Bush Ingenuity

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BUSH INGENUITY

If necessity is the mother of invention, it's no wonder that rural Australia has given birth to some of Australia's most extraordinary innovations.

STORY **AMANDA BURDON**

Growing up near York, in south-eastern Western Australia, fourth-generation farmers Shawn and Glen Ryan learnt how to be self-sufficient and creative. "You couldn't just duck down to the local hardware shop; you had to know how to turn a spanner and put a few things together to get a broken-down machine moving again," Shawn says. Their practical skills, work ethic and innate curiosity have certainly proven useful, as has their appreciation of a big shed.

When it came time to test the groundbreaking renewable technology they have devised – a converter that harnesses the power of ocean waves to generate electricity – they gravitated back to their parents' wheat and sheep property. For three years they commandeered a corner of their father's machinery shed, establishing a wave-testing tank alongside his harvester.

"We might be working in the space of engineering innovation, but there are many parallels with farming," Shawn says. "Like farmers, we operate in a world of uncertainty and can't control the variables. We don't know whether our next grant application will be successful or if investors will support our idea. Much like farmers, we can only plan for the worst and hope for the best; give it a go and hope we reap a good harvest and don't strike a drought."

The testing period in the farm shed was vital to the development of the Bombora Wave Energy Converter system, which could revolutionise the sustainable energy sector. "We needed that time and space to let the idea evolve and grow," Shawn says. "I guess our rural background has given us an inner belief that we can make it happen, and the strength and resilience to deal with whatever's thrown at us.

Shawn Ryan with part of the prototype of his and his brother Glen's wave-energy converter system on the family farm at York, WA.

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"We have sailed close to the wind financially several times, when we feared we wouldn't raise sufficient investment interest. But another farming family believed in us and they are now one of our biggest backers. They share our can-do attitude and preparedness to take a risk."

From 'two blokes in a shed' the brothers have developed a broad network of collaborators throughout Australia and overseas. They're now in the feasibility study phase, with a mid-scale converter being trialled off Melville Waters (Perth), assessing the cost of design and full-size production, and courting additional investment. "We have planted the seeds of the idea, are building a team to help our investment grow, and hopefully Bombora will be reaping a good harvest in a few years' time," Shawn says.

INVENTIVE TRADITION

We Australians are an inventive lot. We've had to be. Cut off from the rest of the world, we've had to develop methods and machines suited to our unique environment. It's a tradition that stretches back at least 40,000 years.

Early European settlers learnt much from Indigenous Australians about how to survive and thrive on our continent. The years following colonisation were a hotbed of experimentation and discovery, especially where people and materials were scarce. Historian and author Manning Clark described it as a "bush convention – all that making do, that genius for improvisation of the great army of the deprived in the Australian bush". Many of the early contraptions may have been fashioned from scrap metal and cannibalised machinery parts, but there was no shortage of bright sparks with imagination and persistence. As agriculture expanded and matured, so did our inventions – one prototype after another.

It comes as little surprise that the most common patents from the 1850s to 1900 were for wire strainers, shearing machines and wool presses. Closer settlement, increased fencing and the wool boom saw to that. "There was a focus on managing stock and land, getting the wool off the sheep faster and squeezing it tightly into the bale to make it easier and cheaper to transport," says Martha Sear, a curator with the National Museum of Australia. "People saw problems or chances for improvement, and there was a sense that anyone could come up with a solution. You could invent something, patent it, partner with a manufacturing company, and help others like yourself."

Our distinctive landscape produced not just custom equipment but also plant and animal breeds more at home here, novel ways to manage our limited resources, and techniques for controlling the pests and diseases that followed. Governments, institutes and agricultural societies keen on fostering agricultural development offered generous rewards to self-starters skilled at trial and error. It spoke to the nation's emerging can-do psyche, as noted by Leo Port, an engineer and judge on the popular *Inventors* television program of the 1970s. "Give an Australian a pair of pliers and a piece of wire and he'll invent something," he wrote in his book *Australian Inventors*. "It may be just to keep his car together, or to prevent his gate from falling apart. It may be of no benefit to anyone but him, yet it will be something that fills a need."

It's the ethos behind many invention competitions that continue today in rural communities across the country. "Farmers are hands-on operators and their time is valuable," says Rob Stewart, convenor of the contest staged each year at Sheepvention, in Hamilton, Vic. "They are often by themselves and thinking about the problems at hand. That spirit of problem-solving goes to the heart of the workplace and the environment."

But whereas getting a small manufacturing industry off the ground may have been relatively simple in the past, it's a different story today. "Entrepreneurs once built massive industries around an idea, but today there are so many ideas out there and they can easily be copied," says Peter O'Shannessy, president of Inventors Association Australia (Vic), a networking and advisory body for inventors. "It's a lot harder to commercialise ideas. An inventor needs to understand contracts, licensing, retail and marketing."

TOP: Shawn Ryan (second from right) works on the wave energy converter with (l-r) Irene Penesis, Gregor McFarlane and Alan Fleming, all from University of Tasmania. OPPOSITE: A saltwater prototype by the Swan River, WA.