

A new documentary on carbon has all the right elements

By **GRAEME BLUNDELL**, TV WRITER
12:00AM JULY 8, 2022 •  NO COMMENTS

To judge from the many documentaries, a form of filmmaking once so commercially unviable, that are now crowding our TV screens, it's obvious those who make them have happily left behind the conceptual and aesthetic dogmas of the past that so hindered the form's development. They only want to make films that, while educational and informative, also express strong personal opinions and points of view, and are unapologetically entertaining.

This is certainly true of Sonya Pemberton, one of Australia's best documentary filmmakers, an Emmy Award recipient and record-breaking five-time winner of the prestigious Eureka Prize for Science Journalism. Based in Melbourne, Pemberton has written, directed, and produced more than 70 hours of broadcast documentary, her films winning in excess of 80 international awards. A former head of specialist factual at the ABC, she created Genepool Productions to explore complex and polarised scientific ideas.

Pemberton's many films parse and explore dense scientific concepts and develop pleasurable ways to make them reachable to an audience. She says she has now distilled her approach to a few key ideas: "Find imaginative and unexpected ways to incite curiosity, avoid signalling which 'side' you are on, tell your story with passion but avoid the triggers that spark conflict and shut down useful conversation."

So many still distrust the notion of explaining the universe through testing and factual observation. As we've seen through the pandemic, at times it's been difficult to recognise the difference between the claims of science and those of pseudoscience.

However, Pemberton's work is characterised not only by an imaginative rebutting of bad science but by a defence of science as a more valid approach to explaining the world.

Her films include the critically acclaimed and multi-award-winning documentaries *Immortal*, *Catching Cancer*, *Jabbed: Love, Fear and Vaccines*, *Uranium: Twisting the Dragon's Tail*, *Vitmania*, and, most recently, *Cracking Covid*. And she won her Emmy in 2012 for *Decoding Immortality*, which explained the work of Nobel prize-winning Australian scientist Elizabeth Blackburn on the so-called immortalising enzyme, which promises clues to the mysteries of ageing. Complex stuff, indeed.

Her films are necessarily expository, unpacking a complex thesis or argument, but they are also poetic in the sense that Pemberton and her colleagues are driven to emphasise cinematic values over content to create visual poetry through the design of shots, music, composition and rhythm.

It's an approach Pemberton calls telling "a science story with a twist". In *Uranium* she went after the classical "edge of the seat" feeling of a supernatural thriller, *Catching Cancer* had a touch of forensic dramas *CSI* or *Silent Witness*, and in *Vitmania* she used a kind of strolling musical player, Casey Bennetto, who appears throughout the film, a droll troubadour providing songs that illustrate aspects of the doco's investigations.

Her latest film is the beautiful-looking **Carbon: The Unauthorised Biography**, co-produced between Melbourne-based Genepool and Sundance award-winning Canadian filmmakers Handful of Films, executive produced by Pemberton and written and directed by Daniella Ortega (Sydney) and Niobe Thompson (Vancouver). And created by crews from both Australia and Canada.

More than five years in the making, it's the surprisingly intimate story of the element that in combining with other elements made the Earth and everything in it. The carbon-based molecules are created by the combinations – "She's a pretty promiscuous element, she likes to hook up," says one of the scientists interviewed in the film – that are the basic building blocks of humans, animals, plants, trees and soils.

As the film illustrates, with delightful painterly graphics, carbon is part of the air and the ground, buried sunlight, the plants and the animals. It's everywhere; every cell is loaded with it. And Pemberton's cameras transport us from the Pilbara region of Australia to the Arctic, Canada, and Mongolia, tracing the countless ways we transform and adapt carbon atoms for fuel, food, a million useful polymers, the machines of industry – and the engines of war.

As historian David Christian says in the film in the past two or three centuries we have developed a relationship with carbon that has benefited us in so many ways. "It's made humans feel like gods," he says. "But we are now learning we're in less control than we thought and that the power

itself is dangerous. The way we are now using carbon has created so many problems. Carbon now is becoming a destroyer.”

The film was released at the start of this year in cinemas across Australia and has won prizes in Europe, including the Grand Prix at the Deauville Green Awards and Best Documentary at CinemAmbiente in Italy.

And the trick here in this new film is to give voice to carbon. She speaks, voiced by the now very famous actor Sarah Snook from *Succession* in a very droll, often flirtatious and mischievous narration.

“This was the creative edge that allowed us to tell a very different, surprising, climate story. By taking this approach we aim to reduce the fear, anxiety and guilt that’s often triggered by climate change advocacy films and campaigns,” says Pemberton.

“The audience – regardless of their positions on climate change – can travel an extraordinary imaginary journey yet come to better understand our very real role in harnessing carbon.” As Pemberton points out in her production notes, the idea is to avoid the political and ideological climate change trigger points. “For that reason, there are no images of polar bears on melting sea ice” and “no dystopian vision of doom and gloom, nor a utopian dream of a world made right”.

The film was also written by Ortega, a filmmaker focused on high-end documentaries about science, history and natural history. Her work navigates subjects as diverse as archaeological discovery, colonial violence and the mysteries of the teenage brain.

“My approach is to build an intimate, emotional and personal documentary biography of this wondrous element carbon as if she were human,” she says. “By blurring the line between living and non-living, the invisible and the visible, for the first time, we give Carbon a voice: she needs to be heard.”

The genesis of this approach was a short story imagining the life of a single carbon atom by chemist Primo Levi in his book *The Periodic Table*. “When I read this story, it brought carbon to life so vividly that it took my breath away. My approach was to go further, to make carbon a ‘character’ and visualise her multiple personalities and adventures.”

Early on, Snook introduces the softly spoken Carbon with a kind of epigraph to the film: “I am the most talked about but the least understood element on Earth; if you are to survive me, you must understand me.”

Then the lively Australian astrophysicist Tamara Davis sets the context for the film's "unauthorised" portrait of the element that was forged in the cores of the stars – as the film goes on to so beautifully illustrate with lovely imagery from the animation team Global Mechanic.

"Carbon's one of those people that when you were at high school she was just annoyingly good at everything; she could play sport, she was in with the nerds because she was really smart, she was part of the orchestra, and was just a nice person to boot, able to do everything," she says, slyly enjoying the moment. "But watch out if you get on her bad side – she's friends with everybody but if you get on that bad side she can make things really difficult for you."

Davis then takes us into space at Coonabarabran's Siding Spring Observatory to help us understand how Carbon came to be.

Carbon, who obviously also enjoys her role telling us her story, pops up constantly, telling of her birth in the violent core of an exploding star, created in a twist of cosmic fate, and of turbulent sagas through the fabric of our evolving Earth. And its role in the miracle of photosynthesis, the process by which green plants and certain other organisms transform light energy into chemical energy. She tells us trees are these moving factories of carbon, the element constantly moving.

As ebullient American astrophysicist, cosmologist and author Neil deGrasse Tyson says, while colourful images of carbon revolve and whiz around him: "Wow, you have to love photosynthesis. Here we have this mind-blowing chemical sequence and carbon is there the whole way; we are taking sunshine and putting it through this mini chemical factory and outputting energy."

It's a fine piece of filmmaking with its enthusiastic talking heads, distinguished scientists all, who obviously enjoy the conceit of an element with a lovely human voice. The documentary also has a terrific score from distinguished Canadian composer Jonathan Kawchuk and a witty parade of sparking animation delivered with a coherent, clever focus on some science made clear and understandable.

Carbon: The Unauthorised Biography, Tuesday, ABC, 8.30pm.

GRAEME BLUNDELL, TV WRITER

Actor, director, producer and writer, Graeme Blundell has been associated with many pivotal moments in Australian theatre, film and television. He has directed over 100 plays, acted in about the same number, an... [Read more](#)



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