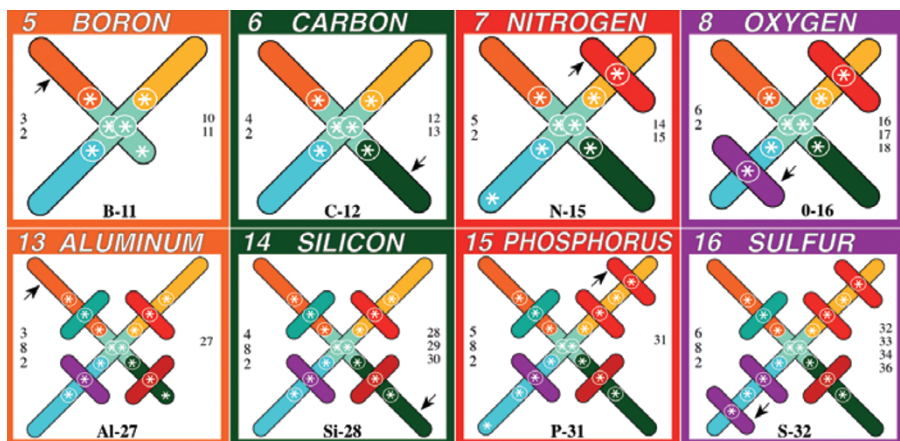


J. CARTER



An interlocking 'circlon' model of elements is one idea developed by fringe theorist Jim Carter.

## Q&A Margaret Wertheim

# The outsider insider

Science writer Margaret Wertheim's latest book focuses on 'outsider physicists' — fringe theorists who probe the cosmos in their own way. On its publication, to be accompanied by a December exhibition at the newly opened Institute For Figuring gallery in Los Angeles, Wertheim explains her fascination with those who explore beyond the textbooks.

C. ALLAN



### How did you get interested in fringe theories?

When I was a physics student, a professor told me that he had been getting strange scientific manifestos in the mail. I was a bit affronted that someone with little or no training in science would have the nerve to come up with a theory of everything. Years later, I wrote a column about a fringe physicist, and since then outsiders have sought me out. Almost all of them are interested in the fundamental nature of reality, and they are often outraged that physics is couched in abstract mathematical terms. They feel that physics has been hijacked, and that nature must speak a language that ordinary people can grasp. I've come to see them as the scientific equivalent of outsider artists. I want to understand what this phenomenon means in the context of our society.

### What do your book and exhibition cover?

*Physics on the Fringe* looks at outsider physics by exploring the story of Jim Carter, the Leonardo da Vinci of fringe theorists. It then asks wider questions about the role of theoretical physics in the imaginative landscape of our culture. The first show at the new Los Angeles gallery of the Institute For Figuring — which I founded with my twin sister Christine to showcase the aesthetic and poetic dimensions of science and mathematics — will present the

### Physics on the Fringe: Smoke Rings, Circlons, and Alternative Theories of Everything

MARGARET WERTHEIM  
Walker: 2011. 336 pp. \$27

### Physics on the Fringe Exhibition

Institute for Figuring, Los Angeles, California.  
17 December 2011 until 30 March 2012.

work of Carter and other outsiders through diagrams, models and animations.

### Who are these physics outsiders?

Quite a few are engineers, but they come from all walks of life. One is a retired California supreme court judge, another is a backyard car salesman. They have their own association, the Natural Philosophy Alliance, with a database listing annual meetings, published proceedings and articles by more than 2,000 theorists. One outsider I've met is a famous Hollywood film editor. He is obsessed with an eighteenth-century equation called Bode's law, which supposedly describes planetary orbits. There's a well-known Russian engineer who claimed to have invented a gravity-reducing device. And one Dutch theorist has proposed that the Universe is "a bouncing machine" shaped like a giant "twelve-lobed raspberry" that spews particles from a "Giant Virgin Black Hole".

### What drew you to Jim Carter, the star of *Physics on the Fringe*?

One of his books landed in my hands in 1993. He had a sense of humour and I was

captivated by his intricate diagrams showing the ring-shaped particles, or 'circlons', that he believes compose all matter. His DIY approach to particle physics is part of a wider philosophy. He fixes his own cars and has built his own house, complete with a secret cave. He owns a company that makes devices for lifting sunken boats, and has gone hunting for a giant meteorite. It is not surprising that he has his own theories of the Universe too. His total physical and intellectual vision of science is antiquated but beautiful. It makes me wistful for the gentleman scientists of the nineteenth century.

### Why listen to outsider physicists?

They may not be Albert Einstein or Paul Dirac. Their ideas aren't going to be taught at universities such as Princeton and Harvard. But their theories are a store of imaginative thinking about how our Universe might be constructed. This is an important cultural phenomenon — like studying the diaries of foot soldiers alongside those of generals. Some of the works, especially Carter's, are also aesthetic achievements. Most of all, they give us a window on to the role of science in our lives. These people want to be at home in the Universe. They believe that science can provide us with an understanding of the cosmos, but feel alienated by mainstream theories.

### Why do they feel alienated?

The forefront of physics is inaccessible to most people. We have done the obvious stuff, and now we are in strange territory. What is physics for? In one sense, it is for making stuff work, like lasers and microchips. But this is not the whole answer. Johannes Kepler, Isaac Newton and Einstein wanted to comprehend the Universe and our place in it. Today's cosmological explanations have become incomprehensible to many people. This is one reason why religious fundamentalism has become reactive to science. If mainstream science ceases to provide us with an accessible picture of our world, it is not surprising that some folks begin to look elsewhere.

### Can outsiders help to advance science?

There isn't a bright burning mark in the sand between truth and fiction. Things that seem fantastical in one era can become mundane in another. Concepts that were assumed to be true in the past, such as the 'element' phlogiston, now seem ridiculous. The idea that science proceeds purely by empirical scrutiny is a myth. Quantum mechanics makes predictions about matter and light that have been verified to many decimal places. Special relativity is used to correct for infinitesimal deviations in the position of Global Positioning System satellites. But how will our concepts fare in 500 years? We don't know. ■

INTERVIEW BY JASCHA HOFFMAN