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Sports technology – Australian Innovation and Design

After WWII, the memory of conflict and Australian sporting achievements in athletics, tennis and swimming (culminating in success at the 1956 Melbourne Olympic Games) were dominant in people’s minds and helped shape Australian national identity as one based on sporting prowess. The Associated Chambers of Manufacturers of Australia had earlier lamented this situation. In the 1952 Made in Australia Exhibition (Exhibition Buildings, Melbourne) catalogue the following sentiment was expressed:

Great deeds in the realms of war and sport have imbued Australians with a full measure of national pride. We should be no less proud of their industrial history, but unfortunately there are few who appreciate the extent of their achievement in less than 150 years.

Despite these stirring words, it is as a sporting nation that Australians, then and now, mostly identify. Happily, however, there have been several occasions where industrial design and sport have met to mutual advantage…

Australian battlers against the odds.

‘Overcoming the odds’, ‘backing the under-dog’ - how Australians love such expressions. Throughout the history of this country there have been several opportunities for proving Australian mettle in which local innovation has triumphed. This was dramatically displayed in the ‘battle’ for the 1983 America’s Cup yacht race that saw Australia win, unexpectedly, against a giant foe. What better example of the ‘Australian battler’ can be cited than naval designer, Ben Lexcen and his ‘winged keel’ design? It was the first time that a non-American had won the race in its 150-year history. The purple journalistic prose spilled over Lexcen’s achievement could itself fill a book. Such was his public prominence as a designer at the time that he even lent his name to a car, to ‘Australianise’ Toyota’s re-badged version of the VN-VP Holden Commodore of 1988-94.

The nonchalant heroes.

Conversely, Australians also love Don Bradman-type heroes who ‘beat the world’ in an unassuming manner. (Interestingly, the cricketer also lent his name to a special ‘Bradman edition’ Holden-bodied car in the 1930s.) Perhaps the most spectacular example of this in Australia’s industrial design history was the Repco-Brabham Formula 1 racing car designed and driven by triple World Champion Jack Brabham in 1966 and 1967. While there were no other racing cars (at this level of sophistication) being designed in Australia, this locally designed and manufactured car beat the world’s best. And it should be remembered this included cars from Maserati, Ferrari, Lotus, BRM, Honda and other illustrious makers…Jack Brabham remains the only driver ever to have won a world championship in a car of his own design.

Another nonchalant hero was the legendary Sir Hubert ‘Oppy’ Opperman who rode his locally designed and manufactured Malvern Star to international fame. Opperman broke numerous world records and so brought worldwide attention to the Malvern Star brand. The company had been established in suburban Malvern, Melbourne, in 1903 by Tom Finnigan, winner of the 1898 Austral Wheel Race. In 1920, Sir Bruce Small bought the business and developed it into the largest bicycle company in Australia. Bruce Small and ‘Oppy’ revolutionised the local bicycle industry with their
rigorous research and development. Apparently Small would accompany ‘Oppy’ on stages of his marathon rides, making numerous design improvements to the bike along the way. A nice example of sportsman and designer working in partnership.

**The sporting culture - tennis, golf, surfing and football**

Australians are a nation of keen tennis enthusiasts so it is not surprising that two recent major innovations in the sport have originated here, based both on materials and developments in technology. The Rebound Ace tennis court surface was conceived by a Brisbane-based company, AV Syntec, and has been adopted worldwide as a leading sports surface. In fact, it is one of only four Grand Slam tennis surfaces in the world. Reducing ligament damage and impact injuries as well as offering excellent performance, the Rebound Ace system is based on a combination of acrylic and polyurethane materials, which are either solvent free or water-based. Making use of recycled rubber for cushioning - there are about 5,500 old car tyres in every Rebound Ace Tennis Court – A. V. Syntec have just signed an agreement with Nike to become a part of their ‘Reuse a Shoe’ program, where old sports shoes are collected, ground down and reused.

Line calls are often a controversial part of the professional game, especially since the game has become faster in response to highly developed racquet technology. In 1992 TEL Pty Ltd developed an electromagnetic tracking machine that provides information about the ball’s trajectory, velocity and impact on the court in relation to the line. The Tennis Electronic Lines system consists of four elements: an antenna array buried within the court; a tennis ball developed by Wilson embedded with ferrous particles; an instrument box and a hand held computer that displays the system decisions to the chair umpire.

Golfers have also benefited from the attentions of Australian designers. The 21AD brand of golf clubs are based on the fundamental idea that the club should act as an extension of the player instead of being a tool that requires precise manipulation. Commercialised by Fundamental Golf and Leisure Ltd, the weight distribution has been altered to make the shaft heavier and head lighter than traditional clubs. This makes the club easier to swing, reduces torque and allows the club head to return squarer to the ball more consistently.

Australia innovation continues to this day. In September this year, a Western Australian company has developed what they claim to be an innovation set to revolutionise and enhance the sport of surfing around the globe. Their new ‘Spindeck’ is attached to the surface of a board replacing the deck grip, but it’s innovation is in its ability to rotate, enabling the surfer to turn more sharply with less effort and use their feet to generate more power.

**Tradition, innovation and controversy**

Sporting clothing has also improved under the designer’s touch. Bicycle riders have worn Rosebank Stackhat helmets since the mid-1980s, while Aerotek carbon fibre wheels from Queensland are often to be found on top class bikes. David Miers invented a new kind of football boot ten years ago by replacing the traditional studs on the sole of the boot with a series of diagonal blades. In response to his own eleven knee operations, Miers developed the controversial Blades football boot. Initially players such as Peter Daicos and Simon Maddon secretly wore them, Maddon attempting to disguise his by painting stripes on them. He was discovered and his club fined by their sponsor. Now the ‘Blades’ football boot has managed to fend off many of its larger big brand competitors and is distributed internationally.
But while there have been many successes, Australian designs for sport are often too controversial for their respective sporting associations. In 1979 cricketer Dennis Lillee attempted to play with a radical aluminium bat. He was not allowed and was forced to use a traditional willow bat instead! It’s all very well to come up with the invention, but sports can be a very traditional realm where it often takes more than innovation and a good idea to have your product accepted. However, Australia is a young country and is less inhibited by the traditions of the old world and is more likely to embrace high tech in sports and culture generally - as shown by our renowned high uptake of new technology such as computing and mobile communications.

These high-tech products, born of new materials and manufacturing technologies, are made possible by the expertise of industrial designers and are not products of traditional clothing makers, stylists or sporting goods suppliers. Roll on the Melbourne Commonwealth Games!