The original version of David Grimm's lede before editing:

The two elderly sisters had clearly been dead for several years. Both bodies were mummified, and their respective fluids had long since seeped out and stained the wood floor. One woman was wrapped in a carpet; the other's head lay under a chair. The sisters had been reclusive, and neighbors in their upper-middle-class Vienna apartment believed they had merely moved away. Stale bank accounts finally tipped off investigators.

When the bodies were discovered in December of 1992, no one seemed to care except for the insurance companies. The sisters had separate life insurance policies, and each company stood to benefit financially if the other's client died first. But with the bodies so badly decomposed, how would they ever know?

"There was a lot of money at stake," says Walter Kutschera, a tkologist at the Vienna Environmental Research Accelerator at the University of Vienna in Austria. Not long after the bodies were found, a scientist from the university's forensics department approached Kutschera and his colleague, Eva Maria Wild, to ask if they could help crack the case. He knew the team had been using radiocarbon dating to determine the age of archeological samples, and he wondered if the same technique could shed light on the year each sister had died.

It couldn't. Radiocarbon dating is a blunt instrument that relies on the slow decay of a form of carbon known as carbon-14, which is incorporated into animals during their lifetime. The method works well for samples that are tens of thousands of years old[ck], but it's only accurate to within a few hundred years[ck]--and that just wouldn't do for the Vienna sisters.

Wild and Kutchera had another idea. Above-ground testing of nuclear weapons after World War II had injected high levels of C-14 into Earth's atmosphere levels that have been tapering off since then. If the researchers could measure the amount of C-14 in something carbon-based the sisters had generated just before death fats in the bone, for example and compare it to historic levels of C-14 in the atmosphere, they should be able to tell which year each sister expired.

The idea worked. Wild and Kutchera found that one sister had died in 1988 and the other in 1989. "One sister lived for some time next to the dead one," says Wild. Investigators closed the case, and Wild and Kutchera returned to dating ancient artifacts[ck]. But it would soon become clear that the "bomb pulse" technique had much more to offer.

The lede as it ran:

The two mummified bodies in the Vienna apartment told a sad tale. The reclusive elderly sisters had clearly been dead for several years, but no one had noticed; neighbors in the upper-middle-class complex believed they had merely moved away. Stale bank accounts finally tipped off the police, who discovered the remains in December 1992.

Investigators found no evidence of foul play, so they focused on the question of who died first. Both sisters had large pensions and separate life insurance policies, and the insurance company of the woman who died last would collect the bulk of the funds. "There was a lot of money at stake," says Walter Kutschera, a physicist at the Vienna Environmental Research Accelerator at the University of Vienna in Austria. Not long after the bodies were found, a scientist from the university's forensics department approached Kutschera and his colleague, Eva Maria Wild, to ask if they could help crack the case. The forensics expert knew the pair had been using radiocarbon dating to determine the age of archaeological samples, and he wondered if the same technique could shed light on the year each sister had died.

It couldn't. Radiocarbon dating is a blunt instrument that relies on the slow decay of a form of carbon known as carbon-14 (^{14}C), which is incorporated into animals during their lifetime. The method works well for samples that are tens of thousands of years old, but it's only accurate to within a few hundred years.

Wild and Kutschera had another idea. Aboveground testing of nuclear weapons after World War II had injected ^{14}C into Earth's atmosphere, creating an abnormally high level of the isotope that has been tapering off since then. If the researchers could measure the amount of ^{14}C in something carbon-based that the sisters had generated just before death--fats in the bone, for example--and compare it with historic levels of ^{14}C in the atmosphere, they should be able to tell which year each sister expired.

It worked. Wild and Kutschera found that one sister had died in 1988 and the other in 1989. "One sister lived for some time next to the dead one," says Wild. Investigators closed the case, and Wild and Kutschera returned to dating ancient bones and seeds. But it would soon become clear that the "bomb pulse" technique had much more to offer. In the past decade, thanks largely to the pioneering work of an Australian postdoc with a taste for trying new things, groups have begun using the strategy for diverse causes such as identifying disaster victims, authenticating wine vintages, and tackling some of the most controversial questions in biology, including whether the human brain generates neurons throughout life.