

## *Optics Journal: Editorial*

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# On the Kennedy assassination

It is now 50 years since that fateful early afternoon in Dallas that witnessed one of the most iconic events of modern Western history: the assassination of John F. Kennedy. Soon after the assassination, numerous conspiracy theories surfaced exploiting some of the bizarre circumstances surrounding the shooting.

Interestingly enough, time, physics, and technology, have helped to clarify the ballistic details of the shooting. Now it can be shown, with a high degree of confidence, that Kennedy was the aim of two 6.5 mm, metal jacketed, cylindrical bullets fired from a Carcano rifle. The bullets were fired from the sixth floor of the Texas School Book Depository, where Lee H. Oswald was an employee. In total, three bullets were fired. The first one missed. The second one went through Kennedy's neck and proceeded to perforate Governor Connally. The third bullet made impact on Kennedy's cranium.

Some continue to argue that the backward motion of Kennedy's cranium, following the impact by the third bullet, is evidence of a frontal shot. It was physicist Luis Alvarez who first showed that the backward motion of the skull was fully consistent with an impact from behind (Alvarez, 1987). Indeed, simple conservation of linear momentum corroborates Alvarez's thesis. As far as the second bullet is concerned, also known as "the magic bullet," it has been shown that the type of bullet used by Oswald, traveling at about twice the speed of sound, was fully capable of passing through two bodies with minor damage to its metal jacket.

Did Oswald participate in a conspiracy? Perhaps. We know that he was a committed Marxist with Soviet sympathies. Kennedy, on the other hand, was decisively anti Marxist and he had just successfully confronted the Soviets in Cuba and Berlin. However, although there is evidence that Oswald met Soviet and Cuban officials in Mexico, there is no evidence of a communist conspiratorial link. Oswald's lack of resources, specially evident immediately following the shooting (ie., no extraction plan, no extraction assistance) also tends to indicate that he most likely acted alone... or he was abandoned. Incidentally, the Carcano rifle bought by the former Marine sharpshooter, for 19.95 dollars, although effective, was the cheapest option available in the catalog.

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## Reference

Alvarez, L. W. (1987). *Alvarez: Adventures of a Physicist*, Basic Books, New York.