Not for this world

The heartbreaking and strangely beautiful story of a troubled genius

COURTESY OF MARK EVERETT

The Many Worlds of Hugh Everett III: Multiple universes, mutual assured destruction, and the meltdown of a nuclear family by Peter Byrne, Oxford University Press, £25/$45

Reviewed by Michael Brooks

IN 1982, the physicist Hugh Everett III died, broken by depression and addiction. He left his papers in boxes, stacked in the basement of his family home in Virginia. Peter Byrne took on the task of opening the boxes and piecing together the story they contained. This labour of love has resulted in a book that is by turns fascinating, perplexing and harrowing.

Everett's idea is now known as the "many worlds" interpretation of quantum mechanics. According to Everett, a new universe is created every time we measure the position of an atom, the spin of an electron, or the energy of a light photon. Though it sounds as outlandish today as it did on first publication, for many physicists this is now the interpretation of choice when confronted with the mysteries of the quantum world.

Byrne does an excellent job of explaining the theory, why it is necessary and the difficulties it solves (and doesn't). But that is only half the story. The other half deals with the strange and troubled man behind the idea.

Everett's story is one of thwarted ambition, blind – and misplaced – faith in the integrity of science, despair, genius, subterfuge, adultery and drunkenness. This is physics as morality tale, beautifully told in a clear, unfussy and deeply authoritative voice.

Byrne does not patronise his readers with superficial pen portraits of his characters. There are no deep brown eyes or square chins. We get to know the characters by what they say and what they do. And they say and do some truly remarkable things.

Those, like me, who have idolised the Princeton University physicist John Wheeler, for example, will have their illusions shattered. Wheeler was Everett's doctoral thesis adviser but was torn by his almost canine loyalty to the Danish father of quantum theory, Niels Bohr. Everett's thesis was critical of Bohr, and Wheeler eventually hung his student out to dry. "As the many worlds interpretation gradually gained credence and popularity over the next few decades, Wheeler ceased advocating for, and eventually disparaged it," Byrne tells us.

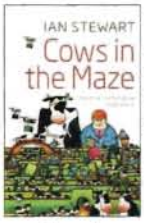
Once his thesis was published, Everett slowly began to fall apart. By the time he died, aged 51, of a heart attack, he was a chain-smoking alcoholic. His son Mark found him and later reflected that his futile attempts at CPR were the only physical contact he'd ever had with his father.

Byrne tells us that "the unvarnished story of what happened to his family... is an American tragedy – and, yet, it is also a lesson in the quality of forgiveness". This is a strangely beautiful story, expertly told with the dignity, candour and attention to detail it deserves.

Mind-twister

Cows in the Maze by Ian Stewart, Oxford University Press, £8.99

Reviewed by Celeste Biever



UNDER what circumstances does a suspect's confession increase the chance that they are innocent? What is the smallest fence you can build around a square patch of land to stop someone seeing across it? Is it possible to build a maze composed of rules and instructions rather than yew bushes? These are just some of the "mathematical explorations" – some serious, others delightfully trivial – tackled by *Cows in the Maze*, a collection of 21 stand-alone chapters that originally appeared as columns in *Scientific American*.

Be warned: this is not a book you can casually flick through. To get to grips with the underlying mathematics – usually explained in detail with illustrations – requires serious mental effort, not to mention a pen and paper or counters. But if you like a challenge, or happen to have a lightning-fast brain, you will be rewarded.

Ready, steady...

30-Second Theories edited by Paul Parsons, Icon Books, £12.99

Reviewed by Amanda Gefter

THIS beautifully illustrated book claims to contain "the 50 most thought-provoking theories in science, each explained in half a minute". "Explained" might be a stretch. After all, there's only so much one can garner about quantum theory or sociobiology from a few brief paragraphs.

Still, there's much food for thought on topics from natural selection to information theory. Expert contributors present difficult concepts as simply and succinctly as possible, and each entry comes with a "3-minute thought" for readers willing to invest an additional 180 seconds. (As the bit on relativity explains, those 180 seconds will take you much further if you happen to be travelling at close to the speed of light.)

30-Second Theories is the kind of book that can spark curiosity and inspire you to seek more information, and would make a lovely gift for the inquisitive non-scientist in your life.