Human Population Growth and the Mass of the Earth DAVID W.
KRAFT, University of Bridgeport — Albert A. Bartlett, late Professor Emeritus of
Physics at the University of Colorado, spent the latter half of his life alerting both
the community of physicists and the wider society to implications of unchecked ex-
ponential growth. Among the areas he addressed were the effects of exponential
growth in human papulations and, as an illustration, calculated when the mass of
human beings on Earth would equal that of the Earth itself. In the present work
we refine this analysis to take into account the fact that human beings are made of
Earth material and that total human mass grows at the expense of Earth mass. As-
suming continued exponential population growth we find the time for this equality
of masses to be substantially shorter than that calculated Bartlett's method [1,2].
Other growth scenarios such as a linear projection tangent to the exponential curve
are also discussed. We hope that, with Bartlett's passing in 2013, a new generation
of physicists will continue this educational effort.

[1] A. A Bartlett, Am. J. Phys. <u>46</u>, 887 (1978).
[2] D. W. Kraft, http://asee-ne.org/proceedings/2014/index.htm.

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