



# ZAPPING Wine Fraud

Science is solving an age-old problem with an electronic tongue and an ionic bottle-blaster

**W**ine scam artists beware: there's a new tongue in town. In summer 2008, scientist Cecilia Jiménez-Jorquera and her colleagues at the Barcelona Institute of Microelectronics unveiled their masterful invention, the "electronic tongue." But get your mind out of the gutter – this thing is not nearly as lascivious as it sounds. Designed to serve the needs of wine industry professionals, this particular tongue uses six computerized sensors to ascertain the precise grape variety and vintage of the wine in question. Each sensor detects and measures individual wine components such as sugar, alcohol and acidity, and the combined results allow for an exact determination. Previously, the only way to verify a wine's makeup and vintage was to send it off to a laboratory. But the electronic tongue is speedy, accurate and portable – and it can also be programmed to taste new varieties of wine.

While the world of wine fraud may be of little concern to most people, it's kind of a big deal for those who make their living off smashed fermented grapes, and it's an especially big deal for those who spend obscene amounts of money purchasing and collecting bottles of those smashed fermented grapes. One memorable case in point: As detailed in a September 2007

article in *The New Yorker*, billionaire William Koch filed an as-yet-unsettled lawsuit alleging that he was swindled in 1988 when he spent \$500,000 on five bottles of wine that were purported to be part of Thomas Jefferson's famed collection. When his staff could not trace the bottles back to good ol' T.J., they concluded that the wine was counterfeit. Half a million dollars down the drain on five bottles of bad grape juice? Ouch.

Though the electronic tongue will certainly make headway in the war against wine counterfeiters, a group of French nuclear physicists upped the ante even further in September 2008 when they unveiled a particle accelerator that zaps wine bottles with ion beams to ascertain authenticity. Pretty fancy stuff. Ion beams are aimed at an unverified wine bottle and an authentic bottle, and the X-ray results are compared. If the results are not the same for both bottles, it's obvious they were not made in the same year or at the same vineyard. The National Center for Scientific Research in Bordeaux, France, was asked to develop this fraud-busting technology by The Antique Wine Company in London, which sells bottles that cost anywhere from \$8 to \$71,000. Unfortunately, the French particle accelerator can only determine the age of a bottle, not the quality of the wine. But let's face it – in the end, the human tongue is probably the best tool for that job. Science may be unsurpassed in its ability to undermine the cheaters and fakes of the wine world, but relishing a delicious \$950 bottle of Bartolo Mascarello 1989 Barolo is best left to the devoted oenophiles of the world.

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