



The Exponential Legacy of Al Bartlett

Posted by [JoulesBurn](#) on September 12, 2013 - 11:32am

Dr. Albert Allen Bartlett, emeritus professor of physics at the University of Colorado, died September 7, 2013 at the age of 90. It is coincidental that, in the year that he "officially" retired from teaching (1988), I first heard his famous lecture [Arithmetic, Population, and Energy](#) (although I don't recall if that was the title at the time). I was in my last year in graduate school, and his talk was one of the keynote presentations (or perhaps during dinner) for a scientific conference. It was seemingly out of place given that the subject of the meeting was surface chemistry and physics, but it most certainly became stuck somewhere in my mind for reasons other than its novelty.

Most scientists are transfixed on interesting scientific details, some with relevance to technological problems, and perhaps buzz-worthy enough to attract funding. There has never been much money in solving problems with no real technological solution. I became reacquainted with this talk in 2006, probably via a link on The Oil Drum. TOD was by its nature dealing with limits to growth (of oil, if nothing else), and over the last few years, we have discussed the various ways in which we could perhaps keep the oil flowing or replace it with something else. Perhaps the implications of exponential growth was kept in the back room somewhere, like an embarrassing relative, while the latest "game changing" solution was bandied about. But we need to continually remind ourselves that, while important, finding the next energy source or improving efficiencies the keep the economy growing are not long-term solutions for a finite planet.

Below are some more reflections on Prof. Bartlett's legacy, from ASPO-USA (where he had long been on the advisory board) and from the University of Colorado.

Albert A. Bartlett: Ode to a Gentle Giant

Dr. Albert Allen Bartlett enjoyed 90 years of rich life on this earth; moreover, thousands of people have enjoyed and been touched by Al's life.

He is of course most widely known as a tireless, eloquent, and supremely caring voice for charting a sustainable path for humanity. With seemingly endless determination, he applied his training in math and physics and skills as a master teacher to focus attention on a simple but paramount idea--on a finite planet, "growth" is unsustainable. "Sustainable growth is an oxymoron", is how Al is sometimes quoted.

His most reknowned quote, however, is "the greatest shortcoming of the human race is our inability to understand the exponential function"--referring to the accelerating rate exhibited by anything growing as a constant percentage increase.

Al developed a now-famous lecture that illustrated the power and importance of this mathematical phenomenon, and reportedly delivered that lecture more than 1700 times over the following decades. That one man would be compelled to devote much of his career to the understanding of a basic, unassailable fact of life speaks volumes about the world we live in, as

ASPO-USA is proud to have had Al as a longstanding member of our advisory board, and I was exceptionally fortunate to be acquainted with him in his latter years. While the nature of our relationship was professional, what I will always remember is the warmth, humility, and quiet joy that he brought to his work and his relationships with his colleagues and students.

For those that dare to concern themselves with the monumental issues that concerned Al, there is a risk of gloominess creeping into our outlook on life and humanity. Al is a beautiful reminder that need not be the case.

The note that Al wrote to us after he visited his doctor was filled with the peace and happiness of a man who had understood long ago what was important in life and had lived his own life accordingly. We should all be so blessed, and some of us were also blessed to know Al.

In honor to Al, inspired and informed by his life and his friendship, we re-commit ourselves to continuing and building on his legacy.

Click below to view Al's famous lecture - Arithmetic, Population, and Energy:

<http://peak-oil.org/2013/09/arithmic-population-energy>

Jan Mueller Executive Director, ASPO-USA

CU-Boulder campus mourns death of longtime, celebrated physics professor Al Bartlett

excerpted from [here](#)

“Al Bartlett was a man of many legacies,” said CU-Boulder Chancellor Philip P. DiStefano. “His commitment to students was evidenced by the fact that he continued to teach for years after his retirement. His timeless, internationally revered lecture on the impacts of world population growth will live beyond his passing, a distinction few professors can claim. And we can all be thankful for his vision and foresight in making the Boulder community what it is today.”

Bartlett was born on March 21, 1923, in Shanghai, China. He earned his bachelor's degree in physics from Colgate University and spent two years as an experimental physicist at the Los Alamos Scientific Laboratory in New Mexico as part of the Manhattan Project before earning his graduate degrees in physics at Harvard. He then started his teaching career at CU-Boulder.

When Bartlett first delivered his internationally celebrated lecture on “Arithmetic, Population and Energy” to a group of CU students on Sept. 19, 1969, the world population was about 3.7 billion. He proceeded to give it another 1,741 times in 49 states and seven other countries to corporations, government agencies, professional groups and students from junior high school through college.

His talk warned of the consequences of “ordinary, steady growth” of population and the connection between population growth and energy consumption. Understanding the mathematical consequences of population growth and energy consumption can help clarify the best course for humanity to follow, he said.

The talk contained his most celebrated statement: “The greatest shortcoming of the human race

is our inability to understand the exponential function.” A video of his lecture posted on YouTube has been viewed nearly 5 million times.

This year, the world population is about 7.1 billion and the CU Environmental Center announced a program this summer in which 50 student and community volunteers received training in exchange for a commitment to give Bartlett’s talk at least three times in 2013-14.

Before his death, Bartlett requested that any memorial gifts be made to the University of Colorado Foundation Albert A. Bartlett Scholarship Fund, in care of the Department of Physics, 390 UCB, University of Colorado Boulder, Boulder, CO, 80309.



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