

# Time is Just a Four-Letter Word

Peter Watson



(title stolen from Joan Baez)

## What then is time?

- If no one asks me, I know what it is. If I wish to explain it to him who asks, I do not know.
- St Augustine
- Time is what we don't have enough of.

**I do not define time, space, place, and motion, as being well known to all.**

Isaac Newton

**Shut up and calculate!**

What does a clock measure?  
What does "prediction" mean?  
When did time measurement start?  
Do we experience time in the same way?  
Why does time pass quicker as we get old?  
What defines the direction of time?  
Physiological Time: what is a biological clock?  
How short a time can we perceive?  
What exactly is causality?  
Is time travel possible?  
If so, why can't we do it?  
If not, what forbids it?  
How do we know that two clocks measure the same time?  
How are time and space linked?  
Is time "smooth"?  
Did time begin?  
Will it end?

## What do you already know about time?

- What time is it?

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## What do you already know about time?



How old am I ?

## *Roughly, we have*

- Physical Time
- Psychological Time *Are they the same?*
- Biological Time
- Sociological Time *Or are they different aspects of the same thing?*
- Astronomical Time
- Historical Time
- Geological Time

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## Where are we going?

1. Time and Language: How we talk about time
2. Chronos and Kairos: How we write about time
3. Stonehenge to Caesium: How we Measure Time
4. Bicycle Pumps and Rice Puddings: Time's Arrow
5. Going Straight in a Bent Space: How Matter bends Time
6. Grouse, Hurricanes and Dead Cats: How to predict
7. The Beginning and the End
8. Oh Yes, and Can We Time travel: Good Literature and Bad Science

So how do we talk about Time?