A Rosewood Box: The Power of Objects

by Derek Sears

Objects, by which I mean man-made objects, have an elusive power. That's why we have museums. That's why Neil MacGregor, the Director of the British Museum, was able to make one hundred 15-minute radio shows about objects in the British Museum. In doing so, he told the history of the world, a history of the world through 100 objects. Historical objects have an obvious significance. They inform, they enlighten, but they do much more. They connect us with the past. They explain - in some way - how things were, and why they are the way they are. And it is a significance that probably varies from person to person. It is thus an illusive power. Meteorite research also has its objects, of course, and this is the story of one of them.

My story begins with an interview I conducted with John Wood, now retired from the Harvard-Smithsonian Center for Astrophysics, as a part of a series or oral histories in meteoritics and planetary science I am producing for *Meteoritics and Planetary Science*. Here is the relevant section of John's oral history, taken from the Volume 47, Issue 5, page 903, published in 2012.

John Wood

DS: Let's start with the question Ursula Marvin always asked, how did you get interested in meteorites?

JW: It's a long story. My undergraduate school was Virginia Tech, that's where all Wood males went to college, and I opted for a geology major for the usual reason, the (seemingly) outdoor character of the work. After my first degree I went for PhD work to M.I.T., where Gordon MacDonald was my thesis advisor. Geology is about history over a vast range of time, but it began to bother me that nothing appeared to be known about the origin of the earth or its earliest history. It seemed like the first chapter in historical geology textbooks was always missing; we knew nothing about the first billion years.

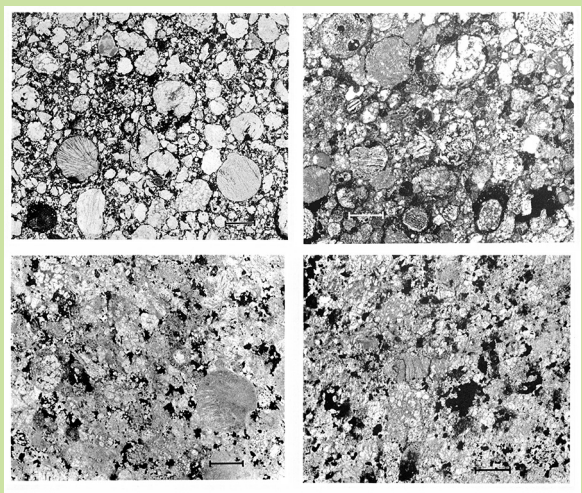
Cross-registration at Harvard was possible, and I rode my bike from M.I.T. up to Harvard Square to take a few courses. At some point Cliff Frondel showed me Harvard's J. Lawrence Smith meteorite collection, from the nineteenth century. Harvard had made thin sections of every meteorite, over a hundred of them, and these were neatly stored in a small rosewood cabinet. Meteorites were understood to be very old, and thinking that meteorite petrography might say something about the early history of the Earth, I got quite interested in these sections. I found that Cliff was willing to lend me the box of sections, and I gleefully bicycled it back to M.I.T. It was a somewhat perilous trip for the sections, as on an earlier occasion someone had opened a car door in front of my bike as I was skimming along the row of cars parked on Mass. Avenue, and I went over the handlebars. Fortunately I had only a loaf of rye bread in the bike's basket that time. This time the rosewood box made the trip okay. (Note: I could swear the box was made of an exotic reddish wood, but having just seen it again to photograph it for this article, I must now confess the box is made of an ordinary brownish hardwood. It just shows what a romantic I am.)

So I went through the sections late in my graduate program (third year), was intrigued by them, and with Gordon's approval I switched my thesis topic to meteorite petrography. I had been mapping igneous ring dikes in New Hampshire for a field/laboratory thesis, and I wasn't really getting anywhere. The sections, mostly chondrites, looked like pyroclastics to me, but they differed from one another in interesting ways. I loved the chondrules, each a unique igneous rock, and tried to picture how they could have formed in the early solar system. I got my degree in 1958, after four years; those were the same four years that MacDonald was on the faculty at M.I.T. We were in sync.

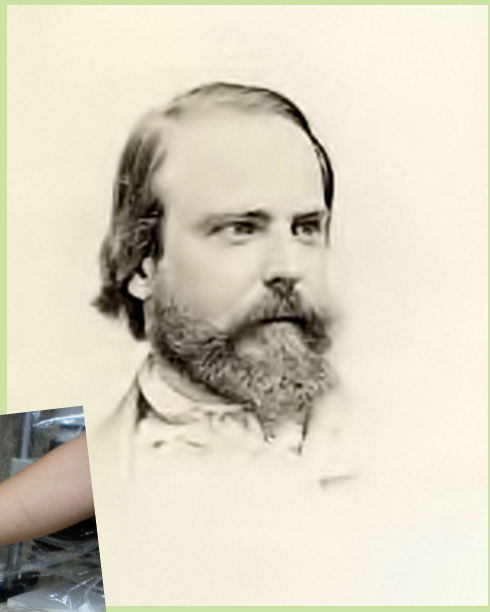
Out of John Wood's thesis came the realization that chondrite meteorites were metamophosed rocks and after pairing up with Randy Van Schmus, who had independently come to a similar conclusion, in 1967 they published the currently used classification for chondrites. It has been embellished, but not changed, in forty-six years. It works.

So we owe something to the Rosewood Box that held the thin sections of the J. Lawrence Smith collection of meteorites.

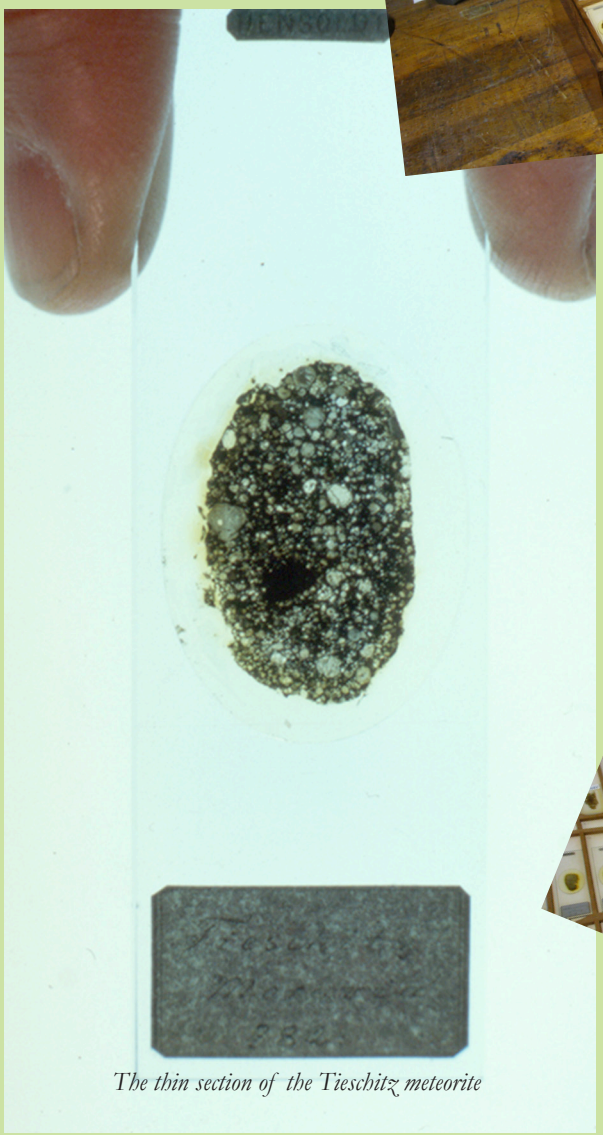
John Lawrence Smith (1818 – 1883) was born in Louisville, Kentucky, and educated in the US and in Europe, in Germany under Liebig and in Paris under Pelouze. After a short career in medicine, during which he established a research journal, he turned to searching for mineral resources in Turkey, inventing the inverted microscope, and being president of the AAAS (1872) and ACS (1877). During this, time he published over 20 papers on meteorites and he amassed the finest meteorite collection in the United States, which upon his death was purchased by Harvard College. The J. Lawrence Smith Medal for meteorite research is awarded by the National Academy.



Figures from Van Schmus and Wood's paper showing the four grades of metamorphic alteration observed in ordinary chondrites



J. Lawrence Smith



The thin section of the Tieschitz meteorite