Gerald Holton

PROFESSOR of PHYSICS • PROFESSOR of HISTORY & PHILOSOPHY of SCIENCE

Harvard University

Email Correspondence

July 28 – 30, 2015

PREFACE

Holton's career is nearly as illustrious as it is long (or is it the other way around?). As I write, he is 96.

In response to emailed copies of my essay and Mr. Natural graphic, instead of hitting the "reply" button, Holton started a new message with the subject: "Nice," and wrote: "a very charming article."

Unfortunately, he then continues by exhibiting his evident failure to get the point that, with modern technology, Galileo's experiment is quite feasible. Grateful as I am for Holton's kindness and good intentions, I lament the ultimate communication breakdown.

Yet again.

holton@physics.harvard.edu, 7/28/15 10:54 PM -0800, Galileo's Gravity Experiment **1**

To: holton@physics.harvard.edu
From: Richard J Benish <rjbenish@comcast.net>
Subject: Galileo's Gravity Experiment
Attachments: <Galileo's-Belated-Experiment.pdf> <Mr-Natural-Says-LR.pdf>

Dear Professor Holton,

The attached paper argues that until we do Galileo's experiment, we cannot be certain whether or not an important stone in gravitational physics has been left unturned.

I hope you have some interest in filling this large gap in our empirical knowledge of gravity.

Thank you for your good work.

Sincerely,

Richard Benish

Gerald Holton, 7/29/15 -0800, Nice **2**

To: Richard J Benish <rjbenish@comcast.net>
From: Gerald Holton <holton@physics.harvard.edu>
Subject: Nice
Attachments:

> Dear Professor Benish,
>
> A very charming article.
>
> As an experimentalist, I see some difficulty in drilling that hole (P.W.Bridgman was drilling through a big block of Carboloy to make a new press. After the second day I congratulated him on his success. He said simply: "There is nothing to it. You just work on it for 18 hours").
>
> So, let's propose to NASA they will drill though a smaller body than the Earth, say an asteroid.
>
> Best,
>
> Gerald Holton

To: Gerald Holton <holton@physics.harvard.edu>
From: Richard J Benish <rjbenish@comcast.net>
Subject: Re: Nice
Attachments: <SLENC-as-Clock-Smalley-1975.pdf> <Missing Measurement PP-24-03.pdf>

Dear Professor Holton,

Many thanks for your kind reply.

Fortunately, there is no need to involve astronomical bodies. In the 1960s and 1970s NASA was pondering the possibility of measuring Newton's constant with what I call a "Small Low-Energy Non-Collider." See attached paper by Larry Smalley, who calls the apparatus a "gravitational clock." The plans remain on the drawing board.

Since the cost of launching such a device into orbit is still rather high, I have myself proposed doing the experiment on the ground with a modified Cavendish balance. (See second attachment.)

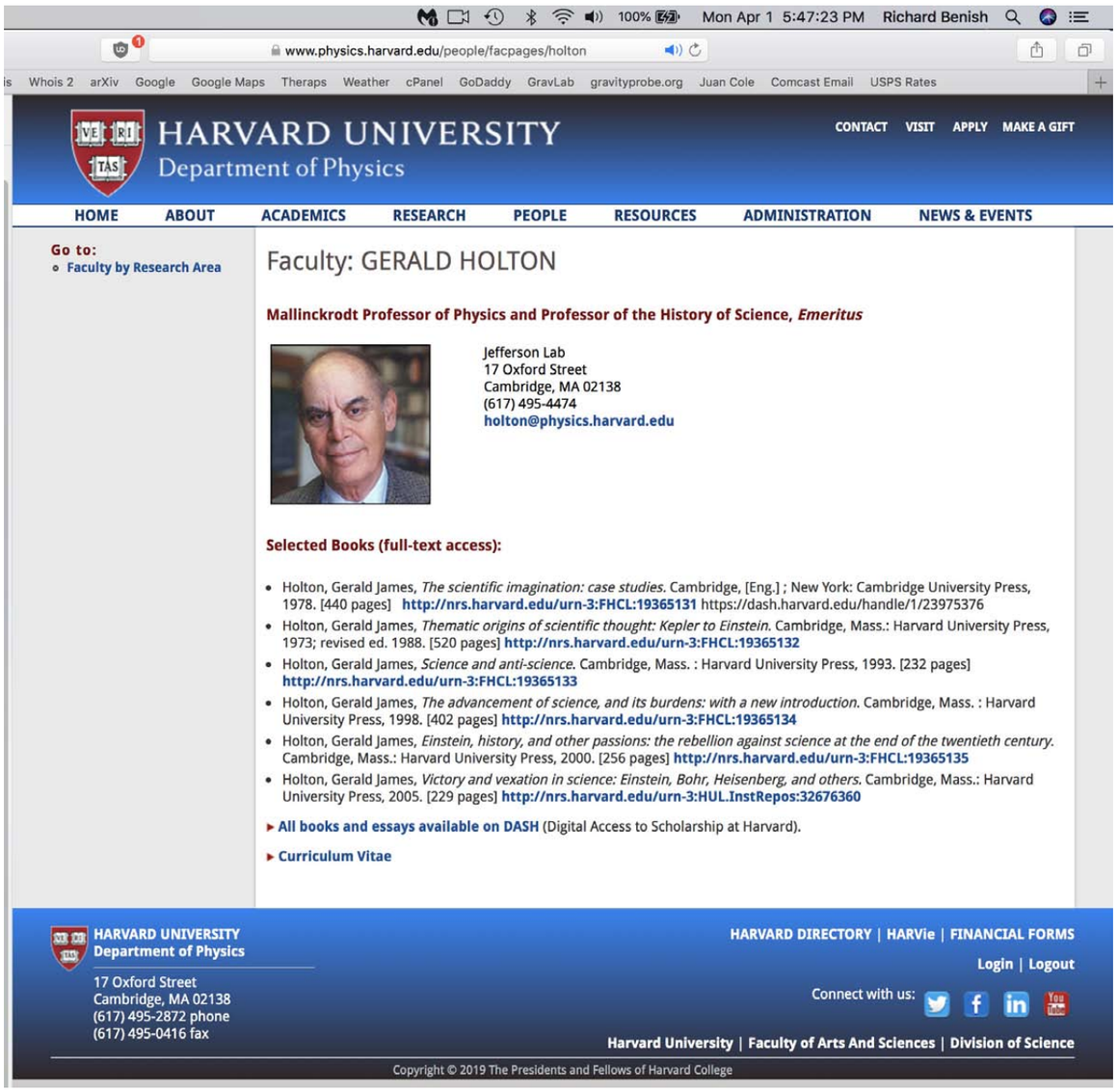
George Herold, an apparatus-builder at TeachSpin in Buffalo, NY once expressed an interest in doing the experiment. More recently, Holger Mueller at UC Berkeley, has agreed that doing it would be fun and worthwhile. I am hoping for further developments, but fear these interests have fizzled.

I sometimes fancy that, if Galileo were alive and had access to the resources needed to perform a scaled down version of his experiment, he would not hesitate for a second. No matter how often the presumed result is stated in textbooks and class discussions, I think Galileo would want to see the thing unfold before his own eyes, as would a good detective or curious child.

By the way, I am not a professor.

Best wishes,

Richard Benish


100% Mon Apr 1 5:47:23 PM Richard Benish
www.physics.harvard.edu/people/facpages/holton
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Selected Books (full-text access):
Holton, Gerald James, The scientific imagination: case studies. Cambridge, [Eng.] ; New York: Cambridge University Press, 1978. [440 pages] http://nrs.harvard.edu/urn-3:FHCL:19365131 https://dash.harvard.edu/handle/1/23975376
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Holton, Gerald James, Einstein, history, and other passions: the rebellion against science at the end of the twentieth century. Cambridge, Mass.: Harvard University Press, 2000. [256 pages] http://nrs.harvard.edu/urn-3:FHCL:19365135
Holton, Gerald James, Victory and vexation in science: Einstein, Bohr, Heisenberg, and others. Cambridge, Mass.: Harvard University Press, 2005. [229 pages] http://nrs.harvard.edu/urn-3:HUL.InstRepos:32676360
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