

Black Powder

Editor's Prerogative
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It broke my heart to have to disqualify him. There it was, in black and white, explicitly stated in the International Science Fair rules: no experiments involving black powder are to be allowed even if the black powder is not featured in the display. I was chair of the Scientific Review Committee for the National American Indian Science and Engineering Society Science Fair. A student from the Dakotas, a high school senior, observed the various burning properties of homemade versus "store-bought" gun powder. He learned that particle size was the key property governing reactivity, and not surprisingly, the commercial black powder burned faster and more evenly.

His teachers told me that prior to the Science Fair black powder experiences, he hadn't been interested in science, much less the rest of school. But the exploding gun powder chemistry caught his imagination and off he ran with it learning how to design an experiment, learning how to make his own gunpowder, learning the qualities necessary to make good gunpowder. Gunpowder was something he used when hunting deer or other game. It was fun – it burned, it exploded.

A friend of mine who grew up in Brooklyn in the 1950's told me about how he and his friends would go to the local pharmacy and purchase sulfur, carbon, and saltpeter. It was fun. They would make cans explode in empty alleyways, lighting them and running as fast as they could all hurried and excited in a way nothing else in their young lives had ever thrilled them. Guess it is not too much of a stretch to understand how my friend came out of working class Brooklyn and received his PhD in chemistry from MIT.

"You know," he said to me as he told me the story, you can't just walk into a store and buy those chemicals anymore." And maybe following Oklahoma City and Littleton, CO, that is a good thing.

But how are kids nowadays going to get excited about chemistry without explosions and pyrotechnics? Like most of our modern technology even fireworks come in a black box. The messy, dangerous parts which are at the heart of the colorful explosion are sealed nicely inside the firecracker.

Don't get me wrong. I am terrified of firecrackers, much less explosives. As a teenager I went to one of those parties my mother warned me about. Drunken kids were setting off bottle rockets and one got stuck in my hair. For years I had a scar on my wrist from where the bottle rocket exploded when I finally managed to pull it from my hair.

My point is that something has to strike wonder or amazement in us to truly get the love of chemistry ignited whether it is the excitement of mixing ordinary ingredients and watching them explode or the amazing colors that just one dissolved metal can take on as it changes ligands or oxidation state. Making the world "safer" may have unwittingly removed some of the wonder.