

Why two geniuses delved into the occult

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In his latest book, *Deciphering the Cosmic Number*, historian of science [Arthur I Miller](#) investigates the bizarre friendship between quantum physics pioneer Wolfgang Pauli and famed psychoanalyst Carl Jung. [Read our review of Miller's book](#)

Together, the two great thinkers delved into mysticism, numerology and alchemy in their quest to understand the universe and themselves. Miller tells *New Scientist* about his experience writing the book.

What drew you to write about the relationship between Jung and Pauli?

As a physicist I was, of course, aware of Pauli's scientific achievements; meanwhile, my interest in creative thinking had led me to Jung. Almost by accident, in the 1980s, I spotted on a library shelf a book they co-authored, *The Interpretation of Nature and the Psyche*. This really intrigued me. What did the apparently austere Pauli have to do with Jung, who routinely delved into the occult and whose reputation sometimes suffered for it?

Their book is actually made up of two essays. Jung's is on synchronicity – nothing unexpected there. But Pauli's was a real eye opener. He wrote on Johannes Kepler and explored how his scientific achievements had to be understood within the times in which he lived. This involved looking into alchemy, mysticism and religion. Amazingly, he included his own research in this area. This dazzled me. I had never imagined him to be an expert on such esoteric material and so passionate about it. I had to know more about both of them. What was their connection? Who was the real Wolfgang Pauli?

What was the most interesting thing you discovered?

I was amazed that each considered the other's work to be of equal importance – for Jung, quantum physics and for Pauli, Jung's analytic psychology with its emphasis on alchemical symbols, numbers and myths, as well as Eastern religion and philosophy.

The two sat for hours on end in Jung's gothic-like mansion on the shores of Lake Zurich, dining on fine foods, drinking vintage wine and smoking the finest cigars while discussing topics from physics and whether there is a cosmic number at the root of the universe to psychology, ESP, UFOs, Armageddon, Jesus, Yahweh and Pauli's dreams.

Theirs was a journey into the mind. As Jung put it, with Pauli he could enter "the no-mans-land between Physics and the Psychology of the unconscious... the most fascinating yet the darkest hunting ground of our times."

Why were two such great scientists drawn to these occult ideas?

Even as a boy, Jung found himself drawn to the occult. This would become the root of his break with Freud. Unlike Freud, Jung was interested in aspects of the unconscious that could not be attributed to an individual's personal development but derived from the deeper non-personal realms common to humankind – the collective unconscious, whose contents he called "archetypes". Jung came to realise that understanding the collective unconscious involved using images and symbols from alchemy and myth.

As a graduate student, Pauli became interested in the seventeenth century scientist and mystic Johannes Kepler. Reading Kepler convinced him that finding universal laws of nature required going beyond science as it is ordinarily defined.

Pauli turned to Jung for help in response to a life-threatening crisis in 1932.

Psychoanalysis with Jung led him to believe that alchemy and mysticism were the means to open up his mind, to increase his creativity and understand what drove him. Jung showed Pauli that the symbols from alchemy were the key to why he had experienced so much angst in discovering the exclusion principle in 1924 and why this angst had to do with his neurosis.

Throughout the rest of his life Pauli saw his research through the lens of Jung's analytic psychology. This was the case in his work towards CPT symmetry, on parity violation and his final crusade with Heisenberg towards a unified field theory of elementary particles.

Was there any merit in these ideas?

I believe so, yes. Through such ideas they developed an avenue to begin to understand that elusive thing called consciousness. Each believed that their own subjects, in isolation, lacked the tools and ideas to do this.

To Pauli, quantum physics was restricted to examining the attributes of atoms as explainable by mathematics. In this, atoms are treated as dead matter. But how do the atoms and molecules that make us up combine to give us the ability to contemplate love, hate, death and the universe?

To Jung, on the other hand, psychology lacked the concepts to deal with phenomena such as synchronism – that is, meaningful coincidences.

Although the two men never came up with answers, the questions they raised, the level of their discussions, and their quest to fold physics and psychology together, merit further consideration. That was one of the reasons I wrote this book.

What did they each gain from their relationship?

They gained confidence that their struggle towards an interdisciplinary exploration of the mind was worthwhile. Pauli became more than au courant with Jung's psychology, myths, Eastern religions and philosophy. Under Pauli's tutelage Jung became somewhat conversant with basic ideas of quantum physics.

Both were entranced by Niels Bohr's notion of complementarity, which asserts a reconciliation of opposites, such as wave and particle, in a framework not unlike

that of yin and yang. Jung learned that a basic principle of alchemy – reconciliation of opposites into a unity – pervades quantum physics, too.

And they each gained a friend and a profitable insight into a very different way of thinking about the universe.