

# Wild

# 130

30 YEARS OF WILDERNESS ADVENTURE HERITAGE

HIKING IN THE  
KYRGYZSTAN MOUNTAINS  
MOUNTAIN PYGMY POSSUMS  
BEGINNER'S GUIDE TO CAVING  
PROFILE: ALBY HANGELS  
OLD KANDRA-GOLDFIELD  
TRACK NOTES  
MENTI HARD-SHELL JACKETS  
FOLD: BROOKS RANGE

## Kokoda *70 years on*



AUSTRALIA'S WILDERNESS ADVENTURE MAGAZINE

# THREE *Essential Items*

*Yoav Bar-Ness* plays historian for a trio of inventions we usually take for granted

**W**ho was Vitale Bramani? And who was Tadao Yoshida? And Georges de Mestral? You've trusted them with your life, your car keys, and your trousers, but who were these mysterious men?

There are a few magic inventions in our kit that we take for granted. Used constantly, their utility is often noticed, but their history rarely understood. But YKK zips, Vibram soles, and Velcro fasteners are found in every single outdoor shop in Australia. You're probably wearing at least one of these commercial products on your body as you read this story.

It's unlikely that you've encountered leather-soled mountaineering boots with nails pounded into them, or a rainproof jacket that seals with buttons. How did these once cutting-edge technologies become superseded? Today, if you walk into any bushwalking outfitter's shop, you'll discover that with few exceptions, shoes have rubber soles, trouser flies have zips, and most waterproof garments incorporate a spot of Velcro.

Let's cast our gaze back to the years around World War II and shed some light on a triplet of industrial entrepreneurs living in different countries. Each would have a formative experience that would feed into their innovations, and eventually change our experience of the great outdoors.

In the Italian Alps, near the town of Albizzate, Vitale Bramani mourned the deaths

of friends who had slipped to their deaths. On the other side of the mountains, in Switzerland, Georges de Mestral went hunting through a field of burrs. And in distant Tokyo, Tadao Yoshida found himself unemployed when a garment factory went bankrupt.

Vitaly Bramani was an Italian mountaineer in the pre-crampon era of the 'tracounis' hob-nailed boot. After the fatalities of his friends, he began working with tyre manufacturer Pirelli to create the world's first vulcanised rubber boot soles. This first 'Vibram' design, with the 'carrarmato', or tank-tread print, has remained relatively unchanged over 75 years. Its distinctive pattern, with a central yellow octagon, has been stamped in countless bootprints on snow, mud, and sand worldwide. The first successful climb of K2, the world's second highest peak, was performed in 1954 by an Italian team wearing Vibram soles, and since then, they have traversed terrain on every continent.

Bramani took advantage of developments in the chemical modification of natural rubber, derived from the sap of the Amazonian tree *Hevea brasiliensis*. The processing, or polymer co-linking of this natural product into the more robust vulcanised rubber, is often attributed to the American inventor Goodyear, but was, in fact, present in ancient Mexico. More than 3500 years ago, the Olmec people used an early form of vulcanised rubber in the divine rubber ball-game tournaments which were

played in the region for 3000 years. Indeed, the very name 'Olmec' translates as 'the rubber people.' Rubber can now be found in myriad manufactured products, from the simple base of a flip-flop sandal to the critical O-ring seals that tragically failed, causing the Space Shuttle Challenger's explosion.

It was this vulcanisation process that allowed vehicle tyre manufacturing to thrive in the 1930s, and was used by Bramani to supersede the leather soles of mountaineering boots. The company Vibram – its name derived from its inventor – has since grown into a leading supplier of soles for thousands of shoemakers, and its original tank-tread footprint is still instantly recognisable to outdoor enthusiasts.

Chances are you are wearing trousers as you read this article. It is likely that they are sealed with a zip, which protects your modesty and is easily fastened. Take a look down, and it's a fair bet that there are three letters stamped on it: YKK.

These mysterious three letters represent the Japanese firm Yoshida Kogyo Kabushikigaisha, the Yoshida Manufacturing Corporation. In 1935, its founder Tadao Yoshida was a poor man working at a zip factory in Tokyo. It was not successful, but after it closed he founded his own company. Promoting a perpetual improvement 'virtuous cycle' management ethic, his new company carried on until the factories burnt down in 1945 (likely in the

intensive Allied bombing campaign). He reinvested and took advantage of more modern industrial techniques. YKK has become a dominant company, with 37,000 employees in 70 countries producing half of the world's zips.

Yoshida did not invent the zip. It was first patented in the USA by Elias Howe in 1851 as an 'automatic continuous clothing closure', picked up again by the entrepreneurial Whitcomb L. Judson, and refined into a usable form by Gideon Sundback in 1913. They found their initial market in hidden money-belts for American soldiers in World War I, but their first civilian success was the production of waterproof rubber overshoes, which, until then lacked convenient one-handed closures. Like Vibram soles, the zip followed vehicle tyre rubber industrialisation and its famous name was coined by an executive from their collaborator, tyre manufacturer BF Goodrich. When sealing the newly designed waterproof 'Mystic Boot' galoshes, he whimsically said, 'Zip 'er up.'

The zip, then, has been intimately tied to American military markets and the post-war rebuilding of industrial Japan. Once wartime enemies, the US and Japan are now intricately connected economically; they are zipped together, like the zip on your raincoat. Since then, there have been minor improvements, particularly in the direction of waterproofing, but the vast majority of zips follow Sundback's revised design.

One of the largest of botanical families is the Asteraceae. In these familiar flowers – sunflower, daisy, thistle – a collection of minute anatomical flowers combine to form the composite flower we recognise. One of these – burdock (genus *Arctium*) – has found a clever way to disperse itself across the landscape. It grows minutely-hooked spines that catch on the fur of passing mammals and carry seeds to new environments. These burrs, of course, take full advantage of the intricately woven surfaces we present with socks and trousers, and therein lies the basic concept of Velcro.

In post-war Switzerland, George de Mestral went hunting with his dog, and inspiration struck as he de-burred his clothing and his canine companion of the

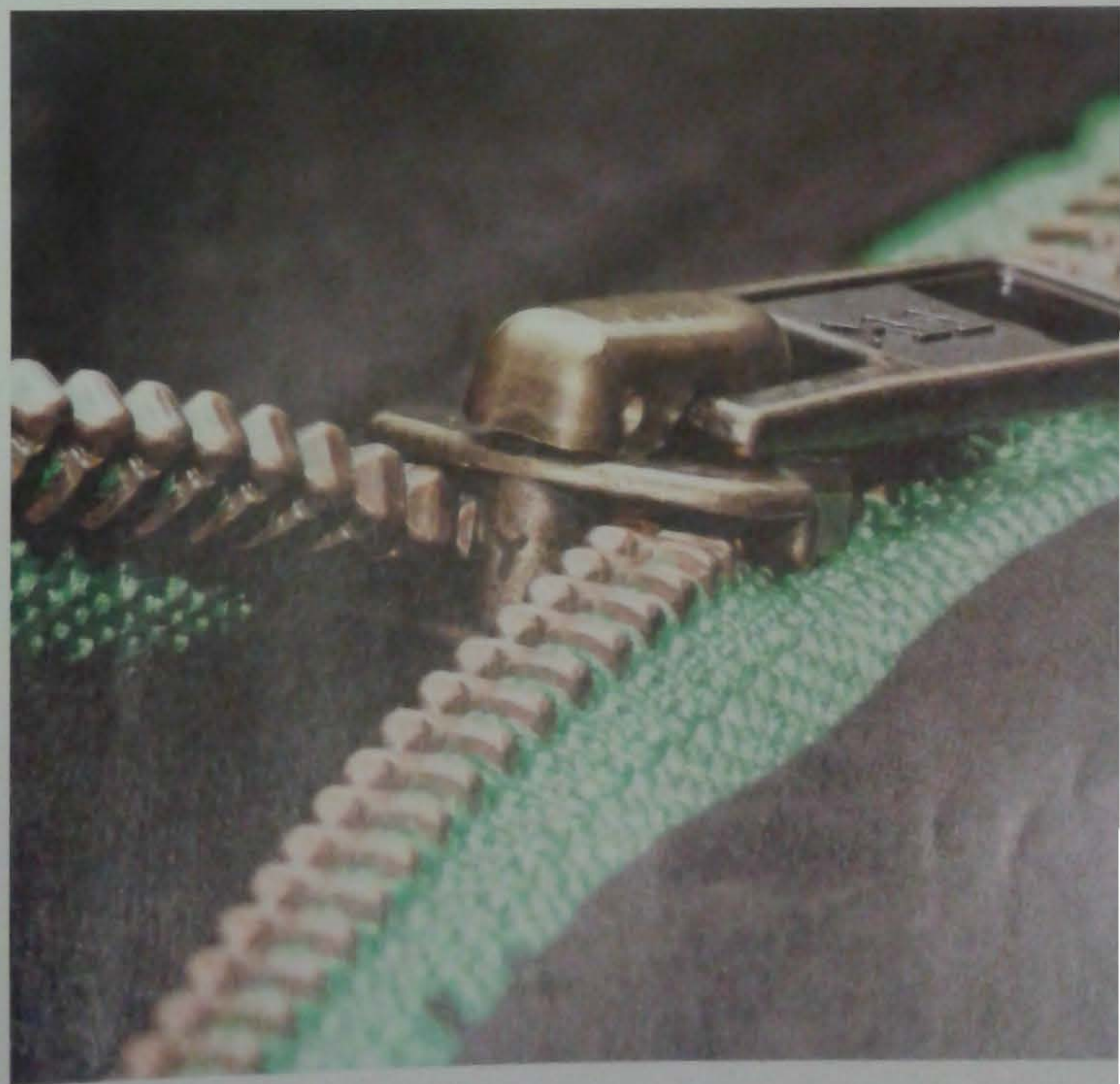
tenacious seeds. He took the burrs to a microscope and studied the hooked ends of the spines. Eight years on, he brought a novel product to market – the hook-and-loop fastener we now know as Velcro. This trademarked name comes the fusion of two French words: *velour* + *crochet*, or velvet + hook. De Mestral's inspiration is one of the most famous examples of biomimicry: human engineering following an example from the natural world.

Velcro was first marketed as a 'zipperless zipper.' It is used to seal pockets, or secure tools, in a quick and easy manner. The most famous user of Velcro is NASA, as it turned out to be perfect for stowing objects in zero gravity space missions. Their adoption of Velcro aided its popularity and success, but

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## PRODUCTS

perhaps too well. As time progressed, the trademark Velcro was used freely, and competitors have been able to use the word for their own productions. Its association with NASA was so strong that many people assumed it had been invented by this agency.

Velcro, with its distinctive ripping noise and familiar feel, can be found today in outdoor kit on raincoat cuffs and cargo pants pockets. One major use, to seal rain flaps over zips, has been superseded by the development of waterproof zips. Beyond bushwalking, it continues to be used in the widest possible variety of applications, from surgery to shoe fastening to stowage on spacecraft.

On a sunny summer afternoon, I went to my local beachside bushwalking and mountaineering shop. The finest quality goods were gathered here, assembled from the most advanced materials and skilled design available in a globalised world.

I surveyed the racks. Without exception, every single pair of trousers I checked had a ripped fly, and stamped on it: YKK. The virtuous cycle has served Yoshida's company well. Every pair of shoes had a vulcanised rubber sole, and about half of them sported Vibram soles. Vibram has cleverly added their bright yellow label to the side of the shoes, in addition to the footprint – unmistakably a descendant of Braman's tank-tread. Velcro was less dominant, but easy to find – every raincoat and most trekking pants had patches of it. On one side of the fastening, it was clearly the hooks of the burdock seed, and on the other, the tangled fur of de Mestral's dog.

I can only wonder what future developments will bring, and how new inventions will change our experience of the wilderness. Who will be the next entrepreneur to change the industry? Could it be you? Until then, may you have a rubber bounce to your step, may your socks be free of burrs, and may your trouser fly be zipped, closed, securely.

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*Your Bar-Ness is a conservation ecologist based in Fremantle, Western Australia, on a long-term quest searching for the Kalparvish, the Wish-Fulfilling Tree of ancient Indian myth. He hasn't found it yet, but will make sure to tell you when he does. As a scientist, he specialises in climbing trees to explore the canopy biodiversity, and as a conservationist, he seeks to use geography and photography to create environmental education materials. See [www.outbackecology.com](http://www.outbackecology.com) to learn more about his work.*

Hi-Tec's Cloud Chaser jacket has Velcro securing its double storm flap, elasticised cuffs, and on its hood for quick and easy adjustment on the go. RRP \$149.95.

[hi-tec.com](http://hi-tec.com)



Deuter uses YKK zips on their backpacks, including the Race EXP Air – perfect for day trips. RRP \$129.95.

[velovita.com.au](http://velovita.com.au)



Stick to the trail with Merrell's Trail Gloves. Their Vibram soles will help keep you on your feet. RRP \$169.95.

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