piggy bank' for deposit at the bank. The role of the banks in handling foreign coinage is important.

Bank customers usually have two choices: direct deposit with the teller or deposit into a coin counting machine where a receipt is issued for credit into their bank account. On detecting foreign coinage, which has no value here, the teller has two options: offer back to the customer or put aside for later processing. Anecdotally, this latter could involve accumulation for the well-known UNICEF *Change for Good* program, diversion for school/educational programs, disposal as waste or, simply, addition to bulk mixed-denomination bins/tubs/bags destined for currency processing facilities. Foreign coins rejected by the bank's coin counting machine can be retained by the customer or left



in the reject tray for later clearance by bank staff. The same four paths for handling the unwanted reject coins are then possible and probably depend on the individual bank or branch policy. Clearly, only a proportion of the available foreign coinage will eventually report to a currency centre for standard processing, so the total foreign coin appearance rate of 185.4 CPM reported here (see Table 1) must be considered as an underestimate. In fact, the foreign coins accumulated by the banks for the UNICEF program are sent separately to the currency centre for safe storage and eventual exchange by a specialist commercial firm. The Victorian data available indicate that these coins represent about 70% (by weight) of the total foreign coins that pass through the centre.

The correlation between the rate of appearance of foreign coins and the annual number of short-term visits by Australian residents to various countries is both notable and significant given the large sample of circulating coins involved. Although the Local Sample analysed was very small, it was obtained over more than a decade so the similar correlation observed can hardly be considered serendipitous. Of course, the latter correlation was based simply on the number of coins found from each country rather than the CPM estimated from a currency centre.

Given that a typical coin set might contain 5-6 denominations and that the range of practical diameters possible is small, inevitably there will be intersections between the coin sets of different countries in terms of size. This situation is exacerbated by the limited range of metal appearances: silver, gold and bimetallic. The outcome of the potential 'mixing' of the most common foreign coins encountered with Australian circulating coins was summarised in Table 3 which shows the most likely intersections or 'matches' in terms of size and colour. Whether this represents a day-to-day problem, even for the more-observant coin user, is unlikely given that foreign coins were only detected at a very low rate.

Finally, the appearance of New Zealand coinage in Australia, particularly the \$1 & \$2 coins, is not surprising given the close relationship between the two countries, including extensive tourism and generally unrestricted residency. In addition, the value of the two currencies has been broadly within 10% of each other for some decades. Interestingly, New Zealand had similar coinage to Australia for many years but introduced a new coin set in 2006 featuring smaller 10c, 20c & 50c coins and discontinuing the then lowest value 5c coin. One might speculate when Australia will follow, especially given the compounding effect of inflation on value and the ever decreasing use of cash in favour of cashless forms of payment. Indeed, the Royal Australian Mint has reported a downward trend in demand for circulating coinage for several years.<sup>8</sup>

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8 Royal Australian Mint, Annual Report 2019-20, p.7.

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