Crazy ideas?

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Nine Crazy Ideas in Science: A Few Might Even be True

by Robert Ehrlich

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Most new ideas in science that are at odds with the paradigms of the time are considered to be crazy. Take, for example, Nikolaj Kopernik's (1473–1543) idea that the Earth orbits the Sun and not vice versa. This was thought to be ludicrous by contemporary astronomers and clearly opposed the intuition and common sense of the majority of society. There have been many other famous 'crazy' ideas that have eventually changed our view of the world, despite the fact that they were initially perceived as incompatible with the common beliefs predominating at that given period. Darwin's theory of evolution and Snider and Wegener's theory of continental drift provide illustrious examples. Of course, only very rarely do crazy ideas have the potential to be declared ingenious and, in most cases, they are

simply wrong. Therefore, while we should always have an open mind when encountering new, seemingly bizarre concepts, we also need to be able to separate the wheat from the chaff. In *Nine Crazy Ideas in Science: A Few Might Even be True*, Robert Ehrlich, a Professor of Physics at George Mason University, gives us a superb lesson in achieving such objectivity.

He first provides 10 independent criteria for the evaluation of controversial ideas in science and then uses these to analyse nine examples of seemingly wild hypotheses in the social sciences, biology, astronomy, geology and physics. To whet the appetite of potential readers and to illustrate the 'craziness' of the ideas, I list them in the order and form given by Ehrlich: more guns means less crime; AIDS is not caused by HIV; sun exposure is beneficial; low doses of nuclear radiation are beneficial; the solar system has two suns; oil, coal and gas have abiogenic origins; time travel is possible; faster-than-light particles exist and, finally, there was no big bang.

Individual chapters of approximately 20 pages are devoted to the discussion of each of these theories. They include not only dry scientific illustrations but also some entertaining cartoons to portray the subject. Ehrlich plays the roles of both accuser and advocate in an honest—*ehrlich* in German—way when he analyses the key papers from proponents and opponents of the topic under investigation. Each chapter has a long list of references so the reader can verify the data presented for him- or herself and even investigate further if taken by a particular idea. Finally, the author lets the gavel fall and, based on the evidence, makes a judgement about the 'craziness' of each idea.

Readers of *EMBO reports* may be especially interested in the ideas selected in the field of biology. They will no doubt be

impressed by the expertise displayed by Ehrlich who writes as if he were a specialist in the field with a perfect overview of the problem. The chapter 'AIDS is not caused by HIV' reads as if it were written by an epidemiologist with a solid background in molecular biology and immunology. In fact, I have previously read several articles refuting Peter Duesberg's claim that HIV is a harmless virus that plays no role in AIDS, but all those articles simply stated that his arguments were wrong and dangerous to public health. I was always missing a thorough discussion of Duesberg's thoughts and the arguments used against them. Ehrlich provides such a confrontation. He takes all the main claims of Duesberg—collected from Duesberg's numerous books and articles—and opposes them with perfect contra-arguments based on epidemiological studies or clinical and experimental data. This confrontation leads to the inevitable conclusion that Duesberg's arguments and claims are simply void. Most biologists may be comforted by the fact that Ehrlich dismisses an idea that they also consider useless. However, this is not very interesting. Are there any ideas in biology that most contemporary biologists would regard as crazy but about which they may change their opinion after reading Ehrlich's book? I think so, since Ehrlich believes and even convinced me that sun exposure can be beneficial to our health despite the increased risk of skin cancer. How could that be possible? Well, you need to read the book.

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