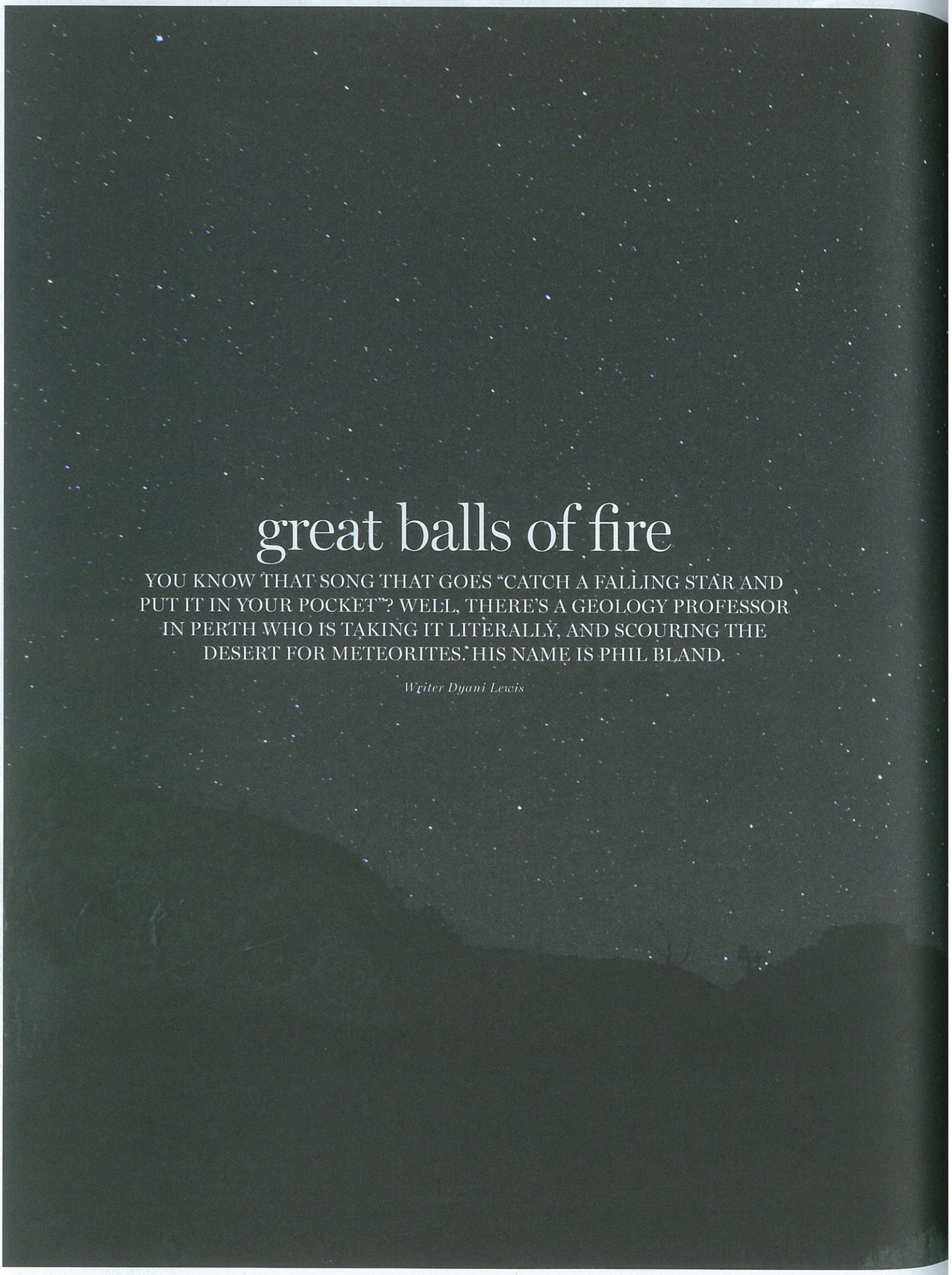

great balls of fire

YOU KNOW THAT SONG THAT GOES "CATCH A FALLING STAR AND PUT IT IN YOUR POCKET"? WELL, THERE'S A GEOLOGY PROFESSOR IN PERTH WHO IS TAKING IT LITERALLY, AND SCOURING THE DESERT FOR METEORITES. HIS NAME IS PHIL BLAND.

Writer Dyani Lewis

EVERY NEW CHUNK OF SPACE ROCK THAT'S DISCOVERED HAS THE POTENTIAL TO TEACH US MORE ABOUT THE SOLAR SYSTEM.

ON THE LAST DAY OF 2015, PHIL BLAND FOUND HIMSELF SPEEDING ACROSS AUSTRALIA'S LARGEST SALT LAKE ON A QUAD BIKE. IT SHOULD HAVE BEEN EXHILARATING, BUT THERE WAS SOMETHING THE GEOLOGY PROFESSOR COULDN'T GET OUT OF HIS MIND: HE FELT STRANGELY HEAVY.

The clothes on Bland's back were caked in thick layers of mud. But that wasn't what was weighing him down. It was worry.

Bland wasn't alone. He'd travelled to Lake Eyre from Perth with a colleague from Curtin University and one of their students. He'd convinced the pair to join him by promising an exciting adventure. He said they'd be searching for a unique and valuable treasure.

But things weren't going as Bland had hoped.

For three days, he and the group had endured the searing December heat without finding a thing. Morale was low. Everyone was exhausted. And now there was a new problem: a blanket of rain clouds was bearing down, threatening to bury their prize forever.

For a second, Bland contemplated calling the whole thing off and taking a moment to scream obscenities into the shimmering emptiness around him. But before he could, his radio let out a noise.

"We've seen it!" a crackly voice said. It was his colleague, phoning in from the cockpit of a light aircraft overhead.

Instantly re-energised, Bland dismounted his bike and started running, scanning the ground as he went. Everything seemed clean and featureless. Then he saw it: a small hole.

Bland fell to his knees and reached inside. He began frantically removing handful after handful of mud. He sank his entire arm into the cavity – right up to the shoulder – and thrust his fingers through the clay. There was something down there. It was hard. He wrapped his fingers around it and pulled.

Bland had found what he was after: a four-and-a-half-billion-year-old meteorite.

It was a moment of sweet vindication. For 15 years, Bland had been developing a way of tracking the space rocks that fell across Australia. He called his system the Desert Fireball Network. It consists of 32 cameras scattered across the outback; each is programmed to monitor the skies and send email alerts every time an object is observed entering the Earth's atmosphere.

Bland had faith his fireball network would work – he'd already tested a pilot version on the Nullarbor Plain. But now he had cold, hard proof. And it weighed around 1.6 kilograms.

The question of why anyone would dedicate so much effort to finding meteorites is a complex one. After all, they aren't exactly hard to get your hands on. On eBay, you can pick up a shard of space rubble for as little as it costs to buy a coffee. Want to flaunt your space oddities? Meteorite earrings might be for you. Want your kitchen to feel more cosmic? How about an extra-sharp knife forged from extraterrestrial iron?

The truth is, however, that meteorite collecting is still a hugely important field of scientific research. Why? Because every new chunk of space rock that's discovered has the potential to teach us more about the solar system.

The reason for this has a lot to do with how meteorites were originally formed.

When the solar system was about 100,000 years old, a pancake-shaped disc of gas surrounded the sun. From this cosmic soup, molecules coalesced into globs, globs fused into rubble, rubble into clumps. These clumps grew into larger bodies that eventually collided and became the planets and moons. On the other hand, asteroids – the source of most meteorites – are the bits of matter that never went on to form planets. Their chemical compositions have remained unchanged for billions of years, and hence contain fascinating clues about what conditions were like at the very beginning of the solar system.

Aside from all that, there's another reason meteorites fascinate people like Bland. It's something more basic: the profound feeling that comes from touching an object that has travelled through the vastness of space.

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A meteor is captured flying across the night sky above Branchina Gorge, South Australia

Page 093, clockwise
Professor Phil Bland in the middle of Lake Eyre

Martin Cupak configures a newly installed Fireball observatory at Sylvania in Western Australia

Professor Phil Bland digs a new meteorite out from the mud under Lake Eyre

Researchers walk to a new search zone between Coober Pedy and William Creek, South Australia

Left
The first meteorite found by the Desert Fireball Network

All photos courtesy of the Desert Fireball Network

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Of course, not everyone has the same reaction. A sizeable section of the public finds the idea of rocks falling from the sky kind of frightening. In fact, Bland is sometimes asked if his network could be used to warn authorities about incoming meteorites that could do damage to built-up areas. He has to patiently explain that it couldn't. Bland only receives notifications from the network after an object starts burning up in the atmosphere. By then, it's only a matter of seconds before impact.

In any case, even if the network could be tailored to perform this function, it wouldn't be particularly practical; there have only ever been a handful of instances where space rocks have actually harmed anyone. Perhaps the most famous was when a meteor exploded over the Russian city of Chelyabinsk in 2013. It caused a window-shattering shockwave, and a flash of light 30 times brighter than the sun. The damage bill: around $33 million.

As for someone actually getting directly hit by a meteorite, there's only one recorded example. It happened in 1954. A woman named Ann Hodges was napping at her home in Alabama when a cricket-ball-sized rock fell through the roof and ricocheted onto her side. Luckily, she survived with just a nasty bruise.

The meteorite that hit Hodges ended up being donated to the Smithsonian. It's what Bland calls a 'fall' – a space rock collected by someone who knows exactly when it landed. They're fairly rare in the scheme of things. Of the 50,000 meteorites that have ever been collected, there are only around a thousand 'falls'.

Another – much more common – type are called 'finds'. These are space rocks someone stumbled upon months, years, or perhaps millennia after they plummeted to earth.

The rarest meteorites, however, are ones that have had their fiery descents photographed (like Bland's). These are valuable for two reasons. Through triangulation, scientists can often work out where these meteorites landed, and – more importantly – which part of the solar system they came from. That's a big deal when you consider that space agencies spend billions of dollars on collecting reliable geological samples. If experts had a way to consistently decipher the origins of each meteorite that fell to earth, it would be a game-changer. A space rock found in the desert could suddenly offer as much information as one collected by a distant probe.

The Desert Fireball Network isn't actually the first system to offer this potential. Four similar tracking networks were set up in the 1960s and '70s in North America and Central Europe. The thing is, though, they weren't particularly effective. They recorded thousands of fireballs, but were useless when it came to directing scientists to impact zones. "They recovered, like, one meteorite in 10 years," says Bland. Constructed near forests or grassy prairies, "they were built in pretty much the worst possible places for finding a little black rock on the ground".

That's what makes the Desert Fireball Network different. It's spread over a landscape that is almost empty – a place where meteorites can't hide.

Bland gives off a sense of pride when he explains that the system is the first of its kind in the Southern Hemisphere. Like anyone with the belief that they are onto a good idea, he oozes enthusiasm for his work – better than being an astronaut, is how he describes it.

Of course, it isn't all fun. After finding that first meteorite at Lake Eyre, Bland is now preparing for the next hunt. That means more hot days, more quad bikes, and more searching. The Fireball Network will give him and his team a hand on their journey, but it won't guarantee an easy ride. No matter how well you stack the odds in your favour, Bland says, "you always roll the dice". •