Treasure troves of tabasheer

On March 11, 1790, a paper read at the Royal Society in London, penned by the respected physician and naturalist Patrick Russell (he of the Russell's viper *Daboia russelii*), formally introduced Western science to an enigmatic crystalline substance from the East known as *tabasheer*. It captivated the imagination of 18th- and 19th-century European scientists, including that of a young James Louis Macie, the eventual founder (after changing his name to Smithson) of the Smithsonian Institution, who just 15 months later would present to the same Society the results of his chemical analyses. Much of Western interest in this substance, known for centuries to people of the Middle East, India, and China, centered around the many medicinal properties ascribed to it by Arab physicians. But not a little revolved around its mysterious origin. For tabasheer, Russell revealed, was no geological mineral, but a substance that formed in the hollow internodes of certain types of bamboo. And I must admit that, some 230 years later, that got my attention too.

Unless you are an expert on phytoliths, I am guessing that you (like me) had never before heard of tabasheer. How many bamboo forests have you walked through (Figure 1), how many bamboo scaffoldings and houses have you seen, how many bamboo poles have you used in your garden without ever knowing there might be opals inside? Yes, opals, sometimes as fat as peas! Early analyses of tabasheer crystals revealed them to be largely made of hydrated silica (even Macie concluded them to be *perfectly identical with common siliceous earth*), qualifying them as a type of opal. You'd never pass them off as being of gemstone quality, but tabasheer once made plenty of people rich. In his paper, Russell informed that during his inquiries he had received from Hyderabad (India) a letter in which "a medical gentleman attending the present embassy to the Nizam" stated tabasheer to be in "great request" in that city, and to "bear a high price". That same gentleman was also informed that tabasheer was produced in huge quantities in Sylhet (now in Bangladesh) where it "sold by the pound from one rupee to one and a half, and formed a considerable article of trade from Bengal to Persia and Arabia".



M Goda (CC BY-SA 2.0)

Figure 1. Opals inside?

But trade in tabasheer was not new. On India's west coast, the city of Thana (modern-day Thane) had become prosperous on tabasheer exports as far back as the 12th century, before eventually being overtaken by Mumbai. So sought-after was this substance that, according to the Persian polymath Ibn Sina, who died a century earlier, it was commonly worth its weight in silver. But there's tabasheer and then there's tabasheer. Though it may all form from an exudate that dries out in the hollow internodes, some ends up friable, no more than a gritty white powder. Other yellowy-white crystals are larger and more compact. And then there are the hard, blue-tinged crystals, more translucent – and more expensive. And as Russell himself pointed out, there's also the adulterated stuff; there's always a scoundrel wherever a penny is to be made.

It didn't surprise me to learn that tabasheer has long been a staple of Unani and Ayurvedic medicine, or that it has a place in traditional pharmacies in China, where it is known as heavenly bamboo yellow. Nor was I surprised by its many claimed benefits listed in the "Tosut ul Monein of Mohammed Monein Hoseiny" as recorded by the *Encyclopaedia Britannica* of 1797, ranging from "stopping the bloody flux" to "strengthening the members of the body weakened by heat", although "prejudicial to the virile powers" if taken too often (despite commonly being touted as an aphrodisiac). But I could hardly believe my eyes when I read that Alexander von Humboldt had reported tabasheer to be known of in parts of South America too, where it is produced by the native bamboo *Guadua angustifolia* (this was the same disgraceful moment in which I learned Europe to be the only continent without endemic bamboos!). And upon checking lists of India's exports, I was simply aghast to find that tons and tons of tabasheer are still being shipped around the world every year, a fact to which I was entirely ignorant. I could have more likely given credit to the *Tale of the Bamboo Cutter*, the traditional Japanese story in which a baby girl, the Moon Princess, is found in a bamboo stem by an old, childless couple!

So next time you find yourself wandering between canes of say *Bambusa arundinacea*, *Melocanna baccifera*, *Bambusa textilis*, or *Gigantochloa apus*, stop for a moment and shake a few. For you may, just occasionally, hear the gentle rattling of tabasheer crystals inside. You can then enjoy the wide-eyed wonder of your companions when you reveal it to be the jingling of opals. You might even (when far away from anything flammable) slide a piece of pottery or stone down a section of a stem and watch the sparks fly! But that's another story!



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Front Ecol Environ doi:10.1002/fee.2519
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