Letters to the Editor

"Physicists' Voices on the Ethical Dilemmas of Nuclear Weapons"

I read the latest issue of *Radiations* with considerable interest because of the memories it brought back to me about WWII; I was one of those in the infantry who was about to be required to invade Japan when the first atomic bomb was dropped. I am grateful.

I am also the son-in-law of Lyman Bliss who received a phone call from President Roosevelt who asked Lyman to come to Washington in order to read the letter he had received from Einstein. When I read your article, "Physicists' Voices on the Ethical Dilemmas of Nuclear Weapons," in the latest issue, I was deeply moved. Lyman Bliss agreed to participate in the program and was President of Union Carbide Nuclear Corporation and was responsible for Oak Ridge, Tennessee. He also witnessed the first explosions. Later in his life he also was not sure that it was the right thing to do.

Sincerely, Roger Hall, Francestown, NH

I have just reviewed Vol. 9, Issue 2, of *Radiations*. The article on nuclear weapons was superb. Thank you.

Sincerely, Steven Mussey, MD
Fredericksburg, VA

"From Bern to Albuquerque"

The article, "From Bern to Albuquerque" contains an erroneous statement with regard to Bose-Einstein condensation. The phenomenon was observed decades before the 1990s, in superfluid 4He and in Type I superconductors. It only took until the 1990s for Bose-Einstein condensation of a gas of ultracold atoms to be observed. (However, as treatment of an atomic gas in which the number of particles is conserved was Einstein's main contribution to the theory, the experimental achievements of the 1990s probably deserved a mention, albeit better qualified.)

Additionally, the Bose statistics were successful in describing phenomena other than condensation, most notably the statistical behavior of the light field.

Sincerely, Bennet Kalafut, Graduate Student
University of Arizona, Tucson, AZ

Thank you, Bennet, for making these distinctions between the effects of Bose-Einstein statistics and the Bose-Einstein Condensate. Satyendranath Bose proposed the quantum theory of bosons, applied to photons, in 1924. In 1925, Albert Einstein, using Bose's approach, predicted BE condensation (BEC). As you correctly observe, BEC plays a crucial role in phenomena such as the superfluidity of liquid helium, which are, however, complicated by effects such as phase transitions that kick in before pure BEC can be observed. BE condensates were first "cleanly"created and observed experimentally for the first time on June 5, 1995, by a group from NIST and the Univ. of Colorado, led by Eric Cornell and Carl Wieman. See "Condensation, Bose-Einstein" by William Evenson in the Macmillan Encyclopedia of Physics *(John Rigden, Ed., 1996).*

— The Editor

"Statement on the Teaching of Evolution"

The "Statement on the Teaching of Evolution" in *Radiations*, Vol. 9, Issue 2, advocates teaching the concepts of biological and cosmological evolution to science students. Your correspondent prefers to consider these concepts as weak theories. The concept of a big bang initiated by God followed by a series of God-determined events leading to a habitable world is to me more believable than the concept of a big bang beginning of unknown origin followed by a series of low probability favorable events determined by chance. I should hesitate to propound any theory requiring a series of events having an exceedingly low cumulative probability.

I prefer to believe in a benevolent God, creator and director of the cosmos. The teaching of this as a possible explanation of our existence should not be excluded because of the more common belief that the world is here solely as a result of chance.

Sincerely, Frank Replogle, Jr., Niantic, CT, Wheaton College ΣΠΣ, 1946

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