



The
Flickering
Fires

Grahame Baker-Smith

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Fires



Dedicated to Flossie for the fire in her heart, and the love and light she brings.

This is the fourth and final book of the *Elements* quartet. It started with *The Rhythm of the Rain* in 2018 then on through *Wild is the Wind* and *The Ever-Changing Earth* to this one you have in your hand. The first book was going to be a one-off. The fact that it isn't is down to my youngest daughter, Lillie, who suggested I could make a series about the classical four elements. I'd think it'd be to explain all matter. Lillie believes that having given me this idea, she accomplished most of what needed to be done. It's not just the simple task of making the books! In a way she has a point. The love and support of my funny, crazy and creative family makes life and work a joy. My first and heartfelt thanks are to Linda, Abbie, Flossie and Lillie.

There are others who have been at the centre of this series because books don't make themselves. It takes a team and I have been so lucky to have a team that is off the scale in talent and dedication to their craft. So, thank you Genevieve Webster, Allison Ritchie and Sophie Hallam, you're all brilliant! We all wanted to make these books the best they could be for you, the reader. Whatever you find in them, my hope is they might leave you with a sense that your life is a part of an ancient story of all life on this Earth. You have come out of the natural processes that have been at work for over four-and-a-half billion years. There is nothing here to which you are not connected. You belong to the Earth and its essence is in your every atom. And in spite of all the many challenges our planet faces we must remember, as Louis Armstrong would say, "it's a wonderful world."

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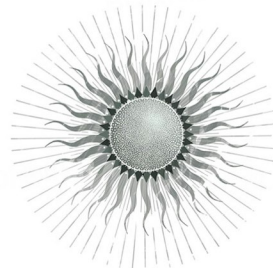
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Winter lives on Solveig's island.
It is a place of frozen waterfalls and bitter wild wind.
Blocks of ice glitter like diamonds
on its black-sand beaches.
Around its white mountains old stories echo.
Stories of trolls and frost giants.

And yet, Solveig's island was made ...



... by *fire!*



How did humans tame such a wild element?
Our ancestors would have seen and felt the heat
of rampant wildfires kindled by lightning.
And, through curiosity, discovered that animals and plants
caught in the flames tasted better for being baked.



In time we learned to summon it with flint and tinder.
To humble it in hearths.
We shared stories by its flickering flames.

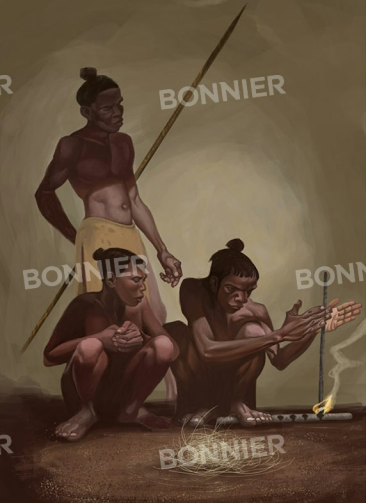


Fire brought light to once-dark caves. We put it to work.
It cooked our food, protected us, warmed our conversations.

Out of all the fireless creatures of the world,
one had lit a torch and sparked its imagination.



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Early humans realised
they lived in a world abundant
with the elements needed to make
and control fire ...



... and locked in the rocks was a treasure trove
of materials that only heat could release.
The very stones of the Earth would lead
humankind *out* of the Stone Age.



Through fire we coaxed copper from
its bright green ore. Out of those flames
a new age was forged; the Age of Metals.
Tin mixed with copper created bronze.
But to extract iron from rock, humans
would need something that burned
far hotter than wood ...



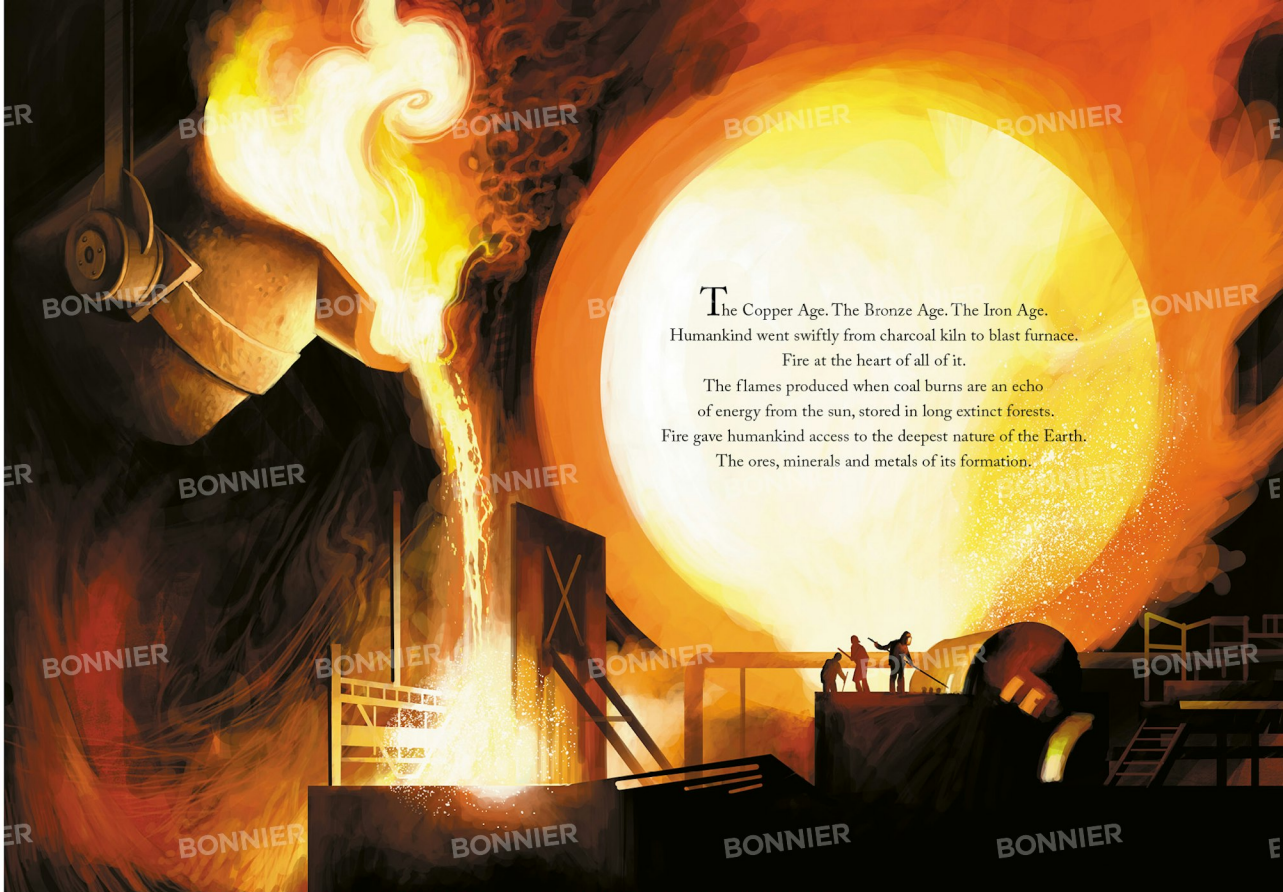


Incredibly the planet had already prepared.
During the Carboniferous Period, 350 million years ago,
vast tropical forests were buzzing with giant insects.

The air was thick and heavy with oxygen.
Wildfires were frequent and fierce.
Now those forests and the life they harboured are long gone.
Buried deep in the earth, changed by time,
heat and pressure ...



... into coal.



The Copper Age. The Bronze Age. The Iron Age.
Humankind went swiftly from charcoal kiln to blast furnace.

Fire at the heart of all of it.

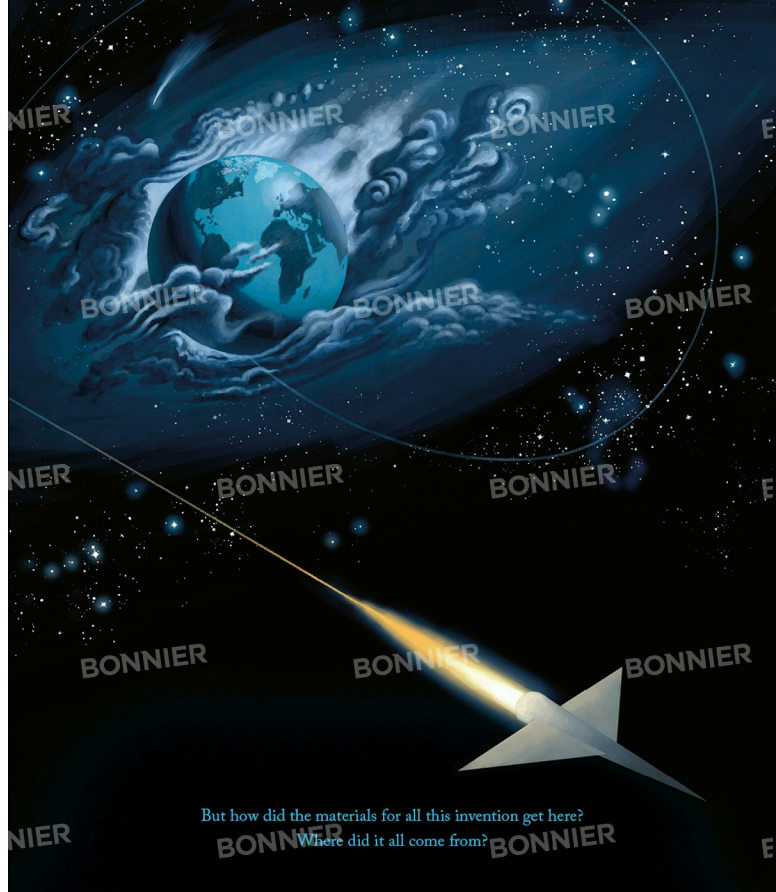
The flames produced when coal burns are an echo
of energy from the sun, stored in long extinct forests.
Fire gave humankind access to the deepest nature of the Earth.
The ores, minerals and metals of its formation.



Pottery and gunpowder. Metal tools and weapons.
Glass and medicine. The light bulb. The printing press.
The steam engine. The automobile. Television.
Mobile phones, computers, the internet,
the microscope, the telescope, cities . . .



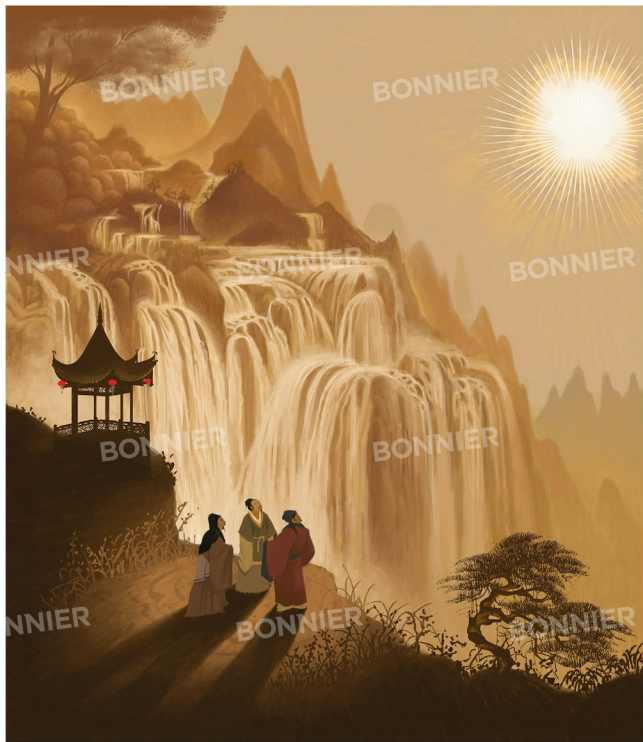
... rockets to the stars.
Fire at the heart of all of it.



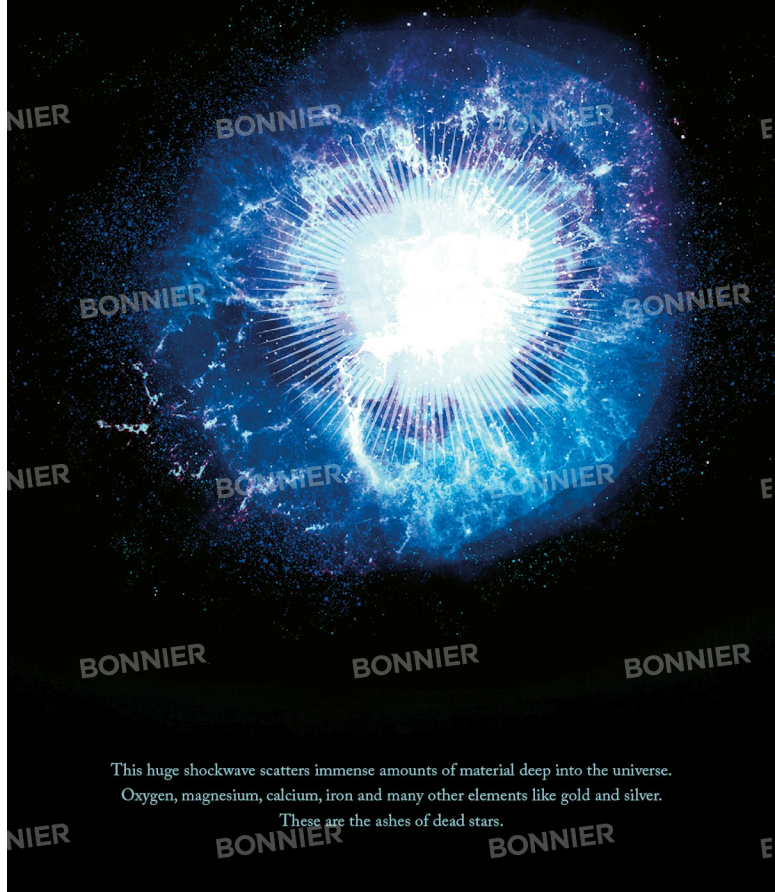
But how did the materials for all this invention get here?
Where did it all come from?

Deep in interstellar space
a massive star burns for millions of years.

Its hydrogen is gone.
It begins fusing with the elements
in an attempt to keep shining.
Oxygen, magnesium, calcium . . . until it gets to iron.
It cannot create energy from iron.
Its life as a star is over.
Its collapse, spectacular.



A supernova explosion seen light years away.



This huge shockwave scatters immense amounts of material deep into the universe.

Oxygen, magnesium, calcium, iron and many other elements like gold and silver.

These are the ashes of dead stars.



When mixed with clouds of interstellar gas and dust they form the building blocks of new stars, like our Sun, and planets, like Earth.

A world with a fiery heart.
We were made in a vast cosmic forge of rock and heat.
Alive with star dust.



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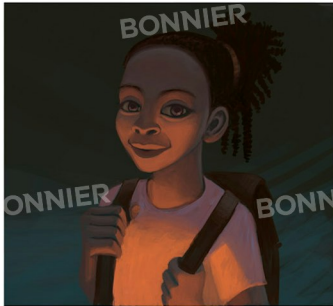
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The oxygen you breathe is the dying breath of a star.
The calcium in your bones, the iron in your blood,
even the magnesium in your DNA. The metals and minerals in the rocks.
All made in the heart of a star.

The night skies of the desert are awash with stars.
Solveig, Kun, Cassi and Issac have arrived at summer camp.



There is a fire and the welcome smell of cooking.
They gather around its warm, flickering flames.



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They talk.
Telling each other stories.
Making connections.

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Creatures of fire and earth, air and water.
And long before meeting, already connected
in ways that are as deep and old as the stars.



The *Elements* series:

