MY ONE-WAY TICKET TO MARS

Seven Australians, including Brisbane mother-of-two Natalie Lawler, are vying for a chance to live on the Red Planet—permanently

It's the stuff of science fiction: a team of Earthlings board a rocket bound for Mars. After a 225,000,000km trip, they land on the Red Planet and make their home there, spending their days conducting research and sending data back to Earth.

That unlikely scenario will become a reality if Dutch entrepreneur Bas Lansdorp has his way. Lansdorp, 38, sold his majority shares in his wind-energy company in 2011 to create the space-exploration project he calls Mars One. Anyone who signs on really has to love travel—the chosen explorers will never return to Earth. "This is a mission of permanent settlement," Lansdorp tells WHO. "They go to Mars to stay."

Amazingly, 202,000 volunteers from around the world applied, and on Feb. 17 Lansdorp announced 100 semi-finalists, including seven Australians. The final 24 will undergo nine years of training before the first planned mission. "People say to me, 'How can you leave your family?' " Brisbane semi-finalist Natalie Lawler tells WHO. "But there are other drives pulling me to do this."

Before lift-off, however, there are earthly challenges to face. Many scientists question the project's feasibility, and Mars One has yet to raise even a fraction of the estimated $US6 billion needed. Lansdorp plans to source much of the money through TV rights, including a reality series based on the training of the 24. "A permanent settlement mission is hugely ambitious, so it is easy for critics to find challenges that [we] will need to overcome," says Lansdorp. "We have one huge advantage. Even our greatest critics secretly hope we'll make it."

Here, three Mars hopefuls from Australia spoke to WHO's Emma Martin.

EXOTIC LOCATION
If the mission to Mars is successful, the astronauts will each live in 50sq-m units (below) that would have already been transported there. The entire settlement (above) will contain bedrooms, working areas, a living room and a "plant" unit.

NATALIE LAWLER
Mother & teacher, Brisbane

The 36-year-old high-school maths teacher and mother of two girls lives with her partner in Brisbane (her children live with their father in their home town of Kyabram, Victoria).

When I first read about Mars One I thought it was a hoax because there was a small fee to apply. Once I realised it was real, I wanted to apply straightaway. It wasn't a case of, "Let's apply and see what happens." I made the decision that I would go to Mars before I sent an application video. My partner was also interested but ended up not applying.

It's curiosity that drives human nature to advance. There is a certain population that has that in us; we want to see what is over that mountain or, in this case, the next planet.

If selected, you are paid for your training. It's full-time. They haven't explained the remuneration yet. They have said families will relocate as well.

My children will be young adults by the time I leave. They are 9 and 14 and they will have finished school. I suppose we have 10 years to accept we are leaving and we have enough time to share with our families. It's like someone with a terminal illness—they know they have a time period. My 14-year-old daughter has said she wants to buy me the ticket! I think that's what teenagers think of their mums at that age. My 9-year-old has the kindest heart and she said, "Mummy, if you are famous does that mean I am famous, too?" I will be able to continue to express my love to my family in words and messages and emails.

> "I get a lot of criticism because I have children"

If they choose me, I can train to have any skills they like. I have had lots of careers. I studied physiotherapy, worked as a property valuer, then I had quite a few small businesses. I went back to uni and did my teaching and mathematics degree and now I am a secondary-school teacher.

I'm fit and strong and very healthy so I am physically capable. I have what it takes to survive. I was in a horrific car accident when I was 16 years old. The driver, my 18-year-old boyfriend, sadly passed away. I was told I wouldn't walk again and if that was my reality I would accept it and make the most of the life I would have. In Mars it will be the same thing. We are not coming back, it is not an option, and I will accept that.

There are a couple of things I worry about . One is I am not very good with things like roller-coasters. And I haven't done any diving—and I know a lot of astronauts do a lot of training under water.

Sensory deprivation also worries me. I think it will be a problem in transit. I'm concerned about food boredom, eating the same thing. Food is such a pleasure, and diet on the seven-month journey will just be space food. When you get there we will be able to grow our own food.

As far as water and oxygen go on Mars, there will be technology to produce them. A rover will pick up soil that will have water molecules inside and it goes into the life-support unit, is heated and the water is evaporated. Some of that water will be used for drinking and storage and then the other will be used to [create] oxygen to breathe.

I get a lot of negative criticism because I have children. If I said I was going to war I wouldn't receive any negative criticism—I would be regarded a hero. Yet because I am going to better humanity, it is viewed quite differently. I hope this mission changes those views. The world is going to be taken on a journey. Whether I am selected for this mission or not I still have ambitions to make this happen.

I have always been interested in our place in the universe but I don't have this burning desire to be an astronaut. It's not that being in space is driving me to do this. In fact I think the seven-month journey is going to be absolutely gruelling. It's bigger than that. It's about creating a settlement. It's that scientific outpost for humanity to make that next giant step in mankind.

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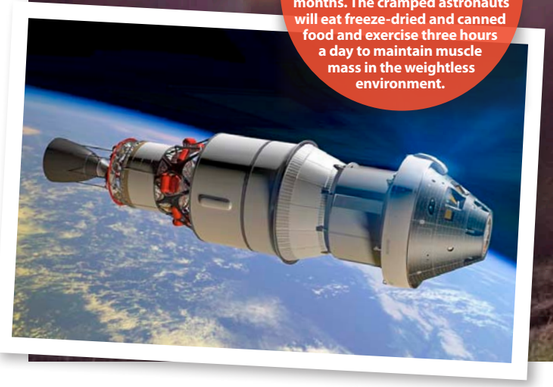
SPACE ODYSSEY
Should it go ahead, the trek to Mars (in the spacecraft depicted) will take up to eight months. The cramped astronauts will eat freeze-dried and canned food and exercise three hours a day to maintain muscle mass in the weightless environment.



"Humanity needs to be a multi-planet species," says Natalie Lawler (in Brisbane on March 15).

Photographed for WHO by **RICHARD WHITFIELD**
With reporting by **ANNE LANG**

DIANNE McGRATH
Researcher, Vic

With expertise in managing teams in sales and marketing, four university degrees, a love of extreme sports and expert knowledge in sustainable food systems, the 45-year-old from Melbourne believes she is the perfect candidate for interplanetary travel.

It was so tempting to sign up. How could you not want to? Once I felt confident about the Mars One group I put in my application. To start, my mum was hesitant. I'm her only daughter, [but] she fully supports me living my dreams. I will still be able to communicate with family and friends, and the internet will be available, so it's not that I won't be able to communicate with them. I will miss holding my partner's hand.

I started off working in sales and marketing in management in the pharmaceutical industry so I have vast experience in medical-related matters. I also have a lot of experience in the energy sector—I have my own consultancy in sustainability. I am working towards a PhD in sustainable food practice.

Mars is a very purposeful mission. We can learn about ourselves through understanding this planet and how our own planet has evolved. We can learn more about our own climate and what we can do to preserve that.

"I will miss holding my partner's hand"

I want to inspire young girls to stay in the sciences and to allow themselves to have the dream to do something extraordinary. It can happen.

In 2024 there will be four astronauts who will go—two men and two women. And every two years they will send another team of four to join them to develop the colony.

We have been given a lot of information on the risks of the mission—what the exposure will be with radiation during that seven-month journey from Earth to Mars, and what they are doing to mitigate against it [the space craft will be shielded]; what the atmosphere is like on Mars; and what we will face with regard to our health. The first immediate risk is probably psychological health.

The journey will be difficult, but I have been doing a lot of work to prepare for the psychological challenge. I have talked with prisoners who were in solitary confinement.

I'm actually more excited than fearful. We will all die on Earth; it's more about what you do with that life that matters and I see that whether I am on Earth or on Mars. I really would like to leave a legacy that makes a difference.

LIFE ON MARS

According to Mars One, the astronauts will grow plants and food using hydroponic units. The astronauts will also research how their bodies respond to the planet's gravitational field, which is 38 per cent of the Earth's pull.

BRYAN VERSTEEG / MARS ONE

"I am totally committed to this," says McGrath (pictured). Right: With her three brothers in Melbourne.

JOSH RICHARDS
Physicist & comedian, Perth

The physicist/engineer, 29, has studied psychology and forged a successful career as a "science comedian," which included a performance at the Edinburgh Comedy Festival in 2012. Since making the Mars One semifinals, he has given science talks at school about space.

I got told when I was 7 that becoming an astronaut was impossible because I wasn't born in the US. Now I have an opportunity. It's less about me being the first person on Mars than it is about us setting up a colony that any kid can look up to and say, "Hey, there are people living up there, and I can live up there, too, if I want."

I think it should have been a reality about 20 years ago. There was no push for the US to keep going after *Apollo* [NASA's moon missions of the 1960s and '70s], and we haven't gone past orbit since 1972. We stopped exploring. Technically, it has moved far enough forward that private industry can take it there. If you look at going to the moon as a kids' slumber party where you stay overnight and come back, going to Mars is like humanity moving out of home for the first time.

I have spent the past 2½ years thinking of the challenges of going to Mars. I might have worked as an engineer and studied physics, but I am far more fascinated in the psychology of four people working together in an incredibly isolated and challenging environment. We are humanity's ambassadors, so it's about matching people together to uphold our best ideals.

"We are humanity's ambassadors"

I think the potential to discover life on Mars is quite high—not necessarily the little green men but certainly bacteria and microbes, and we can learn where we came from and where life on Earth came from by studying potential life on Mars.

The colony [living quarters] will already be set up when we arrive [see right]. Six to eight years before we launch, Mars One will be sending a probe to find the best spot and from there they will be landing supply vehicles. When we arrive we will need to do more work, install modules, hallways and grow our own food. Any time we are outside the module it will be in Mars suits.

I know there is a study that says we will all die [the Massachusetts Institute of Technology in the US compiled a Mars One feasibility report that predicted the pioneers would suffocate due to lack of oxygen after 68 days]. But I know the folks working on the Mars One life support systems. They are the best at what they do and they are the same guys who worked on the life support system for the International Space Station.

The ultimate goal is to have humans living on Mars. They will keep sending crews and keep building that colony up and the hope is that 10 to 15 years after we arrive, we will be in a position where we can send spacecraft to send 100 people at a time.

But someone has to go first. ■

"Life on Mars is going to be radically different," says Mars One candidate Richards (in Perth).

FAILURE TO LAUNCH?

Some scientists doubt the Mars One mission will even take off. A team at the Massachusetts Institute of Technology (MIT) identified crucial flaws with the plan. "There's no deep-space habitat in development, there's no lander in development," said MIT researcher Sydney Do.

CLOCKWISE FROM BOTTOM LEFT: COURTESY OF DIANNE McGRATH (2); MARS-ONE.COM (2); GETTY IMAGES; COURTESY OF JOSH RICHARDS

MISSION TO MARS

2011
MARS ONE FOUNDED
Entrepreneur Bas Lansdorp and scientist Arno Wielders create the foundation of the Mars One mission plan.

2013
START CREW SELECTION
Round 1 is an online application open to all nationalities. The selection program proceeds with three additional rounds over the course of two years.

2015
START OF TRAINING
Groups selected from the first batch of applicants begin training. This training will continue until the launch in 2024.

2018
DEMO MISSION
A demonstration mission is launched to Mars in 2018; it provides proof of concept for some of the technologies that are important for the mission.

2020
ROVER LAUNCH
One intelligent Rover and one trailer are launched. The Rover can use the trailer for transporting Life Support Units in 2023.

2022
CARGO LAUNCH
A second Rover, two Living Units, two Life Support Systems and a Supply Unit are sent to Mars.

2023
OUTPOST SET UP
The six cargo units land on Mars. The Rover picks up the Life Support Units using the trailer. It situates them in the right place.

2024
1ST CREW LAUNCH
After a final check of systems on Mars, the Transit Vehicle is launched on a Mars transit trajectory. This is the point of no return for the Mars crew.

2025
1ST CREW LAND
About 24 hours before landing, the crew move from the Transit Habitat into the landing module, bringing some of the supplies from the Transit Habitat.

2026
2ND CREW LAUNCH
The second crew departs from Earth in 2026. With the second crew, the cargo for the third crew is also launched. The second crew lands on Mars in 2027.

From: www.mars-one.com