



VOL. XXI, NO. 3  
SUMMER 2008

What's Inside This Issue:

- President's Message
- "Dig It" Exhibit at the Smithsonian
- Eastside Notes
- Out-of-Order – A Mystery!
- Dates to Remember

## President's Message

by James Cassidy



Hey Society Members: It looks like we have a great Summer Tour shaping up! I hope all of you will consider participating this year (Friday, August 22, 9:00 AM – 6:30 PM) as it is going to be interesting, fun, and delicious! Transportation, lunch, and dinner all included!!! I really look forward to seeing all of you again. As you may recall, this year's Summer Tour theme is **Alternative Agriculture: Sustainable, Organic, and Biodynamic**. We will be visiting a number of Corvallis and Albany area farms where we will see an incredible diversity of farming approaches and methods – and it's all about soil. Local production of food will be increasingly important as food and fuel costs continue to rise. The post-industrial era is upon us and the world is headed toward large-scale shifts that will have big impacts on how and where we get our food and live our lives – change is coming! Whether that change is painful and disruptive or exciting

and inspiring is largely up to how we prepare for it. Fortunately, there has already been a small group of people investing their time and creative energy for the challenges that lie ahead. Oregon is well known as a place where social experiments and innovation thrive and has more small farms per capita than nearly any state in the US. Because of this small group of forward-thinking Oregonians, small farms and local production are well situated to step it up when the inevitable disruptions occur.

The OSSS summer tour '08 will offer just a small sampling of the many farms that have been doing this important groundwork. We will visit sustainable, organic, and biodynamic farms as well as have some great food and drink. Get on board the bus and ready yourself for the future! Our tour begins at 9:00 AM on August 22, as we meet on the OSU Campus at the OSU Compost Observatory and Outdoor Teaching Laboratory (Yes, we have one here!). There is free parking on campus in the student lots (see map below). A light lunch and beverages will be provided around 12:00; bring a snack if you don't plan on having a big breakfast. After touring farms we will end up at Gathering Together Farms in Philomath for a fantastic dinner and grain-based beverages at GTF's renowned farm restaurant (all included in the registration fee)!

Whether or not you are traveling from far afield, please consider joining us Thursday evening (around 6:00 PM) at Squirrel's Tavern in downtown, cosmopolitan Corvallis. They have great home cooking and a fabulous variety of northwest taps flowing! There are a number of lodging and camping options in the Corvallis area. The Benton County Fairgrounds has RV and tent sites with new showers for \$15-\$25/night (<http://www.bentoncountyfair.com/oaks/rates.php>) and there is the new Hilton Garden Inn adjacent to the OSU Campus if you're looking for comfort – 541-752-5000. Really, there are a lot of options, please contact me if you need some assistance.

We are also hosting an optional Corvallis Farmers' Market visit on Saturday morning (August 23) where you can stock up on fabulous summer produce from some of the very same growers that you will have visited the previous day! The Corvallis Farmers' Market is really taking off and should be at its peak in late August – great food, music, and it's right on the historic Corvallis waterfront.\

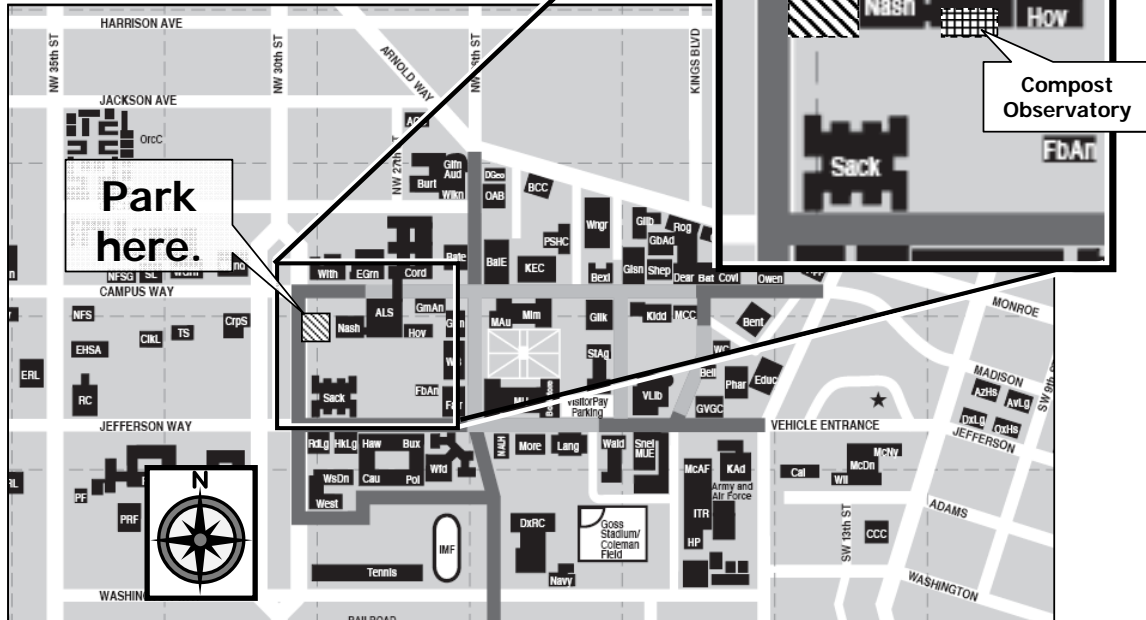
AND PLEASE, REMEMBER TO REGISTER AS SOON AS POSSIBLE (see registration form in this issue of the Sharpshooter). Deadline for registration is August 15 if you want to be included in the drawing for the super secret prizes we have yet to think about (!)

Get on board the bus and let's get out there! See you then!

## Campus map with blow-up

### Where to park and meet:

On the OSU Main Campus – Park in Nash parking lot  
Meet at the Compost Observatory on the South side of  
Agriculture & Life Sciences Building (ALS)



When you get into town, get on Harrison Ave. heading west (if you came in on Highway 34 from I-5, you're already on Harrison!). Take a left on NW 30<sup>th</sup> Street and then left again at Campus Way. Park in the big student lot adjacent to Nash Hall. Walk toward the east around Nash Hall and past it (south side of building) and look for the compost piles! (south side of Agriculture and Life Sciences Building). Call me if you get lost! James, 541-602-4387

## EASTSIDE NOTES – Field Season in Eastern Oregon

by Jenni Moffitt

It's that time of year again: field season is in full swing. Crews across Eastern Oregon are busy mapping soils and the associated vegetative communities. At a national level, there is a push to finish initial soil surveys on private lands by 2010. Here in Eastern Oregon, crews are currently working on the Crook County, Wheeler County, Malheur County, and Grant County Soil Surveys.

Priority for Natural Resource Conservation Service (NRCS) crews is getting the private lands mapped. However, in areas such as Malheur County where there is a high proportion of public land to private, NRCS crews are also mapping public land. Public land management agencies such as the Bureau of Land Management (BLM) and the U.S. Forest Service are busy mapping lands they manage and are matching into the work done by the NRCS on private lands.

As the soils in these areas are mapped, they are correlated to an ecological site that represents the potential natural historic plant community. On BLM lands in the Crook and Malheur surveys, an Ecological Site Inventory (ESI) is being conducted simultaneously with the soil survey. The NRCS is also doing ESI in Wheeler County. The goal of ESI is to estimate the current ecological condition of the vegetative community as compared to the potential natural historic plant community. This analysis is done by identifying the plant species on site, estimating the proportion of each species, and comparing that to the expected proportions outlined in the Ecological Site Descriptions. This information is used to focus efforts for improving site conditions and wildlife habitat quality.

Soil survey crews in Eastern Oregon are staying busy; full speed ahead for the rest of the summer. The following people are working on these surveys: The Crook County and Wheeler County Soil Surveys are based out of the Redmond NRCS office where Jerry Weinheimer is the Project Leader. Soil Scientists Dick Kern and Kurt Moffitt are working on the Crook Survey while Jerry and Ryan Miebach are focusing on the Wheeler Survey. Jamie Kienzle and Stan Winther are Soil Scientists working on the Grant County Survey. CiCi Brooks is the Range Conservationist for the Grant, Wheeler, and Crook Surveys. She is responsible for making sense out of the multitude of existing ecological sites and making sure that soils in ongoing soil surveys get tagged with the best fit ecological site. The Prineville BLM has an ESI crew working on BLM administered lands. Ed Horn and Jenni Moffitt are mapping the soils while Randy Hinson, Christopher Anthony, Emily Hurd, and Cassandra Hummel are putting together the vegetation information.

Alan Bahn, Area Range Conservationist with the NRCS out of Baker City, recently retired. Alan worked hard at getting good soil/ecological site correlations with the Harney County, Baker County, John Day Fossil Beds, and the Grant County soil surveys just to name a few. He worked closely with soil scientists from both NRCS and BLM to get the best soil/site correlations possible. Alan was an expert on soil biological crusts and wetland plant communities and will be sorely missed.

The Malheur County Soil Survey has two offices, the Northern office in Ontario, Oregon, and the Southern office in Vale. Mark Keller is the MLRA Project Leader in Ontario, and Jeff Pace is the soil scientist working under Mark. Alina Rice is the Project Leader in Vale, and Shanna Bernal-Fields is the soil scientist working under Alina. The Vale BLM has an ESI crew currently working on BLM lands in the Southern Malheur survey area led by Charlie Tackman.

\*If anyone from Eastern Oregon has any news to share with OSSS members, or knows of exciting projects that should be the topic of our OSSS Eastside Notes please contact Jenni Moffitt at [jennifer\\_moffitt@blm.gov](mailto:jennifer_moffitt@blm.gov) or (541) 416-6775.

## **New Natural History Exhibition Reveals the Impact of Soil on All Life on Earth**

*—News from the Smithsonian National Museum of Natural History*

There are more living creatures in a shovel-full of soil than human beings on the planet, yet more is known about the dark side of the moon than about soil. These are just a couple of the fascinating facts visitors can learn from the new temporary exhibition "Dig It! The Secrets of Soil," open July 19 through Jan. 3, 2010 at the Smithsonian's National Museum of Natural History.

The 5,000-square-foot exhibition reveals the complex world of soil and how this hidden ecosystem supports nearly every form of life on Earth. The exhibition is sponsored by the Soil Science Society of America and the Nutrients for Life Foundation, which is underwritten by The Fertilizer Institute.

"Dig It!" includes interactive displays, hands-on models, videos and soil samples. Curious visitors will get the dirt on this little-known subject through audiovisual and interactive components, from a set of interactive soil stratigraphy blocks to a crime scene investigation video focusing on the processes of decay to a computer kiosk where visitors can learn about their state soil.

Visitors can also explore soil found in their own backyard and in obscure locations, with 54 soil samples representing each U.S. state and territory and the District of Columbia, as well as soil maps and touchable soil models from around the world. In doing so, visitors will discover a world teeming with life. In fact, so many organisms contribute to the health of soil that scientists have not even named them all.

“This is the most ambitious exhibition ever dedicated to soil, a resource as important to life on Earth as water and air,” said Patrick Megonigal, soil scientist for the Smithsonian Environmental Research Center, which is located in Maryland near the Chesapeake Bay. Megonigal is the exhibition’s lead curator.

“Dig It!” shows how every type of soil is unique. Visitors can observe the way water moves through different soils in tumbler tubes containing sand, silt, clay and loam. The flow of water through soil can affect minerals and gases and all life that depends on soil. Soil color tells fascinating stories about mineral compositions and soil formation or history. “Dig It!” color cards help visitors to unveil the stories behind soil samples. Visitors also can get in touch with their inner detective and learn about the soil food web in the “Matters of Life and Death Theater.”

“The mission of this exhibition to educate millions about the importance of soils truly aligns with the Soil Science Society of America’s own purpose of advancing soils as being fundamental to life,” said SSSA President Gary A. Peterson. “Soil has an impact on climate change and our carbon footprint, among other important environmental issues.

After examining soil close up, exhibition visitors can step back and see the “big picture” with a world map and interactive stations that present the connection between soil and global systems. Models demonstrate the roles of soil around the house and the formation of soil in commercial and residential construction, dams, playing fields, neighborhoods, roads and in food production. An evocative video explains soil’s role as a “secret ingredient” in such household goods as medicines, food, wine, textiles, paint, cosmetics and pottery.

“The exhibition paints a remarkable picture of soils and their role as a reservoir of life,” said Ford West, The Fertilizer Institute and Nutrients for Life Foundation president. “Preserving the health of soils around the globe is critical to our ability to produce nutritious foods for future generations.”

Following its showing at the National Museum of Natural History, “Dig It!” will travel to 10 museums across the country through 2013 under the auspices of the Smithsonian Institution Traveling Exhibition Service. For more information about the traveling exhibition, visit [www.sites.si.edu/soils](http://www.sites.si.edu/soils). Additional information about “Dig It! The Secrets of Soil” is available at <http://forces.si.edu/soils>.

The National Museum of Natural History, located at 10th Street and Constitution Avenue NW in Washington, DC, welcomed more than 7 million visitors in 2007. The museum is open daily from 10 AM to 7:30 PM through Aug. 31 and from 10 AM to 5:30 PM thereafter. Admission is free. More information about the museum is available at [www.mnh.si.edu](http://www.mnh.si.edu) or by calling Smithsonian Information at (202) 633-1000, TTY (202) 633-5285.





## EXHIBITION FACT SHEET

Starting July 19, 2008, visitors to the Smithsonian's National Museum of Natural History can journey into the skin of the earth and explore the amazing world of soils in the new exhibition, **Dig It! The Secrets of Soil**. Completely familiar yet largely unknown, soils help sustain virtually every form of life on Earth. Still, it is said that we know more about the dark side of the moon than we do about the Earth beneath our feet. **Dig It!** will transport visitors to the world of fungi, bacteria, worms, and countless other organisms. Visitors will discover the amazing connections between soils and everyday life and think about this hidden world in a whole new way.

## EXHIBITION FEATURES

In the **"At Home in the World of Soils"** gallery, visitors explore the connections between soil and culture. While we walk on soils every day, we rarely think about how soils affect our daily lives. This gallery explores these connections with a scale model of a typical suburban house lot that highlights soils in and around our homes. Nearby, an evocative video features soils as the "secret ingredients" in thousands of everyday items including medicine, food, fiber, paint, cosmetics, and pottery.

The **"Underneath it All"** gallery explores soils in a broader perspective. A large topographic model illustrates the role of soils in residential, urban, and agricultural areas. Touchable soil samples provide closeup looks of two very different urban soils found right here in Washington, D.C. Exhibit panels examine how soil management can help meet modern day demands for food production, infrastructure construction, and environmental protection.

**"The Big Picture"** area gives the global view, symbolized by a centrally-placed art sculpture depicting soils at the center of Earth's water, nutrient, life, and carbon cycles. A world map and computer interactive stations highlight surprising global connections to soils. Nearby, the **"Get Soil Savvy!"** display uses dramatic images and video to explore the importance of soils in land management and conservation.

Curious visitors can also dig into life, death, and decay in the **"Matters of Life and Death Theater,"** where a ten-minute video follows an edgy detective story about the micro- and macroscopic soil food web. Outside the theatre, visitors learn more about how microorganisms that inhabit soils impact our planet. Visitors can activate two soil "breathalyzers" (infrared gas analyzers) and detect the amount of carbon dioxide produced by soil organisms in two very different environments.

In **"Sizing Up Soils,"** visitors will get the dirt on soils in an array of fun interactives and exhibition stations. A **"Chef's Challenge"** kitchen features two flamboyant "soil chefs" who create two very different soils from the same ingredients. Visitors can find their "home earth" in a display of 54 soil samples, or "monoliths," representing each state in the nation, the U.S. Virgin Islands, Guam, Puerto Rico, and the District of Columbia. Visitors become soil detectives and use clues to deduce what landscapes three mystery soils support. Other interactives explore soil color, texture, particle size, and minerals.

**Dig It!** is located on the second floor of the Smithsonian's National Museum of Natural History.



Smithsonian  
National Museum of Natural History

# OUT-OF-ORDER – a mystery!

by Stan Winther



It was a cold night in London and snow was falling again. A black cab halted in front of 221G Baker Street under a weak street light. A middle-aged woman carefully stepped out, walked briskly up the steps, and was about to knock when the door opened. Sedgwick Holmes stood in the entrance. He pardoned himself for startling her and graciously ushered her into the living room where Dr. Watson was pouring tea.

“Mr. Holmes, I am sorry to bother you at this late hour, but I need your help. My name is Mrs. Gains. I fear I will lose my job if I can not explain the shifting soils.” As she spoke, she was tearing away at the tissue in her hands.

“Please calm yourself and sit down. By your uniform, I see you are a maid and by the dust on your shoes, I see that you clean objects most of the day,” Holmes said. “Please start at the beginning,”

“Of course,” she said. “I am employed by Sir Crumley as the downstairs maid at his mansion. He is president of the International Soils Committee. Sir Crumley displays his soils as monoliths and then mounts the monoliths on the walls, very like an art gallery. One morning last week Sir Crumley assembled the staff and chastised us for rearranging the monoliths into alphabetical order instead of taxonomic order. Mr. Holmes, I do not know what taxonomic order is and neither does the staff. I certainly would not tamper with Sir Crumley’s possessions. Can you help us?”

“Yes, I will help you. We will go to Crumley Manor to investigate,” Holmes pledged and then showed her the way out.

Holmes slowly returned to his chair giving careful thought to what had just happened. Then he turned to Dr. Watson and asked, “What did you make of that, my dear Watson?”

“Obviously it is a trivial matter. It is not worth your time,” Watson replied.

“Did you notice that she failed to dot her “i’s” and cross her “t’s” in her monolog? Furthermore, she used a sentence fragment and had a run-on sentence.”

“Holmes, you amaze me!” said Dr. Watson.

Sedgwick Holmes allowed himself a brief look back at his life. His great, great, great grandfather, the famous Sherlock Holmes, had passed down his great powers of deduction to the family as well as a scholarship fund for all future generations. As a young man, Sedgwick had reluctantly majored in soil science to please his parents. But it wasn’t until a soils professor at his college was found dead and buried in his own soil pit that Sedgwick really became fascinated by the subject. “How could a person die and then bury himself or why would someone cover himself with soil and then die,” Sedgwick wondered. “Was it an accident or murder?” he mused. Once the police had removed the body and left the site, a handful of students, including Sedgwick, gathered around the pit. A young medical student named Watson spoke up and theorized that it was an accident, pointing out the extreme depth of the pit and the unstable, sandy profile. After a slow walk around the pit, Sedgwick said, “Yes, it was an accident, but certainly an intentional accident because it was the presence of someone above the pit face that caused the soil to give way and then the falling weight of that someone crushed the professor. The professor’s killer was a soils student who knelt over the pit face even when he was warned not to.” Solving the case was just a matter of looking for sand grains on the knees of every soils student. With that first case, Holmes and Watson had become lifelong friends. Well, that was in the past. They had a case to solve and the first stop was at the residence of Sir Crumley.

The next morning Sir Crumley’s butler, Belvedere, ushered Holmes and Watson through the impressive foyer and into the parlor where the profiles of all 12 soil orders were mounted on the walls as monoliths. A name tag was boldly tacked to the top of each monolith. Holmes, who had heretofore only known people who invested in large paintings, momentarily dwelt on Crumley’s very strange hobby.

Sir Crumley entered and welcomed Holmes and Watson with a hardy handshake. "Gentlemen, what brings you here?"

"Mrs. Gains asked us to come," said Holmes.

"Enough said," Sir Crumley nodded with seriousness. "The problem is that the soil orders should not be in alphabetical order. Someone has moved each of the monoliths. The monoliths and the orders they represent should be arranged to mirror soil taxonomy. Much thought has gone into this arrangement."

Sir Crumley continued. "Now if someone wishes to classify an unclassified soil, he must determine the presence or absence of certain soil features known as 'diagnostic horizons' as displayed here in each soil profile. For example, does the soil have a leached mineral layer, a clay layer, an ash mantle, a dark surface, a frozen subsoil, a highly fibrous surface, or none of the above? By using the predetermined taxonomic order and these diagnostic horizons, a person can classify their soil."

"And how long have your soil orders been out of order?" asked Dr. Watson with a slight smile. (In British society, emotions are rarely displayed. Thus, a slight smile is equivalent to a short chuckle.)

"Watson, there is no place for humor in soil science," admonished Sir Crumley with disgust. "Maybe there is levity in plant science or rock science but not in soil science. We soil scientists are very much by the book. But to answer your question, I do not know when the soils changed places. I have been away for days."

In the meantime, Holmes took out his magnifying glass and examined each profile. Rather than looking for clay films, he was checking for fingerprints...and there were fingerprints.

Sir Crumley continued. "I have gathered these soils from around the world at great risk to my personal safety—Andisols from Idaho, Entisols from the Sahara Desert, Aridisols from Australia, Histisols from Canada, Alfisols from Poland, Inceptisols from India, Mollisols from Nebraska, Vertisols from Texas, Gelisols from Alaska, and Oxisols from Brazil. Sometimes I purchased them on the Internet or on the black market. In so doing, I must deal with unsavory characters from identity thieves to illegal aliens to religious fanatics, all desperate for cash. There were times when I had to travel to the middle of deserts by camel caravan or to the tops of mountain ranges in blizzards or slog through mosquito-infested swamps to obtain a monolith. Yet, a few months ago I was fortunate enough to have purchased a spodosol monolith at an antiques show from a lady in Maine."

"Very interesting. Are you still conducting guided tours of your soils collection?" asked Holmes.

"Yes, of course. We need the money and the tours are a useful method to educate the public. Furthermore, we have a gift shop with T-shirts, calendars, and baseball caps and then a special souvenir section of silly soils for children, pet soils for the lonely, and hard and soft soils for music-lovers. We have several student/trainees who have volunteered to show people through the exhibit."

With a broad smile and a glint in his eyes, Holmes asked, "Until you have time to reinstate the taxonomic order, will you place an 'out-of-order' sign around the display?" (His emotion was the same as a long laugh.)

Sir Crumley's face quickly reddened. "Mr. Holmes, I am sure you wish to speak to the staff. I will have them report to you."

"Yes, of course, and have them bring their after-work shoes and pants," said Holmes. From these items, Sedgwick was able to conclude that:

- Reginald, the chef, was a dog owner because of the abundance of dog hair in the lap region of his pants;
- Belvedere, the butler/driver, was into betting on horse races rather than being a horse owner because of minute particles of bedding straw on his shoes and racing stub in his pocket;
- Mrs. Gains (the downstairs maid) and Mrs. Sheffield (the upstairs maid) were avid gardeners due to evidence of the dried compost stuck to the bottom of their shoes and the large calluses covering their knees.

Sedgwick asked the staff if they had seen anyone suspicious near the soils collection. After careful thought, they all agreed that the most suspicious visits were by a boisterous group of soil scientists from Oregon who had

visited both last summer and this summer. Their spokesman explained that their group had seen everything there was to see in Oregon, twice!

After visiting the mansion Holmes traveled to an auction house that specialized in disposing of government equipment. Gerald Millison, the auctioneer, led Holmes behind the auction house to a warehouse full of excess property. In one corner was a pile of bent sharpshooters. In another corner were stacks of chipped augers. In the center of the warehouse were barrels of empty squeeze bottles in all shapes and sizes. Water from the squeeze bottles was used for texturing soils. And, of course, there were piles of color books and probing knives. Millison explained that all these items must be surrendered whenever the surveyor retires.

“Mr. Millison, tell me about the value of monoliths on the world market,” said Holmes.

The auctioneer explained that the value of a monolith depends on its rarity as well as the artistic style of the person collecting the monolith. For example, each monolith in Sir Crumley’s collection is the ultimate expression of that soil order and that requires much searching. Thus, his private collection is world renowned and insured for a great deal of money by Lloyds of London. But the real value of a monolith stems from the manner in which the collector “breaks out” or carves away the individual peds in order to reduce the volume of soil on the board. Coarse peds indicate a collector with little time and training whereas fine peds demand time and finesse. Finally, if the collector tries to reattach a ped that has fallen out of a soil layer with super glue, then the value of the monolith has been significantly reduced. And, of course, if the collector dies, the price increases immediately because no more monoliths will be created by him. Thus, a minor collector such as Tom Clark must pass away for any of his monoliths to have any worth. Mr. Clark is noted for the ingenious manner in which he attached a slab of bedrock to the bottom of his monolith of a moderately deep soil. So the value of a monolith is based either upon its rarity, workmanship, reputation of the collector, or all three.

With a copy of *Soil Taxonomy* in hand, Holmes and Watson returned to the Crumley manor and began examining the monoliths again. They found that even though the artistry was good, most of them were fakes. In one case the white, ash mantle was 13 inches thick rather than the mandatory 14 inches, so it could not be an andisol. Another monolith depicting an alfisol had its thin clay films enhanced with a coat of shellac. A third monolith possessed peds in the shape of trapezoids in the subsoil rather than wedged-shaped peds, which disqualified the profile as a vertisol. Baby powder had been dabbed onto the surface horizons of the fourth monolith in an effort to portray its dark surface as a light-colored layer. A light-colored surface is required for an aridisols.

That night at dinner Holmes stood up and announced he would identify the scoundrel who had made the copies of Sir Crumley’s monoliths and why. The dinner was attended by Sir Crumley himself, his mistress, his nephew, his lawyer, his accountant, and several members of his International Soils Committee and the student/trainees who helped with the tours. Everyone became very quiet and excited.

Holmes began slowly. “Admittedly the monoliths had the fingerprints of the students, the staff, and Sir Crumley himself. Nonetheless, there was only one student/trainee who had the motive and opportunity. And that was Frederick. He was drowning under the weight of his student loan. Plus he had access to all of the tools and chemicals in his workshop. One by one he had replaced the monoliths with hand-made copies and sold the originals to a private collector. His fatal flaw was that he knew the basics of soil classification but not the specifics such as an andisol needing a minimum of 14 inches of surface ash.”

As the student/trainee was hauled away, Holmes looked glum. When Watson asked what was troubling him, he replied, “Capture of this fellow does not answer the question of who and why the order of the monoliths was changed.”

“Ah, my dear Holmes” replied Dr. Watson, “another mystery for you to solve!”



## Dates to Remember



**July 18, 2008:** Symposium "Soil: Sustaining Life on Planet Earth; Washington D.C. Information available at [http://www7.nationalacademies.org/usnc-ss/Soil\\_Sustains.html](http://www7.nationalacademies.org/usnc-ss/Soil_Sustains.html)

**July 19, 2008:** Smithsonian Soil Exhibit Opens; Washington D.C. Information available at <http://forces.si.edu/soils/>

**July 24-26, 2008:** Washington Society of Professional Soil Scientists Summer Tour. Information available at [http://www.ieway.com/wspss/wspss\\_events.html](http://www.ieway.com/wspss/wspss_events.html)

**August 21-23, 2008:** Oregon Society of Soil Scientists Summer Tour; Corvallis, Oregon. Information available at <http://osss.peak.org/>

**October 5-9, 2008:** Joint meeting between The Geological Society of America (GSA), Soil Science Society of America (SSSA), American Society of Agronomy (ASA), Crop Science Society of America (CSSA), and the Gulf Coast Association of Geological Societies with the Gulf Coast Section of SEPM (GCAGS), hosted by the Houston Geological Society (HGS); Houston, Texas. Information available at: <https://www.acsmeetings.org/>

**February 18-20, 2009:** Oregon Society of Soil Scientists Winter Meeting; Portland, Oregon

## Sharpshooter

The *Sharpshooter* is the official newsletter distributed to the members of the Oregon Society of Soil Scientists. Published quarterly by the Oregon Society of Soil Scientists and J.B. Good, Inc. Address changes or inquiries about membership to:

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## Advertisements

Reach more than a hundred soil science professionals with an advertisement in the *Sharpshooter*. And the price is right—whole page \$45, 1/2 page \$25, 1/4 page \$15, or 1/6 page \$10. All you need to do is provide a disk and hard copy to the *Sharpshooter* editor by the deadline (first of the month – January, March, June, and November).

All articles and advertisements submitted are subject to room available basis.

## News items

Remember all articles submitted to the *Sharpshooter* can be sent on 3-1/2" disk in most any DOS, MAC or ASCII format, along with a hard copy. In doing so, the *Sharpshooter* can get to you faster.

### Member rates

\$ 30.00	Regular member
18.00	Associate member
35.00	Sustaining member
10.00	Student member
300.00	Lifetime member

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