

# One hour with Venus ...

"It is truly a bizarre substance: it is cold and elusive, always restless, but when it is quite still you can see yourself in it better than in a mirror. ... In short, it is a material I do not like."

— Primo Levi, "The Periodic Table" (London: Sphere Ltd Abacus, 1986).

Mercury: the 80th element in the periodic table, heavier than silver or gold, a shimmering metal liquid all the way down to minus 39 degrees, named after the messenger of the gods with wings on his feet, god of quick commerce, slippery dreams (try to capture it and it splits into globules and runs away), and a guide for souls to their final rest in the Underworld.

That last job is apt: Mercury can be a terrifying poison, as poet Nancy Mattson recalls from old folk tales: "I remember childhood warnings:/ don't keep looking at it or your face will melt,/ don't breathe it or you'll lose your hair,/ don't touch it or your fingerprints will fade."

For centuries mercury was mined from its natural state as mercuric sulfide for all kinds of uses: as an industrial chemical; in batteries and thermometers; as skin cream; that stuff we used to swab on cuts; in dental fillings; pesticides on grain; in house paint; and even as medicine.

**Mercury comes in three forms:** the element itself in liquid and gas form; as a salt compound (sulfide, chloride, nitrate) known as inorganic mercury; and when attached to a carbon atom, known as organic mercury. The last is especially dangerous. When mercury waste or vapor re-enters soil and water, bacteria convert it to methylmercury, which moves up the food chain: plants, microscopic animals, fish, humans. At each step mercury is found in higher and higher concentrations.

Between 1932 and 1968 a chemical factory on Minamata Bay, Japan, dumped mercury into the same waters where people caught fish for their meals. Thousands were poisoned — brain, nerve and kidney damage, mercury's favorite targets — and hundreds died. Pregnant women gave birth to terribly deformed children, many with cerebral palsy. That is why after years of mercury gassing off coal-burning plants and other industries, you'll find warning signs about eating the fish caught in many of Minnesota's lakes.

Mercury is also readily absorbed by breathing in the vapor, or through the skin, often affecting industrial workers handling the stuff. Mercury was once used to soften rabbit fur for felt hats, giving rise to the disease called "hatters' shakes." Alice's friend the Mad Hatter might have been a fictional victim of that illness. All this is why we hardly see mercury in our homes any more.

**But mercury as medicine?** Indeed, mercury was most commonly used in the 18th and 19th centuries but also right up to the 1950s. It came in two ways: mercurous chloride, known as calomel; and as liquid mercury pulverized into microscopic globules, known as "blue mass" or the "blue pill."

Mercury was prescribed for almost every illness: cholera, typhoid, tuberculosis, migraine, worms and teething in children, depression (as the Prozac of its day), and especially for syphilis. As the old medical aphorism had it, "Una horae cum Venere et decem anni cum Mercurio": one hour with Venus and 10 years with Mercury. A popular remedy for syphilis was to massage a paste of mercury salt right onto the skin. The nursery rhyme "Rub-a-dub-dub, Three men in a tub..." illustrates that old practice.

But why mercury? In the unscientific beliefs of the time, mercury was supposed to be an irritant, expelling bad humors from the brain, liver and intestine. How the physician "knew" it was working was to give enough until the patient produced copious amounts of saliva — gallons a day. Unfortunately, many also lost their teeth, developed tremors, and showed a peculiar complex of wild behavior known as "erythism," so-called because the person's face would become intensely red.

Many persons were poisoned by medicinal mercury in those days; some of the famous ones included Robert Burns, Franz Schubert, Isak Dinesen, Niccolò Paganini, Charlotte Brontë, Louisa May Alcott.

**Then there's the remarkable case** of Abraham Lincoln (described by colleagues and myself in the journal *Perspectives in Biology and Medicine*). A well-known sufferer from depression, Lincoln took large doses of the blue pill in the 1850s. Many of his friends described his peculiar behavior that much resembled erythism. Lincoln himself stopped the medicine just after he reached the White House because, as he told a friend, it made him "cross." It was a wise and far-reaching decision, one that may have been crucial to the outcome of the Civil War. Imagine a President Lincoln impaired by the bewildering effect of mercury poisoning while trying to cope with political intrigue, military reversals, the incompetence of his generals and his own personal tragedies. His patience and steady nerve were as necessary in preserving the Union as any political or battlefield decisions that history records as important.

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