

TIME OUT

There was no “then” when there was no time.

Aurelius Augustinus (397 CE)

When I was one,
I had just begun.

A.A. Milne (1927)

If this suggestion is correct, the beginning of the world happened a little before the beginning of space and time.

Georges Lemaitre (1931)

“See the value of imagination,” said Holmes. “It is the one quality that Gregory lacks. We imagined what might have happened, acted upon the supposition, and find ourselves justified. Let us proceed.”

Arthur Conan Doyle (1892)

When we have it, the quantum theory of gravity will provide new answers to the questions of what space and time are.

Lee Smolin (2001)

At small scales there should be quanta of space and time.

Carlo Rovelli (2004)

I want to see how the Beginning can make time and space. But I don't want him to burn out. So I'm sitting trying not to think what he's about. Besides, my head is full of questions that need answers. Starting with: How *can* time start? How can I even think about it without thinking about things that have to happen before time exists? Does time run both back and forward from the Beginning? Or was everything before it somehow out of time? There's no use in trying not to think about these questions. They buzz at me like wasps bent on a scent.

The thing that I can't get past is that, to get to anything *before*, Frank would have to back up through Time Zero. But what *is* that? I can't seem to get a grip on it. So I surf for: Where did *zero* come from? I find Kaplan, its historian. He says it came from Sumer, which is now Iraq. The 0 symbol likely came from Babylon through Greece. Today to some it's just a number. To Seife, its biographer, it is a dangerous idea. To a reviewer of his book it's a daunting intellectual riddle. But it's Kaplan who says, 'Our own era's physical theories about the big bang cannot quite reach back to an ultimate beginning from nothing.'

So what will my detective make of zero time? Before 400 CE, Berber thinker Augustine of Hippo sets out an analysis of time. He says before creation time did

not exist. In the wake of Hippo maybe I should trim my questions: *Was* there a Time Zero? A time *before* all time began? But then, is this a question that has meaning? I could wait and ask him but that's not the way it usually goes. He asks me his questions and he doesn't seem to answer mine.

The fact is too that I keep thinking of the book. It's obvious that I'm the writer. It dawns on me I'm coming to a fork: Write it for her or write it for me. Then I realize that I may be past the fork. I can't think just of the Beginning. There are practical decisions: How to do it? What to call it? Then I recognize the pattern. It's classical avoidance. The question I'm avoiding is: What should I do about her?

I go on avoiding it and think again about the book. Its subject's somehow tied up with the zero question. I've been thinking the Beginning is Time Zero. But now that I'm up close and personal this may not be right. It follows from what Augustine is saying. The Beginning doesn't happen at a time. It never is *in* time. I think he's onto this and maybe has been all along. Just as there was no *there* there, there was no *then* then. And just as the Beginning must divide for what we know as space to come into existence, it must do it so that there is time.

So maybe time starts after space. No, that won't work. If things are happening *to* space they must be happening *in* time. Can I identify Time Zero as the instant when space comes into existence? When it crystallizes, so to speak? Of course that will depend on whether such an instant can be shown to *be* an instant. Did it even happen? I try to keep in mind that this is something that must happen in the entire universe. Does space come into existence in an instant everywhere? Wherever that may be.

But that can't work either. How can space change without time? It has to change *in* time. It keeps coming back to this. The Beginning isn't *in* time but time must come next. The Beginning, then time, and then space.

I'm feeling pleased with this when he arrives. It takes him little time to trash my small accomplishments.