

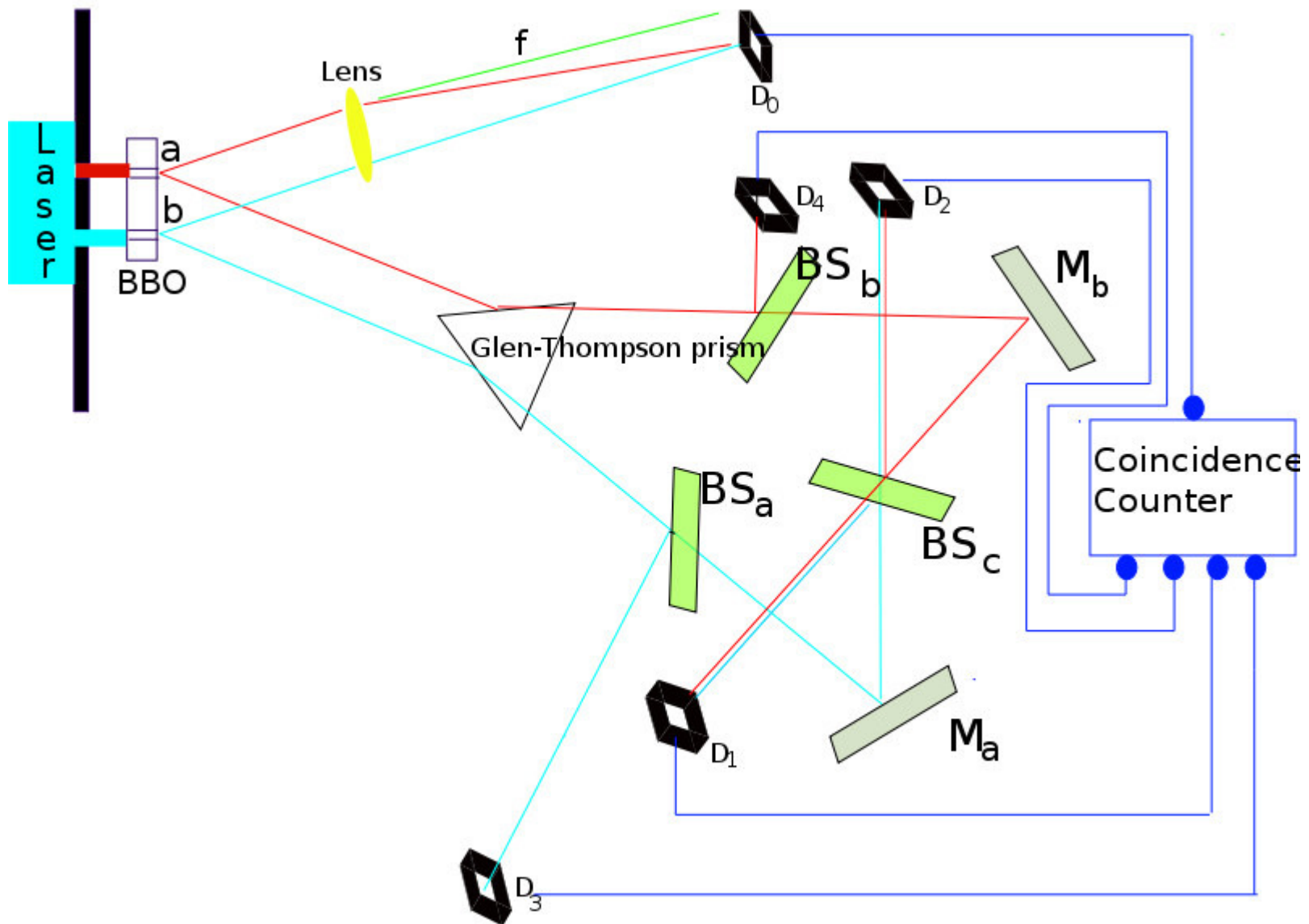
Time Machine Made Real?

My Question is: *is it all below obviously right or is it all outrageously wrong?*

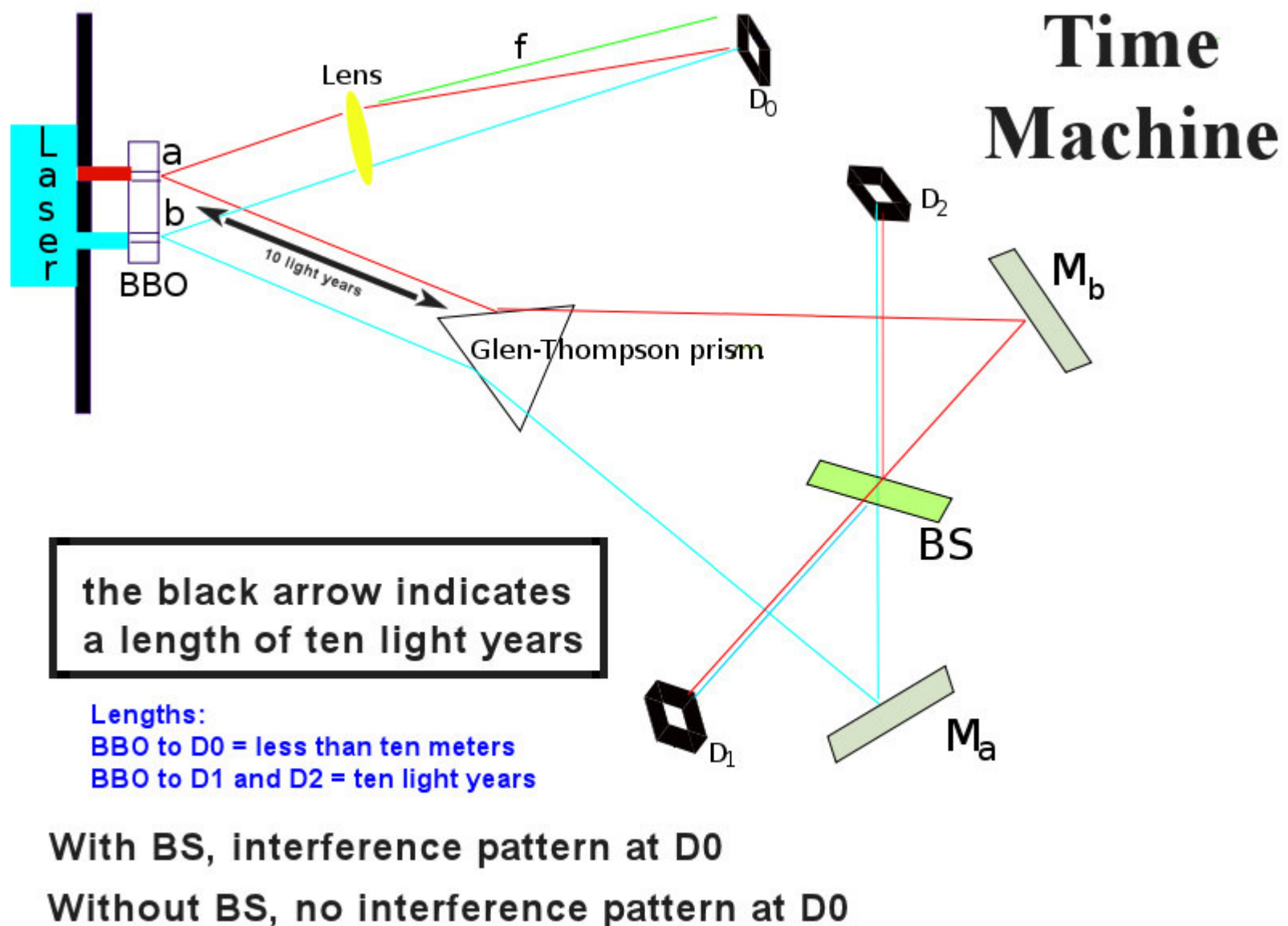
To begin with, I am not a physicist. But I thought a bit about the *delayed choice quantum eraser* experiment as described in the link below by non physicist Ross Rodes:

<http://www.bottomlayer.com/bottom/kim-scully/kim-scully-web.htm>

I reflected especially about this picture below (taken from wikipedia) that describes the experiment (in a diagram):



Now, from this above, I designed the diagram below (note that in the scheme that I devised there would be no coincidence counter!):



This above, I think, could operate as a time machine, which, once you built it, would receive messages from the future (10 years ahead), **from you yourself!**

The basic operation would be as thus:

1- By keeping or by removing the BS, you would have either an interference pattern at D0 or, alternatively, a no-interference pattern at D0 (like in Kim *et al*, one photon being sent at a time).

2- In the future, "you" will start the experiment at, say, midday. Photons are sent to the double-slit now (in the present), and "you" (the you from ten years from now) will be deciding whether to find the which-way path information or not (by removing or by keeping BS, leading to either no-interference pattern or to interference pattern).

3- Let's suppose (I do not know that for sure) that a group of one thousand photons can create a pattern (at D0 - in the present) of interference or of no-interference. The experiment, thus, will proceed by sending groups of one thousand of photons (let's say, a thousand per second, or one per millisecond), interspersed by an equal time of no emission of photons (one second of no emission). Therefore, **one second of emission, one second of no emission, then one second of emission, one second of no emission**. Let's label it **EM - NE - EM - NE**.

4- So, by keeping or removing the BS (for the whole one second), the "you" from the future can guarantee that, for that second in the past (i.e. present) there will be either an interference pattern or a no-interference pattern. This is a binary code, which can be used to send messages back in time changing it, for example, into Morse Code or into bytes. Using this protocol, it would take 16 seconds to send one byte back in time. This whole document that you are reading now (283Kbytes) could be sent back in time (meaningfully) in less than two months...)

Question: is it all above right or wrong?

As for implementing it realistically with present-day technology: in the scheme above, the distance between BBO and D1 or D2 is ten light years. That would enable you to receive messages from the you from ten years from now. Such a huge length (ten light years) would be impeditive for practical implementations of the time machine. I see two ways to circumvent this. Either you decrease the length itself, or you slow down the photons that go to D1 or D2 (while keeping the ones going to D0 at normal light speed). Recently, there have been experiments where scientists have greatly reduced the speed of light (and even stopped it).

<http://www.hno.harvard.edu/gazette/1999/02.18/light.html>

<http://news.bbc.co.uk/2/hi/science/nature/1124540.stm>

If a similar thing can be done to photons going from BBO to D1 and D2, maybe it would not be technically impeditive to devise now a machine that would enable us to talk to a future that is, say, 30 seconds ahead. That is: you talking to the you (i.e. to yourself) from 30 seconds in the future.

My expectation is, obviously, that all this reasoning of mine above is incorrect. And I must add that my own hope is also the same... (that is, it is a little dreadful to be living in a world where such spooky handling of time is possible). But, the question is: am I wrong?