





THE GAME CHANGERS

BEFORE THE REST OF US CAN UNDERTAKE WHAT MAY NOW SEEM COMMONPLACE, SOMEONE NEEDS TO HAVE LED THE WAY – TO HAVE SHOWN WHAT'S POSSIBLE. TO MARK INTERNATIONAL WOMEN'S DAY 2025, WE HONOUR FIVE SUCH WOMEN, THREE OF WHOM ARE STILL MAKING THEIR MARK, THE OTHER TWO TOWERING FIGURES OF AUSTRALASIAN HISTORY. FROM DISPARATE FIELDS, INCLUDING ASTRONOMY, THE LAW AND PHOTOJOURNALISM, THESE TRAILBLAZERS SHARE CERTAIN QUALITIES: TALENT, COURAGE AND AN UNBREAKABLE WILL



Photo: Eugene Hyland, courtesy of Australian Space Agency.

KATHERINE BENNELL-PEGG

The sky's the limit for Australia's first female astronaut words TESS DE VIVIE DE RÉGIE

IT'S LITTLE WONDER that becoming an astronaut is the ambition of many a starry-eyed child. A precious few, however, go on to make it a reality. For space systems engineer Katherine Bennell-Pegg, graduating from the European Space Agency's (ESA) European Astronaut Centre in April 2024 was a dream come true. While not the first Australian-born astronaut (Philip K. Chapman, Paul Scully-Power and Andy Thomas qualified as US citizens) she became not only the first astronaut to represent Australia, but Australia's first female astronaut.

Space is the next frontier for gender equality. According to the 2024 Landmark Study on Gender Equality in the Space Sector, authored by the United Nations Office for Outer Space Affairs, women comprise just 11 per cent of all astronauts worldwide, while the OECD, in its 2023 The Space Economy in Figures report, found that women made up 20 per cent of the total Australian space research industry in 2020. (To clarify, a person doesn't need to have journeyed into space to qualify as an astronaut. "Today, an astronaut is defined as someone who has been through and passed Basic Astronaut Training," the Australian Space Agency advises *BAZAAR*.)

In 2021, when Bennell-Pegg applied to train as an astronaut as part of the ESA's European Astronaut Corps, she made the initial shortlist of 25 from some 23,000 applicants. But in the final selection, she was knocked back due to her limited connection to Europe. Until then, Australians had not been eligible to apply if they held only Australian citizenship; Bennell-Pegg had originally hoped to join through her

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British citizenship, which she holds via her mother. But fate had other ideas. "The ESA made an unsolicited offer that they would take me if I represented Australia," she explains. "[It was] beyond what I'd ever dreamed as a kid."

Born on Sydney's Northern Beaches as the eldest of three daughters to accountant parents, Bennell-Pegg's love of space was seeded early. "At night, I used to lie on the beach or on the scratchy grass in the backyard, looking at the stars," she remembers. In high school, her teachers tasked the students with listing options for what they wanted to do for a career. "I said, 'Well, I want to be an astronaut. There's nothing else. There's no backup.'"

Bennell-Pegg attended the University of Sydney, where she graduated in 2007 with a Bachelor of Engineering (Honours) in Aeronautical and Space Engineering and a Bachelor of Advanced Science (Physics). She also holds two Masters of Science degrees: in Space Technology from Sweden's Luleå University of Technology and in Astronautics and Space Engineering from Cranfield University in the UK. From 2010, Bennell-Pegg spent nine years as an engineer at aircraft manufacturer Airbus in the UK and Germany, studying human

spaceflight and pioneering robotics projects. Until recently, Australia was without its own space agency after the Howard government abolished the Australian Space Office and the National Space Program in 1996. "When the Australian Space Agency (ASA) set up in 2018, I was so excited," recalls Bennell-Pegg. "About a year later, they started hiring technical management. I was like, *Well, I've got to [apply]*. And my husband [spacecraft systems engineer Campbell Pegg] felt the same. We kind of joked, 'May the best person win'. And actually, they created another job opening and hired us both." Bennell-Pegg joined the fledgling ASA, based in Adelaide, in 2019, first as assistant manager of the Chief Technology Office and Automation, before becoming director of Space Technology in 2022.

In April 2023, Bennell-Pegg began the ESA basic training curriculum at the European Astronaut Centre, near Cologne, Germany, alongside five ESA astronauts as part of "The Hoppers" group. Astronaut training was, according to Bennell-Pegg, "such a rollercoaster". "[It was only] when I was at the centre doing up the blue flight suit that I thought, *Okay, this is really happening*."

The team's training included stints in hyperbaric chambers and zero-gravity flights to hone practical skills – like using a drill or conducting CPR – while floating. They underwent lessons in ocean survival and firefighting and rescue, in case things go awry at launch or on re-entry. On average, they spent two-and-a-half hours a day in the gym. "We learned space history, space law, space policy and the strategies of different countries around the world [because] space is such an important tool for international diplomacy," she says. In mid 2024, after completing the yearlong training, Bennell-Pegg returned to Adelaide, where she lives with her husband and their daughters, Clara, eight, and Hazel, six.

An April 2024 report by McKinsey & Company predicted that the global space economy will triple from US\$630 billion in 2023 to US\$1.8 trillion by 2035. Defined by the OECD as "the full range of activities and the use of resources that create value and benefits to human beings in the course of exploring, researching, understanding, managing and utilising space", the space economy can provide opportunities for terrestrial sectors, like telecommunications, meteorology and even medical research.

"When we go back to the moon [via NASA's Artemis III program, scheduled to launch in mid-2027] and have more commercial space stations, more scalable ways to handle infrastructure and people remotely will be called for," she predicts. And in Bennell-Pegg's eyes, Australia and its resources sector are well placed to answer that call and provide materials, namely for satellites and robotics. "Humanity is on the cusp of the next great exploration and space industrialisation endeavour. The future of Australia in space holds so much promise."

As a newly minted astronaut, Bennell-Pegg is now qualified for missions to the International Space Station. "For me, there's no flight guaranteed at this point," she says. "Whether or when I fly is a decision for [the Australian government], but we'll see what the future holds."

In the meantime, across the country, children continue to dream of wearing the Australian flag on their own spacesuits one day. "I know that I carry their hopes on my shoulders," she says. "And while I might be the first, I'm determined not to be the last."