A New Vision for Banknotes

NEXT GENERATION OF BANKNOTES
With the introduction of the New Note Series, issued between 1992 and 1996, Australia became the first nation to convert successfully its paper-based currency to polymer banknotes. The innovation had been based on home-grown technology and skills that were exported to many other countries – a contrast to the nation’s first series in the early 20th century, when technology and expertise were imported.

In continuing its role of overseeing the design, production and distribution of the nation’s banknotes, the Reserve Bank foresaw the need to improve the security of this series with additional innovations. Issued from 2016, the Next Generation of Banknotes launched new design and security features that enhanced the accessibility of banknotes and protected them further from counterfeiting.

The banknotes were printed by Note Printing Australia, a separately incorporated, wholly owned subsidiary of the Reserve Bank, located in Craigieburn, Victoria.
A NEW VISION OF BANKNOTE SECURITY

As advances in reprographic technology continue to become publicly available, the potential for counterfeiting increases, including the sophisticated counterfeiting of polymer banknotes. In order to anticipate this eventuality, the Reserve Bank foresaw the need to incorporate advanced security features into the nation’s banknotes. The use of the polymer substrate for the banknotes’ printing had been successfully introduced with the previous New Note Series, and this medium is well suited to the integration of new security features and design elements.

Several years of testing preceded the production of the new series, known as the Next Generation of Banknotes. The program was established in 2007 and included extensive consultation with designers, technical and subject-matter experts, the cash-handling industry, representatives of interest groups, such as the vision-impaired community, and the public.

The Next Generation of Banknotes series contains pioneering features but retains key aspects of the previous banknotes – the people portrayed, colour palette, sizes and denominations – to ease recognition and to minimise the disruption to businesses. Two innovative security features are integrated with the banknotes: foil elements applied to a clear top-to-bottom window and an optically variable ink that produces a rolling colour effect. The banknotes also include a tactile feature to help the vision-impaired community distinguish between different denominations of banknotes.

The concept design for the series was prepared by emerystudio, whose Creative Director Garry Emery had designed the $20 banknote of the New Note Series and the Centenary of Federation $5 banknote of 2001. Consultation on the design was sought through an advisory panel, formed in 2011. The Design Advisory Panel conferred on the banknotes’ narratives and their contextual design elements. It consisted of historians Professor Grace Karskens and Professor Angela Woollacott; industrial designer Professor John Redmond; former Head of the Reserve Bank’s Note Issue Department, John Taylor. It also included Wayne Tunnicliffe, Head Curator of Australian Art at the Art Gallery of New South Wales and the Director of the National Gallery of Victoria, Tony Ellwood, resuming a position that one of his predecessors, Bernard Hall, had held for the first series of Australian banknotes (1913–1914).
SECURITY FEATURES OF THE NEXT GENERATION OF BANKNOTES

Polymer substrate:
Printed on polymer, the banknotes have distinctive texture and return to shape after creasing.

Top-to-bottom clear window:
The window is integrated with the banknote, rather than being an addition. It contains a number of dynamic security features, comprising:

i. Three-dimensional image
ii. Flying bird
iii. Colourful bird and
iv. Reversing number.
i. **Three-dimensional image:**

The image with a colourful border appears when the banknote is tilted, and it seems to be either raised or recessed. The images for this feature comprise: the Federation star ($5); a pen nib ($10); a compass ($20); a book ($50); and a fan ($100).

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ii. **Flying bird:**

Each denomination of the series includes an interpretation of an Australian bird. It appears to move its wings and change colour in the top-to-bottom window.
iii. Colourful bird:
In another representation of the bird, its colours change when the banknote is tilted.

iv. Reversing number:
The number of the banknote’s denomination changes direction within an image of a building. The number alternately appears forwards, disappears, then reappears backwards.
The images of the building comprise: the Federation Pavilion, Sydney, New South Wales ($5); a homestead with windmill ($10); a Sydney building owned by Mary Reibey, once leased to the Bank of New South Wales ($20); the church in Raukkan, South Australia, where David Unaipon preached ($50); and Melbourne’s Shrine of Remembrance, Victoria, ($100).
**Rolling colour effect**
The effect appears in a prominent patch near the top corner on one side of the banknote, and within a bird shape on the banknote’s other side.

**Image in small window**
Integrated with the banknote is a small window. It includes an image that is embossed and has a light and dark effect. The images for this feature comprise: the Federation star ($5); a pen nib ($10); a compass ($20); a book ($50) and a fan ($100).

**Intaglio printing**
The technique produces distinctive texture that feels raised within the printing of certain areas such as the portraits and numerals.
Background print
Multi-coloured and multi-directional patterns of fine lines appear on each side of the banknote. Their resolution is sharp and free of irregularities such as less clearly defined patterns, thicker or thinner lines, or colour differences.

Microprint
Tiny, clearly defined text can be found in multiple locations on the banknotes.
A quotation from the Australian Constitution appears in microprint on the $5 banknotes, and verses from the poems of Banjo Paterson and Dame Mary Gilmore are reproduced on the $10 banknote. The sources of the microprint on the $20 banknote are the names of vessels related to Mary Reibey’s shipping enterprise, and the Reverend John Flynn’s *The Bushman’s Companion*. David Unaipon’s *Legendary Tales of the Australian Aborigines* and Edith Cowan’s maiden speech to parliament are the sources for microprint of the $50 banknote, while excerpts from Dame Nellie Melba’s memoirs and a letter by Sir John Monash are included on the $100 banknote.
Fluorescent ink
A bird, the banknote’s serial number and the year of printing fluoresce under ultraviolet light.

Tactile feature
As well as these security features, the series includes a design feature that assists the vision-impaired community to distinguish between different denominations of banknotes. The tactile feature takes the form of a series of raised bumps on each of the long edges of the banknote; the $5 banknote has a single raised bump and the number increases by one with each denomination.
A new variety of flora and fauna

Australian flora has appeared on previous series of banknotes; however, introduced animals have been favoured previously rather than indigenous species. To enhance the Australian identity of the banknotes, interpretations of distinctive native birds and wattle appear on each denomination.

Prickly Moses
*(Acacia verticillata subspecies ovoidea)*
Photograph by Peter J. Lang.

Eastern Spinebill
*(Acanthorhynchus tenuirostris)*
Photograph by Alistair Ross-Taylor.
Bramble Wattle
(*Acacia victoriae*)
Photograph by M. Jensen, National Archives of Australia.

Sulphur-crested Cockatoo
(*Cacatua galerita*)
Photograph by Michael Andersen.
$20

**Box-leaf Wattle**  
(*Acacia buxifolia*)  
Photograph by Donald Hobern.

**Laughing Kookaburra**  
(*Dacelo novaeguineae*)  
Photograph by Peter Menkhorst.
$50

_Acacia humifusa_
Photographed by John Elliott.

_Black Swan_  
(_Cygnus atratus_)  
Photograph by Duade Paton.
Golden Wattle
(*Acacia pycnantha*)
National Archives of Australia.

Australian Masked Owl
(*Tyto novaehollandiae*)
Photograph by David Stowe.
The design of the $5 banknote denotes the development of Australia’s government and its Westminster parliamentary democracy. The act of Federation brought together the country’s six self-governing colonies into political union with federal structure.

On 1 January 1901, an official ceremony marking the proclamation of the Commonwealth of Australia took place in Centennial Park, Sydney, where a temporary pavilion was constructed. An interpretation of this Federation Pavilion appears in the $5 banknote’s top-to-bottom window. The country’s unification is symbolised by the seven-pointed Federation star, reflecting the nation’s six states with its territories, and the star is represented in the top-to-bottom and the small windows.

In contrast with the modest pavilion where Federation was inaugurated, the banknote’s design also includes the imposing facade of Parliament House, Canberra, together with an aerial plan view. Opened in 1988, the building includes a forecourt mosaic based on the 1985 painting, *Possum and Wallaby Dreaming*, by Michael Nelson Jagamara (Luritja; Warlpiri), symbolising the spiritual connection between Aboriginal and Torres Strait Islander peoples and their ancestral land.
The Constitution of Australia was enacted with Federation and an excerpt from the first part of the document is reproduced in microprint on the banknote:

“The legislative power of the Commonwealth shall be vested in a federal parliament, which shall consist of the Queen, a Senate, and a House of Representatives, and which is hereinafter called The Parliament, or The Parliament of the Commonwealth.”¹

¹Photograph of the Federation Pavilion, Centennial Park, Sydney, 1 January 1901, the official ceremony marking the proclamation of the Commonwealth of Australia.
University of Queensland.
The portrait of Her Majesty Queen Elizabeth II reflects the role of the monarch within the system of constitutional monarchy. The Queen first appeared on an Australian banknote in 1953 when she was portrayed on the £1 banknote. A new portrait was commissioned for the $1 banknote, first issued in 1966, and a third portrait was drawn for the $5 banknote of 1992, based on a photograph by John Lawrence from 1984. The same photograph is used as the source for the Queen’s portrait on the new $5 banknote; however, more detail is apparent in this portrait owing to advances in printing technology.

In line with the series’ practice of including a species of wattle and native bird on each denomination, the banknote features interpretations of the Prickly Moses wattle (Acacia verticillata, subspecies ovoidea) and the Eastern Spinebill (Acanthorhynchus tenuirostris), a species of honeyeater.
The $10 banknote acknowledges the literature of Andrew Barton (Banjo) Paterson and Dame Mary Gilmore with the image of a pen nib appearing in the top-to-bottom and small windows.

Banjo Paterson’s first collection of verse was published under the title *The Man from Snowy River and Other Verses* in 1895. The book received widespread popular attention and was quickly reprinted. The first stanzas of *The Man from Snowy River* are reproduced in microprint on the banknote, complemented by the image of a horseman. Like his depiction on the $10 banknote of the New Note Series (1993), Paterson’s portrait is based on a poster advertising his lectures on the Boer War in South Africa, where he had worked as a newspaper correspondent.

The portrait of Mary Gilmore is also based on the same photograph used in the previous series; however, the new version has increased clarity and her familiar name of Jeanie is legible in her brooch. A humble bush hut is shown behind her portrait, and Gilmore’s writing often championed the causes of the disadvantaged. From 1908 until 1931 she edited the women’s page of *The Australian Worker* and promoted reforms for social justice through the publications.
Excerpts from Mary Gilmore’s poem, *No Foe Shall Gather Our Harvest*, are reproduced in microprint on this side of the banknote. Originally published in *The Australian Women’s Weekly*, the poem reached a broad audience and rallied Australians’ morale at a time when they were threatened by invasion. In a background image, the poet is depicted in her small King’s Cross flat. She was living here when the Japanese midget submarines entered Sydney Harbour in May 1942 and she wrote of the attack in her diary the following day, “I thought of the dead all day – both sides; for all mothers are mothers and the dead men are women’s sons.”

An interpretation of Bramble Wattle (*Acacia victoriae*) and the Sulphur-crested Cockatoo (*Cacatua galerita*) appear on the banknote.
$20: THE COMPASS

The $20 banknote presents entrepreneurs of different eras, with the shipping enterprises of colonial businesswoman, Mary Reibey, contrasting with the use of aviation by the Reverend John Flynn in founding the Royal Flying Doctor Service. The image of the compass in the banknote’s top-to-bottom and small windows unites the two identities.

Mary Reibey was transported to New South Wales in 1792 as a convict, sentenced for the theft of a horse. After completing her term, Reibey demonstrated entrepreneurial ability in expanding the business interests that she had inherited from her husband, Thomas. Her involvement in the shipping trade is represented by a schooner in Sydney Cove, together with the names of select vessels that appear in microprint. The image of the schooner is accompanied by one of a traditional Eora nowie (canoe), used skilfully by Aboriginal women to fish.

Mary Reibey contributed to the development of colonial society through her support of educational and charitable causes, and as a founding member of the Bank of New South Wales. Established in 1817, the Bank began its operations in a building leased from Mary Reibey in Sydney’s Macquarie Place. The building is depicted in the banknote’s top-to-bottom window.

Jacob William Jones, View in Sydney Cove, N.S.W., pencil with white on tinted ground, 1845. Jones’ sketch was one of the sources for the banknote’s scene relating to Mary Reibey.

State Library of New South Wales.
The Presbyterian minister, the Reverend John Flynn, devoted his life to improving the welfare of Australians in the outback. In 1912 he contributed to the establishment of the Australian Inland Mission and, in 1928, the Aerial Medical Service. The organisation was renamed the Flying Doctor Service of Australia in 1942 and the term ‘Royal’ was added in 1955. Flynn’s history is expressed on the banknote through the image of a De Havilland Dragon aircraft used by the Aerial Medical Service in its early years and a pedal-powered radio transceiver, developed by Alfred Traeger to improve communications in remote areas. The following excerpt from John Flynn’s *The Bushman’s Companion, A Handful of Hints for Outbackers* is reproduced in microprint on the banknote:

Photograph of the Flying Doctor’s Service
De Havilland aircraft leaving a remote Broken Hill homestead, 1948.
National Archives of Australia.
“After all, it is not necessary to have met face to face to feel a sense of comradeship, we have a mutual love of the bush, and along with that, perhaps, a certain dread of it. If we have not shared discomforts and joys shoulder to shoulder, we have shared some of them, nevertheless, though widely separated. I trust that we will share them further occasionally in the future.” ³

The banknote features the Box-leaf Wattle (*Acacia buxifolia*) and a native Australian bird, the Laughing Kookaburra (*Dacelo novaeguineae*).
$50: THE BOOK

The $50 banknote features portraits of two social and political pioneers, David Unaipon and Edith Cowan.

David Unaipon (Ngarrindjeri) was an activist, inventor, musician, preacher and Australia’s first published Aboriginal author. He was especially interested in recording Aboriginal myths and legends and travelled through southern Australia collecting the stories in 1924 and 1925.

In the preface to his volume titled Legendary Tales of the Australian Aborigines, Unaipon records, “As a full-blooded member of my race I think I may claim to be the first – but I hope, not the last – to produce an enduring record of our customs, beliefs and imaginings.” The excerpt is reproduced in microprint on the banknote.

The culture of the Ngarrindjeri nation is also recognised in the banknote’s design elements, including shields from the 1850s. They are joined by a representation of the practices of *miwi* and navel cord exchange; Unaipon’s reference to the custom appears in the banknote’s microprint:

“As a mother and child is linked to each other before birth, so the *nhung e umpie* must be so linked as mother and child. The navel cord is a physical reality, so *nhung e umpie* should be so, true love, true fellowship, true pity.”

Muriel Van Der Byl, painting portraying the practices of *miwi* and navel cord exchange (below), together with the design elements from the banknote showing the art work and examples of Ngarrindjeri shields (left).
Edith Cowan became the first female member of an Australian parliament when she was elected to the Legislative Assembly of the Western Australian in 1921. Excerpts of her maiden speech to the Western Australian Parliament are reproduced in the banknote’s microprint:

“I stand here today in the unique position of being the first woman in an Australian Parliament ... It is a great responsibility to be the only woman here, and I want to emphasise the necessity which exists for other women being here ... If men and women can work for the State side by side and represent all the different sections of the community ... I cannot doubt that we should do very much better work in the community than was ever done before.”

The banknote includes a picture of the gumnut brooch that Cowan had made for members of her election committee, symbolising that entry into parliament was a ‘tough nut to crack’ for women. The banknote also contains a reference to the *Women’s Legal Status Act of 1923*, Edith Cowan’s second successful private member’s bill, that opened the legal profession to women.

The banknote features the *Acacia humifusa* and the Black Swan (*Cygnus atratus*), David Unaipon’s ngaitji, or totem, and the bird of Edith Cowan’s home state of Western Australia.

Photograph of the silver brooch given by Edith Cowan to members of her election committee, symbolising that entry into parliament was a ‘tough nut to crack’ for women.

State Library of Western Australia.
King Edward Memorial Hospital opened in 1916 after fundraising and lobbying by Edith Cowan, who sought to improve medical services for women. An image of the hospital appears on the banknote.

Photograph of King Edward Memorial Hospital for Women, circa 1916.
State Library of Western Australia.
The $100 banknote recognises the international contributions of Australia’s renowned soprano, Dame Nellie Melba, and Sir John Monash, an engineer, military commander and civic leader.

Nellie Melba’s portrayal of Rosina from Gioachino Rossini’s opera, The Barber of Seville, appears on the banknote with an image of an opened fan in the top-to-bottom and small windows. Melba performed in Europe and North America in the late 19th and early 20th century, and sang for Queen Victoria, King Edward VII and George V. Her social circle numbered aristocrats and renowned figures of her time, including Oscar Wilde.

Melba’s clothes were designed by the couturier Charles Worth, and dishes were named in her honour, including Auguste Escoffier’s celebrated dessert, Peach Melba.

She invented the theatrical name of Melba to honour Melbourne, her hometown. An excerpt from her autobiography, Melodies and Memories, in the banknote’s microprint reads, “If you wish to understand me at all … you must understand first and foremost, that I am an Australian.”

In 1902 Melba returned to Australia for the first time since her European success and was given an overwhelming reception. During the years of the First World War, she contributed to the war effort through her performances and charitable work.
Photograph of Nellie Melba as Rosina from Gioachino Rossini’s opera, *The Barber of Seville*, together with the design element from the banknote.

Lilydale & District Historical Society.
Sir John Monash’s career as an engineer is acknowledged on the banknote with his portrayal using surveying equipment and an image of the Fyansford Bridge, Geelong, built by Monash & Anderson, his partnership with JT Noble Anderson. The bridge is constructed from reinforced concrete, a technique that Monash promoted in Victoria.

John Monash is also remembered for his dedicated service as a commander in the First World War. He approached warfare as a series of challenges comparable to those of engineering, in which meticulous planning before entering a theatre of war was critical. Monash submitted his publication, *The Australian Victories in France in 1918*, to the University of Melbourne as a thesis on the methods of engineering applied to modern warfare and was awarded the degree of Doctor of Engineering.
John Monash was instrumental in the construction of Melbourne’s Shrine of Remembrance, built to commemorate the men and women of Victoria who served. An excerpt of a letter written by Monash while Vice-Chancellor of the University of Melbourne commends the value of service; it is reproduced in the banknote’s microprint, “Adopt as your fundamental creed that you will equip yourself for life, not solely for your own benefit but for the benefit of the whole community.” Monash became chairman of the State Electricity Commission of Victoria, and under his leadership the Commission extended the power grid across the entire state.

The $100 banknote features the Golden Wattle (*Acacia pycantha*) and the Australian Masked Owl (*Tyto novaehollandiae*).
The foundation of the banknote is a clear, laminated polymer film. Printing plates, special inks and high-technology printing machinery transform this film into a banknote. Major design elements, such as portraits, are printed by intaglio printing, using engraved metal plates. At a final stage, two layers of a protective overcoating or varnish are applied.

The banknotes were printed by Note Printing Australia, a separately incorporated, wholly owned subsidiary of the Reserve Bank, located in Craigieburn, Victoria.
Photograph of Queen Elizabeth II by John Lawrence, 1984.
Reserve Bank of Australia Archives, P12/272.

The serial side of the $5 banknote, offset and intaglio printing on polymer substrate; concept design by emerystudio, first issued in September 2016.
Reserve Bank of Australia, D16/196235.

Tonal sketch of Queen Elizabeth II, together with an example of line analysis for intaglio printing by Robert Cook of Note Printing Australia.
Reserve Bank of Australia Archives, 20/1274, 20/1275.
The signature side of the $10 banknote, offset and intaglio printing on polymer substrate; concept design by emerystudio, first issued in September 2017.
 Reserve Bank of Australia, D17/52177.

Photograph of Banjo Paterson used to advertise his lectures on the Boer War and adapted for the $10 banknote.
 Newspix.

Tonal sketch of Banjo Paterson, together with an example of line analysis for intaglio printing by Robert Cook of Note Printing Australia.
 Reserve Bank of Australia Archives, 17/1078, 17/1212.
The serial side of the $10 banknote, offset and intaglio printing on polymer substrate; concept design by emerystudio, first issued in September 2017.
Reserve Bank of Australia, D17/52175.

Photograph of Mary Gilmore adapted for the $10 banknote.
Newspix.

Tonal sketch of Mary Gilmore, together with an example of line analysis for intaglio printing by Robert Cook of Note Printing Australia.
Reserve Bank of Australia Archives, 17/1081, 17/1085.
Miniature portrait of Mary Reibey by an unknown artist, watercolour on ivory, circa 1835.
State Library of NSW.

The signature side of the $20 banknote, offset and intaglio printing on polymer substrate; concept design by emerystudio, first issued in October 2019
Reserve Bank of Australia, D19/52810.

Tonal sketch of Mary Reibey together with an example of line analysis for intaglio printing by Robert Cook of Note Printing Australia.
Reserve Bank of Australia Archives, 20/1271, 20/1272.
The serial side of the $20 banknote, offset and intaglio printing on polymer substrate; concept design by emerystudio, first issued in October 2019.
Reserve Bank of Australia, D19/52129.

Tonal sketch of the Reverend John Flynn together with an example of line analysis for intaglio printing by Robert Cook of Note Printing Australia.
Reserve Bank of Australia Archives, 20/1270, 20/1269.

Photograph of the Reverend John Flynn, circa 1929.
National Library of Australia.
The signature side of the $50 banknote, offset and intaglio printing on polymer substrate; concept design by emerystudio, first issued in October 2018.
Reserve Bank of Australia, D18/41660.

Photograph of David Unaipon from the manuscript of Legendary Tales of Australian Aborigines.
State Library of New South Wales and Courtesy Ms Judy Kropinyieri.

Tonal sketch of David Unaipon together with an example of line analysis for intaglio printing by Robert Cook of Note Printing Australia.
Reserve Bank of Australia Archives, 18/7891, 18/7890.
The serial number side of the $50 banknote, offset and intaglio printing on polymer substrate; concept design by emerystudio, first issued in October 2018. Reserve Bank of Australia, D18/41659.

Photograph of Edith Cowan by Ruskin Studio, 1921. State Library of Western Australia.

Tonal sketch of Edith Cowan together with an example of line analysis for intaglio printing by Robert Cook of Note Printing Australia. Reserve Bank of Australia Archives 18/7893, 18/7892.
The signature side of the $100 banknote, offset and intaglio printing on polymer substrate; concept design by emerystudio, first issued in October 2020.
Reserve Bank of Australia, D20/43205.

Tonal sketch of Dame Nellie Melba by Robert Cook of Note Printing Australia, used for the development of the banknote’s portrait.
Reserve Bank of Australia Archives, 20/1301.
The serial number side of the $100 banknote, offset and intaglio printing on polymer substrate; concept design by emerystudio, first issued in October 2020
Reserve Bank of Australia, D20/43213.

Photograph of Sir John Monash, 1912.
National Library of Australia.

Tonal sketch of Sir John Monash by Robert Cook of Note Printing Australia, used for the development of the banknote's portrait.
Reserve Bank of Australia Archives, 20/1302.
The Next Generation of Banknotes series is presented in the Reserve Bank of Australia Museum through an interactive touchscreen. Visitors may explore each denomination of the series, its security and design features, as well as the cultural and historical context of the identities portrayed on the banknote.
REFERENCES

1. The Commonwealth of Australia Constitution Act 1900 (UK), Part 1 General, National Archives of Australia.

2. Mary Gilmore, diary entry, 1 June 1942, from the collection of her papers, Mitchell Library, State Library of NSW, A3254.


5. Ibid.


Pocket Guides to Australian Banknotes is a series of booklets that represents a complete catalogue of Australia’s issued banknotes. The series comprises:

Guide 1. Australian Panorama, the Nation’s First Banknotes
(1913–1914; 1923–1925)

Guide 2. Change and Stability, Australian Banknotes of the 1930s and 1950s
(1933–1934 and 1938–1940; 1953–1954)

Guide 3. A Decimal Reformation, the Introduction of Decimal Currency to Australia

Guide 4. The Reinvention of Banknotes, the Australian Innovation of Polymer Banknotes

Guide 5. A New Vision for Banknotes, Next Generation of Banknotes
(2016–2020)

The guides are a companion to the Reserve Bank of Australia Museum, where visitors can view examples of Australia’s banknotes within their social and economic context.

Further information concerning the identities who have been represented on the banknotes, coupled with photographs or paintings of the individuals, may be found in the publication, Notable Australians, Historical Figures Portrayed on Australian Banknotes (Reserve Bank of Australia, 2016).

Reserve Bank of Australia
Museum Visitor Information

10.00 am – 4.00 pm
Monday to Friday
Closed Public and NSW Bank Holidays.
Admission to the Museum is free.
Lifts are available for entry to the Museum.
Hearing loops are available for booked presentations.

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