

Time Voyager Revisited

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Exactly six (!) years ago (time *does* indeed fly !) Datafiles's November/December 2001 issue (V20N6) featured a short fiction story titled "*Time Voyager*" which I wrote as part of *Sir Isaac Newton's* Anniversary of Birth's commemorations. It was well liked by a number of readers, both in its original printed form and as a PDF file which I eventually made freely available for download from the *Articles* section of my calc web site (google for "*albillo*" and there you are ...).

Some people even took the trouble to e-mail me to let me know their enthusiastic opinion about my story, which was much appreciated of course, and certain readers even went further to ask some amusing questions about the fine details, even to the point of suggesting the possibility of trying to check whether it actually might hold some water by combing the original manuscripts for telltale indicia ! LOL !

However, among all the questions there was a particular one, issued by *Mr. David Batiz* as part of a post he made to the *Museum of HP Calculators' Forum*, which actually was a pretty good one I never stopped to consider in the first place. As answering his question required discussing the short story's ending, and doing it on-line in the Forum would *spoil* it, *ruining* the nice surprise for any visitors who hadn't read my story yet, I replied directly to his private e-mail address instead.

Nevertheless, I really felt at the time that the question was interesting enough for other people who did read the story to be able to consider it and get to know my (hopefully also interesting) answer to Mr. Batiz, so I'm including it here for the benefit of all readers. However, as the answer entails spoiling the catchy end of the tale, I *strongly* advise all of you reading this who haven't yet read the original story to please read it first (either in the printed Datafile V20N6 issue or downloading the PDF version from my web site), then return to these pages for the question & answer. The story's a short 10 pages and it would all make much more sense. You've been warned, let's move on.

*** SPOILERS AHEAD *** SPOILERS AHEAD *** SPOILERS AHEAD ***

The Question

"I recently read Mr. Albillo's story, "Time Voyager". I enjoyed it immensely. If I may, I have a question for the author: If the story featured an algebraic machine, which one would it be and why ?"

My Answer

“First of all, many, many thanks for your kind positive feedback, it is really *much* appreciated [...]. I'm truly glad that you enjoyed it.

As for your question, I'm replying you directly because my reply, if posted at the MoHP Forum, would probably spoil the ending for any Forum visitors who still haven't read it and might want to give it a try after reading your post.

Your question is a *very* good one, indeed, which never did cross my mind before, so after reading your post I began to think seriously about it, and saw a number of difficult problems in selecting an adequate algebraic machine, namely that time travel is assumed to be complex, expensive, and risky, so any such trip can only be justified and authorized if it maximizes the intended benefit.

In this case, the idea is for Newton to have a suitable calculator, which must mandatorily meet a large series of requirements as carefully detailed in the story. After considering them, it appears at first glance that many simple algebraic calculators could easily fit the bill, but there are a number of serious difficulties:

- The machine is intended to last at least 10 years on a set of already in-place batteries, no extra battery cells available, no other external or internal energy sources.

This requirement being so, I know of no algebraic model which would last that much under normal use. A year or so, maybe, but that wouldn't justify the trip, and would incur in paradoxes, as the idea is that Newton *used* the machine to develop new algorithms and do extensive computations *over a number of years*, as can be noticed in his written works if you know where to look and what to look for. So, the provided calc must run and last for at least 10 years, and as far as I know, only Voyager series calcs can do that.

It might be argued that Newton could actually use the machine for just one year, then proceed to publish his results at a much more leisurely pace, but it seems improbable that he could produce that many results in so short a time, specially when he should work in absolute secrecy, seen by noone, not even his servants. Him staying in a closed room for long periods of time, with no servants or anyone allowed to enter would be considered anomalous and he probably wouldn't be willing or able to do that, being a public person and having many other responsibilities.

- If batteries won't do, one might consider a solar-powered calc.

But the story already states that solar-powered batteries are "unsuitable" without elaborating the point. The idea I had in mind at the time of writing is that the geographic locations where Newton lived aren't exactly sunny at all, matter of fact the sun rarely shines much, rain and darkened

skies are frequent, so a solar-powered device would probably get very little power and thus would either fail to turn on, malfunction, or at the very least, its LCD display would be very difficult to read under such low-power conditions, all of them unacceptable side effects for such a strong tempered person as Newton and his far-from-perfect sight.

Besides, Newton's expected to use it in utmost secrecy, out of anyone's sight at all, lest he would be charged of witchcraft or worse. This precludes using it in daylight, as someone could see him by the window or in the open. He must mandatorily use it in closed rooms, by artificial light, most probably candelabra and other very poor light sources, hopelessly inadequate to power solar cells or read the resulting faded display resulting from the insufficient power.

Also, even if solar-powered cells could be considered, there's the fact that the calc, however simple, must be *programmable* for its intended purposes (and the story developments) and I know of no algebraic calc which is both solar-powered and has adequate programmability.

I see no easy way to circumvent those obstacles, the need for programmability which should last for 10 years on a single set of "factory-mounted" batteries, plus other major and minor concerns such as robustness to stand the extremely humidity, the dust, and the smoke, the simplicity necessary to use and program it without the benefit of a manual, etc..

So I can't really suggest any algebraic calculator that would do the trick. Some **SHARP** models come close, but their batteries won't last more than a few months at most. Same with the **HP35s** in algebraic mode, which has the same problem plus it's not as sturdy and solid as needed here, not to mention that it includes solver, integrator, and many other big *no-no*'s.

Thus, I think the **HP-10C** is almost the unique calculator currently known to me that would do. Only the **HP-11C** would perhaps be barely adequate as well, though I tend to think that it's already far too complex and thus risky. An **HP-15C** would be a big *no-no*, having built-in numerical solver and integration, which Newton is expected to develop by himself, not to see already implemented in some device from the future. And no other models seem possible in the context of the story, as far as I can tell. For the purposes of the story yes, durability and longevity were paramount.

Well, thanks for your appreciation and for your question, it's been fun revisiting this interesting subject again”.