

T MINUS ONE

You could not see a cloud, because

No cloud was in the sky:

No birds were flying overhead -

There were no birds to fly.

Lewis Carroll (1871)

What is before?

Frank Herbert (1969)

Poesis must be dealt with cautiously, with a full awareness of the dangers of its powers.

Ian Johnston (1997)

If one takes the positivist position, as I do, one cannot say what time actually is.

Stephen Hawking (2001)

And so the question is: Is it crazy? And, well, the answer is yes, but it does have relation to a lot of topics.

Roger Penrose (2008)

Teaching people a new way of talking about time gives them a new way of thinking about it.

Lera Boroditsky (2011)

I feel brittle, like I wouldn't want to make a sudden move in case I break. A restless night. A muggy day. Go through the motions. Elevator. Ten steps down the hall. The key, the door, the lights, the empty office. Brew the coffee. Perch on chair and boot computer. Click the icon. Check the topics. What's the order of the day?

Today it's: What is before the Beginning? Is this a real question? Oddly, I find lots of speculation. Is there anything to add? It seems a perfect question to preoccupy the mind and numb the brain.

For some reason Penrose gloms onto this issue. When I check it out and from Google's in my face: Access to at least 10,000 Android apps! I don't feel old, not often. But Web commercials get me. Apps? I cut my teeth with Kleinrock just across the way. I stalked the halls of ARPANET before there was a Web. If I want a program I can write it for myself.

I get to Penrose on the P.I. site. The universe beginning screens whatever might be thought to come before. Penrose is a Big Bounce fan. He tries to peek

behind the screen. I watch his P.I. lecture once again. He says maybe there *was* something before all this began. He says, 'Our universe is what I call an aeon in an endless sequence of aeons.' He admits that this is zany but he's disappointed that the evidence he hoped for wasn't found. Few physicists expect to ever see it.

In fact the idea that there *could* be evidence is widely seen as wrong. If it's hard to see what happened as we try to peer back—through the Big Flash and the Big Bang to the Fizzion—think how hard it is to peer back even further, back of beyond—back, says Penrose, to a Big Crunch in the final instant of the universe that ended just before this one began. As Penrose says, this has relation to a lot of topics. One thing he is saying, if I understand it right, is: If the last one ends with a Big Crunch then this one's heading for another. Maybe so. He seems to say it all depends on details of the bounce between the old one and the new. That is to say, on his beginning. So if it's possible in principle to find a trace from such a predecessor universe, it might explain how ours will end; but is it? My detective, I expect, would say no way Jose.

By contrast Penrose might approve of the Beginning; he should love its zero entropy. So would he see his endless sequence as its true beginning? Could he make his Big Crunch fabricate the Manifold? Can he get the Flecks to tunnel back together? Where could he stow his falling universe's entropy? It seems to me he'll have to choose between the Manifold with zero entropy—of which I think he is co-author—and a bouncing universe that leaves no trace and answers nothing.

If he were here he would, like Helen Deutsch, cut to the chase.

"What's the difference?" is what he'd say.

And maybe leave me floundering. He makes me *think*. Without him it is easy just to listen to the P.I. lecture and say: Maybe. So I don't. I try to think it through again. I get to the same answer: Bouncing universes make no difference. And so it seems to me that Move 1 marks the boundary of science. Anything before that is about believing.