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LETTERS

More on William Fowler

"Manhattan Project astrophysics" (Physics Today, March 2024, page 34) by Michael Wiescher and Karlheinz Langanke correctly credits William Fowler for his Nobel Prize work on nuclear fusion in stars and for chairing the Project Vista activity at Caltech, but it also states that he "developed ignition systems for nuclear weapons." I believe they may be thinking of a different Fowler, perhaps Clarence "Max" Fowler, who led high-explosives research at Los Alamos for many years, but not during the Manhattan Project. George Kistiakowsky led the wartime explosives division.

Willie Fowler was a prodigious lecturer. We students of his at Caltech proposed that the unit of lecture material be named the "Willie" in his honor, but that in practice, other lecturers' output could be measured in milliWillies.

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► **Wiescher and Langanke reply:** We welcome the opportunity for clarification. The phrase "developed ignition systems for nuclear weapons" may be a bit vague. We meant it first to refer to the development of the neutron trigger based on the use of a polonium-210 alpha-particle source, which in combination with the beryllium-9 material, causes the production of neutrons, a method that was developed at Caltech during William Fowler's early days there, where he was advised by Charles Lauritsen.[1] The second reference is, as we state in our article, to "the system that abruptly and symmetrically compressed the plutonium core of the Trinity bomb, causing it to detonate." In an article in *Nuclear Technology*, Thomas Chadwick and M. B. Chadwick mention Fowler being responsible for magnetic and x-ray studies of the approach.[2] Looking at the reference again, though, we admit it could have been a different Fowler.

In *History of the Naval Weapons Center*, J. D. Gerrard-Gough and Albert Christman describe how the detonators needed to work in nanoseconds, initiating each explosive block nearly simultaneously:

> Through the efforts of C. C. Lauritsen and his Caltech scientific staff, appropriate detonators were designed. Lauritsen's close association with [the Naval Ordinance Test Station] paid off as equipment, facilities and security were available at Inyokern for the development testing of these detonators, which were known as "sockets." Development and testing of the sockets were under the direction of William Fowler and Thomas Lauritsen, and while the program was not strictly within Bruce Sage's principal area of responsibility, China Lake Pilot Plant facilities were used to load and test-fire the detonators, which were made in Pasadena.
>
> The other problem was infinitely more complicated and concerned the intricate high explosive blocks themselves, their process, manufacture, and test.
>
> The scientists and technicians of Los Alamos pioneered the initial process. The explosive was cast to a uniform density in specially designed molds, and then the cast blocks were carefully machined into the required shapes. Machining explosives was virtually a new technique, and the military and civilian machinists, for the most part, had to teach themselves. The fact that they mastered the art in such an incredibly short time is almost beyond comprehension.[3]

We took that as sufficient evidence that Willie Fowler was involved in both aspects. We apologize that we could not provide all of our references, but Physics Today articles limit the number that can be included.

We hope this clarifies the situation. And both of us, as former postdocs of Willie Fowler at Caltech, fully subscribe to introducing the "Willie" unit in teaching.

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Correction

August 2024, page 22—The Huntsman Telescope lenses have a focal length, not diameter, of 400 mm. PT

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