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BP: TIME FOR A CHANGE

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ABSTRACT. This article proposes a solution to the problem of defining the "present" in the BP time scale as 1950. Discouraging the use of "Before Present," as well as "Before Physics," and promoting *Radiocarbon*'s official definition of "BP is understood as a symbol meaning precisely 'conventional radiocarbon years before AD 1950'" is advised.

KEYWORDS: radiocarbon dating, BP.

INTRODUCTION

The BP time scale had no reference year when it first came into use in the 1950s; authors simply stated dates in terms of "Before the Present." This resulted in dates in the time scale being published with differing reference points. A 1962 *Radiocarbon* editorial statement addressed this "increasingly ambiguous and confusing" situation by establishing BP's standard reference year as AD 1950. The statement noted that 1950 was chosen as the time scale's reference point to honor Willard F Libby, who published the first radiocarbon dates in December 1949, and because 1950 is "arithmetically more convenient than A.D. 1955 or A.D. 1962." The editorial statement also redefined the meaning of BP as "Before Physics" (Flint and Deevey 1962).

The use of 1950 as the reference year for the BP time scale became standard practice. *Radiocarbon*'s redefinition of BP as "Before Physics," however, did not meet with majority approval. While the specific date for the advent of physics may be debatable, it can be seen that setting it at 1950 is not substantiated by the historical record. Isaac Newton lived from 1642 to 1727, the laws of thermodynamics were established in the 1800s, and modern physics, including experiments in radiation and Albert Einstein's first theories, emerged around the turn of the 19th to the 20th century. Whether unaware of the meaning change or simply unwilling to go along with placing the birth of physics at 1950, the majority of authors continued using "Before Present" as the accepted meaning for BP. For example, in "A Note on Reporting Radiocarbon" published in 2006, Johannes van der Plicht and Alan Hogg wrote, "The ^{14}C ages thus calculated are reported in BP or 'Before Present.'" Van der Plicht and Hogg further noted that the "use of the word 'Present' in the unit 'BP' can cause confusion because 'Present' in this term corresponds to the standard activity and 1950 AD not the present day" (van der Plicht and Hogg 2006). *Scientific Style and Format* currently defines the meaning of BP as "Before Present" (Council of Science Editors 2014a).

More than six decades ago, Lee Abel expressed the view that "physicists seem to feel that time stopped somewhere around the year 1950" (Abel 1953). It seems overdue that "the present" be freed from January 1, 1950.

PROPOSED SOLUTION

Radiocarbon's current style manual for contributors states, "In a radiocarbon context, BP is understood as a symbol meaning precisely 'conventional radiocarbon years before AD 1950'" (*Radiocarbon* 2017). This definition solves the problems inherent with the meanings "Before Present" and "Before Physics" and should become the standard meaning for BP. This would require that both the meanings "Before Present" and "Before Physics" be officially discarded and the symbol BP be stated as identifying the time scale. Standard practice already avoids

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defining BP when dates are reported in it. *Scientific Style and Format* advises, "For any geochronologic date that has been correctly expressed (e.g., 1990 BP or 1990 Ma BP), do not add a term such as 'ago' or 'before the present'" (Council of Science Editors 2014b). Therefore, ceasing to define BP as either "Before Present" or "Before Physics" would not change the way the majority of authors use and report dates in the time scale. BP is already functioning on its own, so it does not need yet another meaning with words beginning with the letters B and P.

An official definition of the term could then be something similar to the following:

> BP – A time scale which places past events in terms of "conventional radiocarbon years before AD 1950." 1950 was chosen as the year at which to begin the BP time scale to commemorate the first publication of radiocarbon dates in December 1949. Originally, BP stood for "Before Present," but now the symbol BP itself signifies the time scale.

The proposed meaning alteration basically codifies the way BP has come to be used in practice, with the main change being that authors would be freed from the practice of saying that "the present" is defined as 1950. It is time to institute *Radiocarbon*'s practice of defining BP as "conventional radiocarbon years before AD 1950" in both scientific and popular references to the time scale, finally bringing an end to "the age where the present appeared to become stuck in 1950."

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