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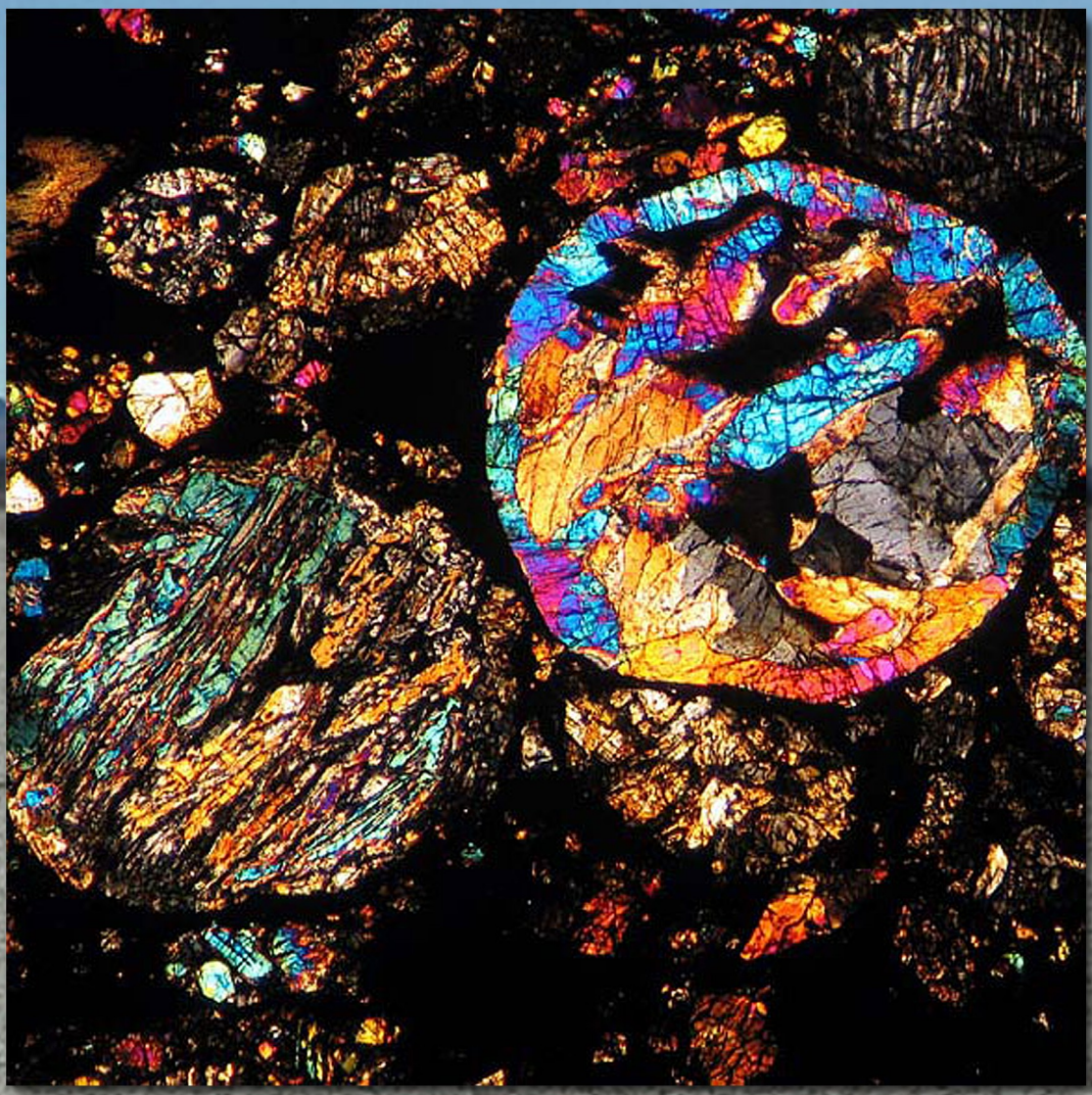

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Meteorite-Times Magazine

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Novo Urei: The Stuff of Legends!

by Martin Horejsi

A September 1886 Witnessed Fall: Novo Urei, Russia

Novo Urei: The Stuff of Legends!

Putting the Urei in Ureilite

and the Muffin Hypothesis

Novo Urei is truly the stuff of legends. Long before I knew the specific details of its fall and subsequent scientific discoveries about it, I'd heard tales about an amazing meteorite fall full of unforgettable events. Turns out, many of the stories were from the fall and recovery of the Novo Urei meteorite.

As an owner of a important piece of ureilitic history, I take the Novo Urei stories personally and want them connected directly to Novo Urei instead of some generic meteorite somewhere.

Meteorites are collected for both their science and their stories so it is a special treat when one of the most interesting meteorites ever also carries with it truly legendary tales surrounding its fall.

I don't use the word "legendary" lightly. As a brief test for the legendary status of a meteorite, I made up this list of required criteria:

1) There can be no living witnesses to the event.

2) Parts of the meteorite's story are known by many, but not always associated with the particular

fall.

3) The story about the meteorite is regularly exaggerated or embellished.

4) The story about the fall or the science becomes a non-specific generic example of such an event.

5) The meteorite becomes a “type specimen” for a classic story.

6) A nickname, statement or important fact often leads or immediately follows the name of the meteorite when it enters a discussion, or is up for auction or exchange.

Other stones that I believe qualify as Legendary include Ensisheim, Orgueil and Weston. I expect Murchison will become Legendary in 2069, and Park Forest in 2103.

Novo Urei has the classic look of a fresh ureilite. As it should since Novo Urei is the type specimen for the class and thus put the Urei in Ureilite!

Most collectors have heard or read the following about a meteorite that…

-Caused peasants to fall to the ground in fear;

-Thunderbolts were falling from the sky;

-The stone was filled with diamonds;

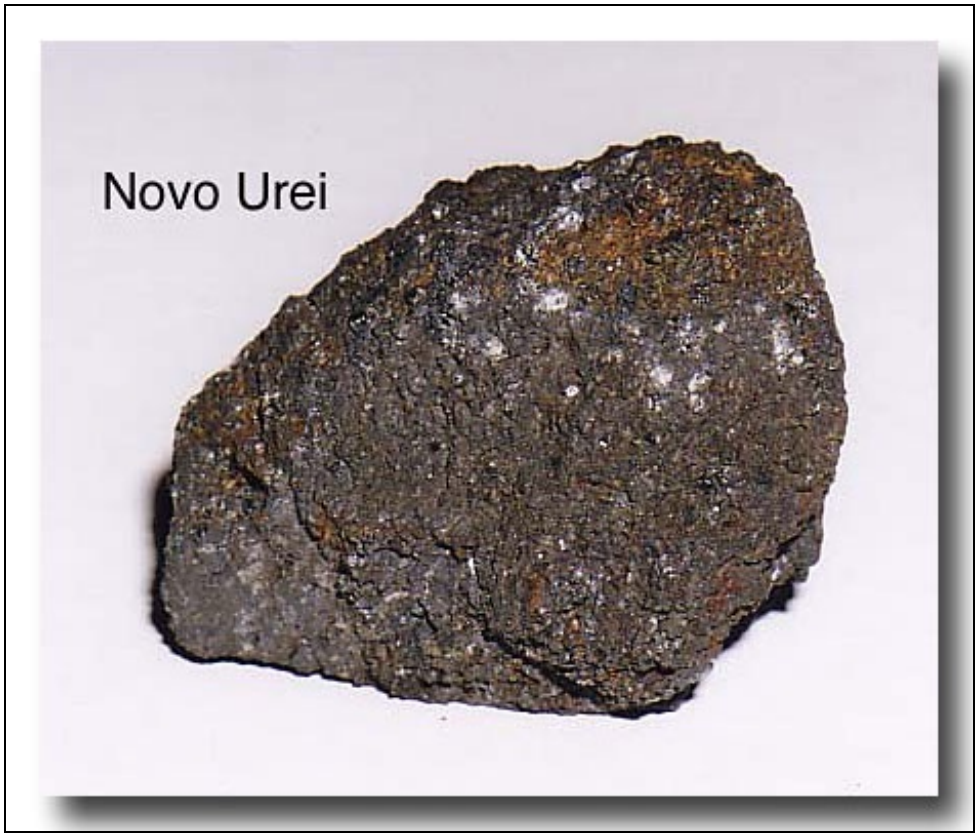
-The meteorite was eaten right after it fell;

-The stone was smashed and eaten;

-The stone was full of diamonds and was eaten;

-The meteorite landed in a swamp;

-Two of the three fallen stones were lost.



Years ago when I had the opportunity to photograph many of the amazing but undisplayed pieces in the Smithsonian's collection, Novo Urei was on my list. The image above is the specimen in their collection. I believe this sample weighs more than 50 grams.

According to an 1886 report by a teacher from Kirensk City named P.I. Baryshnikov, the events of the fall of Novo Urei were as follows:

In the morning several peasants plowed their field 3 km from a village.

The day was gloomy, the whole northeastern sky was covered by clouds.

Suddenly a light appeared all around.

In several seconds a strong report was heard, like a cannon or explosion.

Then came a second, louder noise.

With a loud noise a fireball fell to Earth a few meters from the peasants.

Frightened, they did not know what to do.

They fell to the ground and could not move for a long time.

They thought it was a strong thunderstorm, and that thunderbolts were falling from the sky.

Finally, one of them, more brave, came to the place where the thunderbolt had fallen, and to his surprise found only a shallow hole.

In the middle of the hole a black stone lay half-buried in the soil.

The slicing of a ureilite is no simple task. As you know diamonds are hard, and often as hard as the blades used to cut these things. As with most rock cutting, the rock is not really cut per se, but instead a gash is ground into the stone resulting in to two or more separate pieces.

Because of the extreme hardness of ureilites, they put up quite a fight with expensive saw blades. Luckily most people never have to cut one.

The image above shows the precision of the cut resulting in a very clean 90 degree corner. Usually once cut, the prep ends since polishing a ureilite does not often bring out much detail and requires another serious effort that is both hard on man and machine.

Harry McSween, in his book Meteorites and Their Parent Planets (1999), wrote the following:

“On a September morning in 1886, several meteorites fell near the village of Novo Urei in the Krasnoslobodsk district of Russia. This was a particularly interesting fall for several reasons. One of the stones was soon recovered by local peasants, where- upon it was broken apart and eaten.

The motivation for this rather unusual action is not known, but this constituted an impressive feat from a dental perspective, because the meteorite contained numerous small diamonds.

The uneaten specimens from this fall proved to be a unique type of achondrite; subsequently recovered meteorites of this class are known as ureilites.”

—

“The ureilites are arguably the most bizarre and perplexing of all meteorites.”

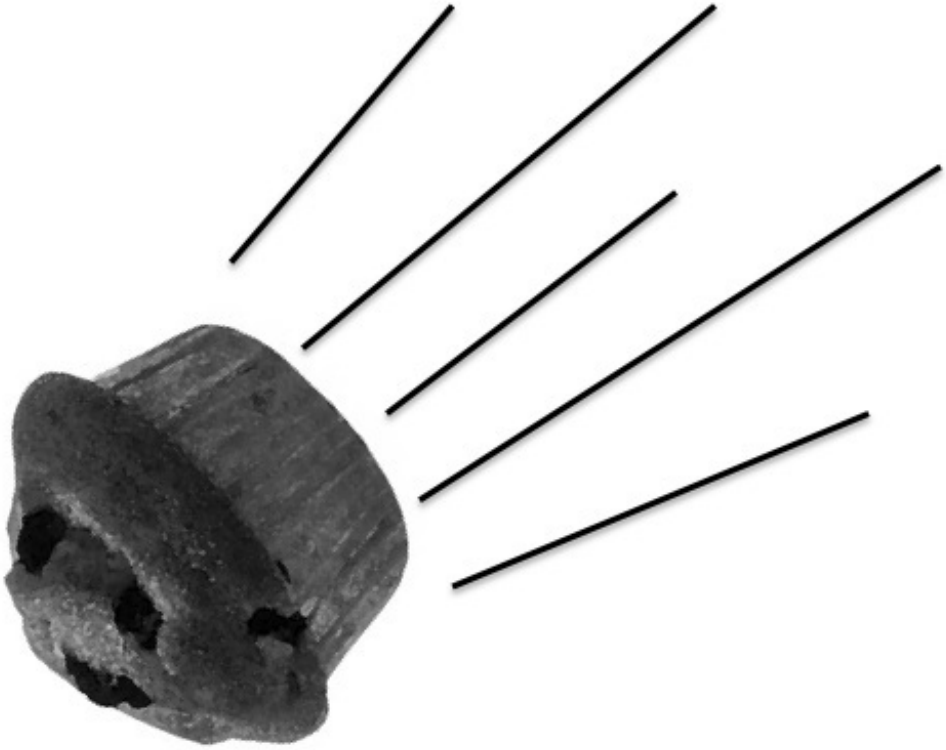
—

“It seems likely that the ureilite parent body had a carbonaceous chondrite composition. The addition of a small amount of basalt (presumably extracted from these residues) to ureilites can produce a rock with the composition of carbonaceous chondrite.”

—

“One of the most interesting characteristics of ureilites (aside from their possible tastiness) is that they have experienced variable but typically intense shock metamorphism. In many specimens, graphite, the original carbon mineral, has been partly transformed by shock into its polymorphs, diamond and londsdalite (polymorphs have the same composition but different crystal structures).

Shock has also disturbed the isotopic clocks in ureilites. The olivine and pyroxene assemblage appears to have formed 4.5 billion years ago, but some some radiogenic isotopes were redistributed at 4.0 billion years ago.”



My **Muffin Hypothesis** assumes that the individual of Novo Urei that was broken apart and eaten was actually a small highly oriented individual that not only resembled a muffin or cupcake, but also, due to its carbonaceous chondrite ancestry, offered the finders a peasant or familiar aroma of some sort.

Over the years, when contemplating why anyone would eat a freshly fallen meteorite, let alone a one filled with diamonds it has been speculated that the meteorite may have smelled good, or was shaped like a loaf of bread. When I first read those suppositions I joked in my mind that if the peasants could mistake a cinder-black diamond-hard rock that fell from the sky for a loaf of bread, then there are big problems with either the local baker or the peasant’s drinking water.

Imagine the dialog:

Nikita: Hey Vladimir, check out this delicious looking piece of bread that just fell from the sky.

Vladimir: Looks a little well-done for my tastes. But it smells good like Grandpa’s vodka.

Nikita: Drat! My knife blade broke.

Vladimir: Maybe we can smash the bread apart on this rock.

Nikita: Or take it to the blacksmith. He has a big hammer.

CRASH!

Vladimir: Mmmm. It's still warm in the middle.

Nikita: I think it's kind of dry. Maybe needs some butter?

Vladimir: Tastes moist and salty to me.

Anastasiya: What are you idiots eating? You look like vampires with blood dripping out of your mouths!

But in the interest of science, I pursued it in my mind during a long trail run. My conclusion snapped into focus when I considered the 158g difference between the listed TKWs of Novo Urei by the Russian Academy of Science and the Catalogue of Meteorites.

A 158g meteorite is not very large, golf ball sized maybe?. Just by considering a small sized individual made consuming the stone a more palatable thought. Then I added to the mix that Goalpara was a highly oriented stone so it is conceivable that an oriented stone with an exaggerated rollback rim, distinct clean lipping, thick frosting-like flowlines, and a trailing face with a flat surface could make stone meteorite mimic a muffin's look quite well.

Smells are often associated with freshly fallen meteorites, from sweet to sulfurous. The carbonaceous chondrite named Murchison is the poster child for stinky meteorites having offended the olfactory senses of many residents of the small Australian town in which it fell. Ureilites are related to carbonaceous chondrites so a smelly, possibly pleasantly so, muffin-like small black stone is actually a reasonable possibility.

So how would such a muffin fall from the sky? It's a stretch, but imagine a bakery exploding. I'm not sure what the bakers in the Respublika Mordoviya of Russia used to heat their ovens in 1886, presumably wood, but a vat of something or other could blowup.

Or more reasonably, imagine a disgruntled shopper with freshly broken tooth throwing the stone-like muffin in a fit of rage where it landed at the feet of hungry field workers.

Formally, **The Muffin Hypothesis** states that one individual of the Novo Urei meteorite was exceptionally oriented resembling a pastry like a muffin, it emitted an odor adding to the disguise, and was small enough (~158g) when broken apart, the "crumbs" could be easily eaten without the dental damage imagined if the peasants bit into the meteorite as if it were an apple.

My conclusion, therefore, supports the need to dredge the contents of those outhouses nearby the fall site that were active during the few days after the fall. Unless it was common for the local residents to eat rocks, the stratographic layer under the outhouse corresponding to the appropriate timeframe should be relatively free from rocks except for those of interest.

Pictured above is the polished face of a sample of Goalpara, a ureilite that was discovered (fell?) in 1868 in India. While I certainly enjoy the polished face and appreciate the work that went into such prep, this really is not, in my opinion, a dramatic improvement over a rough cut face. However, under magnification, it is a different story altogether.

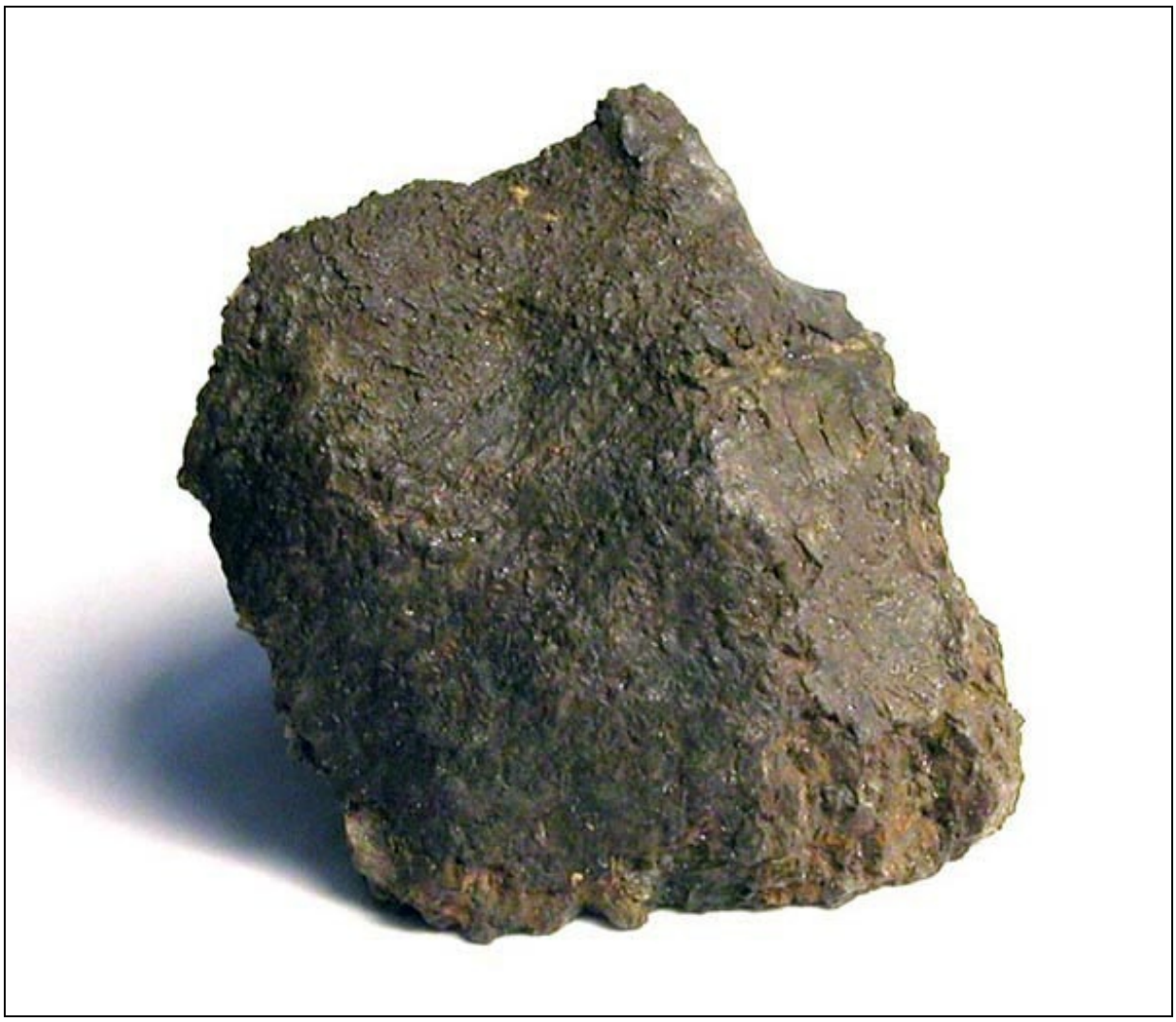
Novo Urei was the first meteorite in which diamonds were found. The discovery of diamonds was made by the Russian scientists Erofeev and Lachinov in 1888, only two years after its fall. Although Novo Urei, and all other fresh ureilites require a learned appreciation for their surface features, in thin section, they are an entirely different world. To quote Norton and Chitwood (2008):

“Under room lighting, cut slabs appear dark and opaque and just plain uninteresting. Thin sections of ureilites seen in cross-polarized light, however, show a spectacular color field of olivine and pigeonite in various crystal orientations.

These ugly ducklings of the achondrites are some of the most beautiful of the asteroidal achondrites.”

Due to the dark matrix of a ureilite, the fusion crust is generally more apparent though its texture than its contrast. The above image shows the briefest appearance of crust on my slice of Novo Urei.

The photograph below shows the wonderful, very durable crust on my end section of Goalpara,



Novo-Urei has been on my wish list for as long as I've had a wish list. I guess you could say Novo Urei was my wish list.

I remember once seeing a tiny piece of Novo Urei on ebay. It was about half a gram in mass and the bidding started at $250. I hesitated and lost it. Figuring that more would show up, I first contacted the seller only to learn that there was no more available.

That loss never left me. I knew there was a gaping hole in my collection that only Novo Urei could fill.

As they say (and who is 'they' anyway?) beauty is in the eye of the beholder. Such is true for the Ureilites and in this case, Novo Urei is a world class supermodel at whom I cannot stop gawking.

There is nothing about this meteorite that is average. There is nothing mundane, and there is nothing ordinary. Novo Urei is exceptional across the board from any direction, from any perspective. It is an amazing sample of our solar system, of our interaction with such material, and of how the field of science and folklore can change forever due to one specific thunderstone.

While Novo Urei was not the first ureilite to fall (or I guess it was due to semantics), it is the type specimen for the class called ureilites. Way back last century when I first learned about ureilites, I, like many, assumed the class was named for Harold Urey, a famous American cosmochemist. It was a understandable mistake given that howardites are named for Edward Howard, a British chemist, and diogenites were named after the ancient Greek philosopher Diogenes of Apollonia. I wrote an Accretion Desk column about Harold Urey and ureilites back in 2004.

The Meteoritical Bulletin lists the total known weight of Novo Urei as 1900g, while the Russian Laboratory of Meteoritics lists the total mass of the three stones as 2058g. Regardless of the 158g difference, it is the fall date, class, type specimen, diamonds, and TKW that makes Novo Urei one of the most difficult stones of any flavor to add to one's collection.

The worldwide distribution of Novo Urei, according to the Catalogue of Meteorites, is as follows:

The main mass is listed as in Museum Mining Institute in Leningrad.

The world's second largest piece, listed at 481.3 grams, is in the Academy of Sciences in Moscow. Their 460 piece is pictured here.

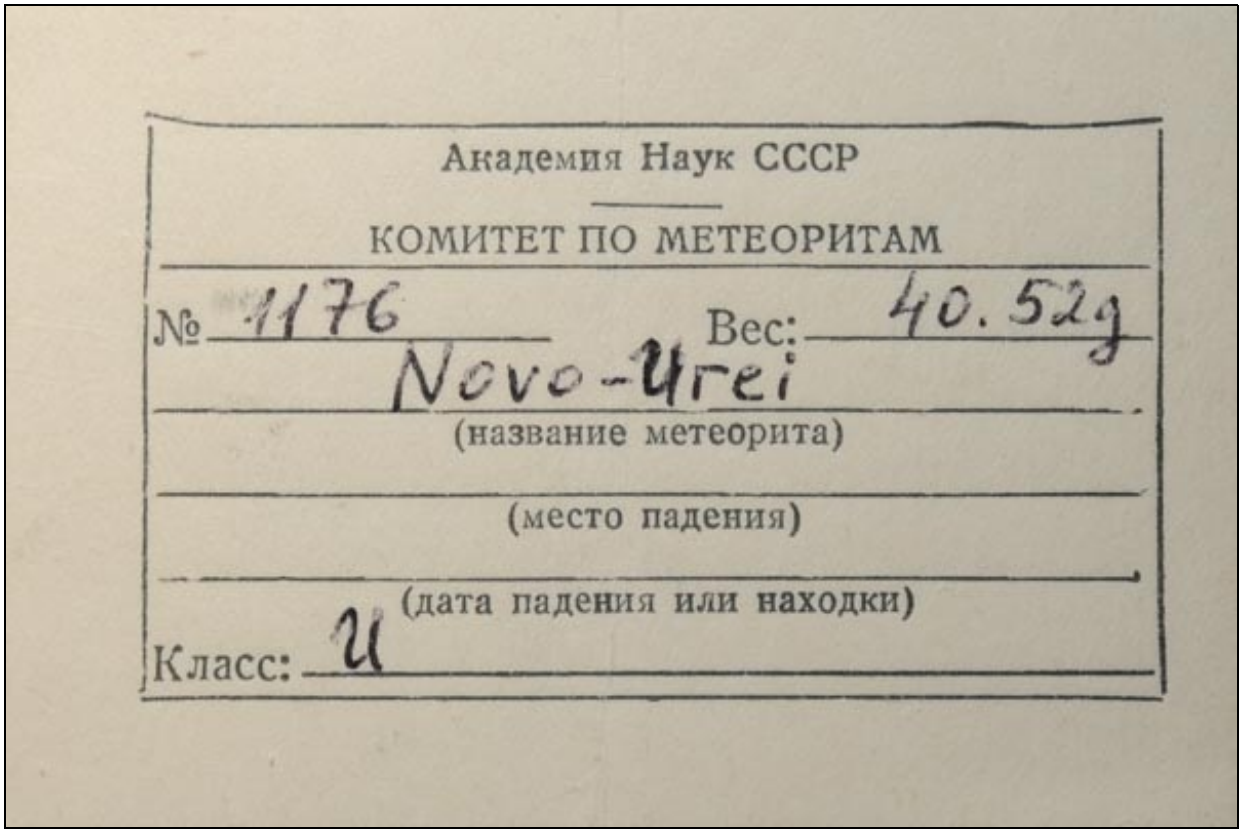
The Smithsonian's USNM holds 83g, and 55g are in the Natural History Museum in Vienna. The Field Museum in Chicago claims 36g, and 34g are in the Museum of Natural History in Paris. The American AMNH in New York holds 10g, Berlin claims 4.1g, and the last entry over one gram is 1.9g in the Vatican Collection.

There are only six ureilites witnessed to fall. The first was Dyalpur, a single 280g stone that arrived 14 years before Novo Urei. The remaining four are Lahrauli, a 900g stone that landed in India in 1955; Haverö, a 1971 Finnish fall of 1544g; Jalanash, a 700g stone that dropped in

Mongolia in 1990; and Almahata Sitta, a 2008 **heavily witnessed** fall of 3.95kg of fragments.

Even including the recent fall of the anomalous ureilite Almahata Sitta, the global total weight of all witnessed falls of ureilites totals only about 9.6kg. Still short of an arbitrary 10kg threshold. Compare that to the rare aubrites of which there are nine witnessed falls and of those, four have personal TKWs greater than the combined sum of all ureilite falls (with one aubrite fall alone 100 times as much), and only two of the nine aubrite falls have TKWs less than the ureilitic heavyweight Novo Urei.

Its obvious that the collecting air is quite rarified when playing with these stones, and the prices and trade values match. In my opinion, witnessed fall ureilites rub shoulders in collecting circles with the SNC namesakes and carbonaceous chondrite falls of the 1800s.



Not all specimen cards are created equally. When it comes to clout, authenticity and importance, few can challenge the Russian Academy of Sciences cards.

This card chaperoned Novo Urei into my collection and is what should be expected when such material changes hands.

Although the card's text is a little thin compared to my other Academy cards (Pesyanoe, Chervony Kut), and the handwriting is not as elegant, this card is many decades younger than my others and is more utilitarian in its use.

As most obsessive and compulsive collectors of meteorites know, the thrill of the hunt and the gamble of negotiation that hopefully leads to capture generates the personal stories that fuel the collecting drive.

When the DHL man handed me the package that that had been keeping me up at night, it was a bittersweet moment. The excitement of a very long sought after Novo Urei specimen was tempered by an empty wish list. Sure, there are other specimens I want, but the quest for Novo Urei literally defined my collection wish list, and I had never really thought much beyond it. For a while it even felt that Novo Urei was an unintentional capstone of my collection.

But there is always more. Soon my hunting instincts were back at work, the glow of Novo Urei fading away. And there was another legendary small stone that fell in 1812 clamoring for attention. An even older and smaller TKW meteorite whose journey was deeply entwined in conflict, music, and national pride. But that's another September story.

Until next time….

The Accretion Desk welcomes all comments and feedback.

accretiondesk@gmail.com

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Meteorite-Times Magazine

The End of Summer

by Jim Tobin

As we near the end of summer it is always time for Paul and I to plan the first trip to the cooler autumn desert. And we have begun that process. We do not know where we are going but we have picked the date and put in for the time off from work. We have spent big portions of most of our vacation in October doing meteorite hunting for many years. This year we are thinking about more astronomy and astrophotography and some meteorite hunting .

So I have to get my telescope out and get it ready to go. I have a new camera adapter made for it so I can do some lunar photography. I have been itching to do a good batch of digital photos of the moon for years and have never hauled the scope to the back yard, so with no excuses on vacation I think this is the time. We can not get a time window of moonless sky this year so deep sky is out during most of the nights, making moon and planet photography our best choices.

We have to figure out where to go still and that is a multifaceted problem. We need it to be dark, it would be great if is was a strewnfield or at least a good searching surface where we go. And if we could have power at a campsite that would be really good since running the generator is not what we like to do for hours and hours.

On a different topic but not a new one. I have gotten another scale. In my ongoing quest to have precision lab scales for every weight range I have ended up with many in every weight range. But, I found one last month at the swap meet that was very nice and not like most of my others. It is a fairly typical Mettler design, but somewhat different. It is also in the 0.01 – 800 gram range. It needed a little work. I was confident that I could fix it however, since it had a calibration sticker on it from only a year and a half ago. The illuminator bulb was not aligned properly as a result nothing showed on the front screen. That took some careful adjusting to get just right. And it needed a new power cord. Of course the calibrated weights were laying all over the bottom and needed to be retrieved. But, in about and hour the $15 scale was up and working and it is as the accompanying photo shows very accurate. It has about 0.05 grams of error at the top of any range and is accurate beyond my ability to see at the bottom end of each 100 gram range. For those not familiar with these type of laboratory scales they have internal calibrated weights that are lifted and dropped by the turning of a knob connected to cams and levers inside the scale. It acts just the same as you would with external precision weight place on one side of a balance scale. But, you never have to handle the weights since they are selectable and inside.

I did not need another scale but for $15 what am I going to do. I can't just pass it by. I had way more then $15 worth of fun fixing it and learning about how it worked. I have been a tinker most of my life. Watches, clocks, now scales, anything that is complicated and made with small precision parts has always fascinated me.

The great side benefit of my scale collecting is that I can get truly close weights on all my meteorites using some really cool old and antique scales. I carry a digital scale around with me at Tucson and it is a fine way to know what I am paying for NWA meteorites. But, it lacks any kind of

charm or style to me, it is just a device. I have come to really like a few of my lab scales. I have sold a few as well. Not because they did not work or I did not like them. They were too sensitive. One, a Mettler that came out of NASA was so sensitive that I could not get readings from it in the house with people walking. It needed a stone table in direct contact with the ground to keep it steady. That was a commitment I was not willing to make. And the Christian Becker scales went away right after I repaired them. I thought I was getting old watching and waiting for them to settle out and give me a reading.

I know I have written some of this before, but a phase of my life is coming to an end. The technology swap meet that I go to once a month is going to be at a time that I will be working soon. My schedule at work is changing and I will not be able to go and see if there are scales or other cool things to buy. For over twenty years I have gone on the last Saturday to that swap meet and now I can not. So this Mettle will probably be the last scale I will get for maybe forever.

As meteorites become more valuable and exotic types available and collectable knowing the weight to great accuracy will remain very important to both meteorite dealers and collectors. A tenth of a gram just is not going to cut it as it did with chondrites thirty years ago.

Now for my advertisement. My book on ***Meteor Crater*** is always available at http://www.meteorites-for-sale.com/catalog/meteorite-books.html in fact some copies of the older book are also there for sale. And my book on lapidary work ***"The Cutting and Preparing of Meteorites"*** is always available from me at jim@meteorite.com

Till next month, Jim

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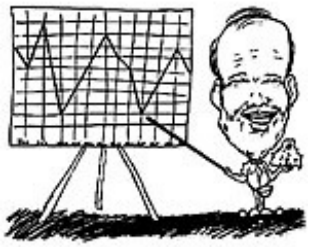
Meteorite Market Trends

by Michael Blood



This Month's Meteorite Market Trends

by Michael Blood

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Meteorite-Times Magazine

Planetary Body Odors

by Robert Verish

Planetary Body Odors

A smell emanating from a Norton County meteorite gives this author some idea how an asteroid would smell if it had an atmosphere.

This has to be one of my more unusual “Findings”!
This “finding” involves the smell of a meteorite, which I’m discovering is a very difficult subject to write about and explain. Certainly can’t rely on images to help explain how my meteorite smells. But, if I am right, this “meteorite-smell” is what I believe an asteroid would smell like, if you were able to envelope the parent-body in an oxygen atmosphere.
The image above depicts one of my specimens of the Norton County (Aubrite), a fragmental impact-brecciated enstatite achondrite. This image also depicts the plastic bag which contained this meteorite specimen ever since it was first extracted from one of the large masses of Norton County by researchers at University of New Mexico (UNM).

All of the following images are of this same specimen.

“Click” the above image to ENLARGE!!

It is this specimen, as well as, other similar-looking samples that are contained in similar sample bags, that appear to be giving off a peculiar odor. These plastic sample bags seem to have preserved whatever is producing the smell emanating from the meteorite specimens. This odor has been accumulating in these plastice bags undisturbed for what I have been told is “many years”!

Although the geneology is still somewhat sketchy for this fragment, it is clear that this sample was bagged & tagged by UNM Institute of Meteoritics personnel immediately after it was extracted from a large mass of the Norton County meteorite. They labeled the bag with a "Norton County N.15969″ catalog number, which can be found on-line on the UNM website for "Institute of Meteoritics (IOM) Meteorite Catalog – Specimen Query Results for NORTON COUNTY (Found 18 February 1948) Kansas, USA.

"Click" the above image to ENLARGE!!

The smell that is being given off by this meteorite is hard to describe. When I first smelt it, I tried to think of the proper words to describe the odor. I tried to think of things that had a similar smell: like hot metal, or like a cast-iron skillet that has over-heated, or like the metal filaments when you first turn on an electric heater.
Also, a lot like when you make sparks by striking two flint-rocks against each other.
Maybe a little like ozone, but with a more smoky, sulfurous aroma.

That's when the phrase "burnt gunpowder" came into my mind.

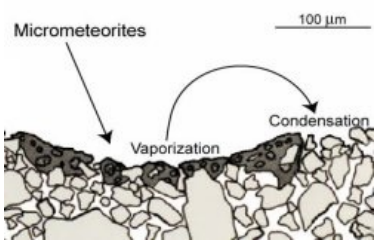
And that's when I remembered reading that the Apollo astronauts reported that moondust had the strong smell of "spent gunpowder". They would notice this after conducting EVA and after returning to the Lunar Lander where the moondust that clung to their space-suits had apparently reacted with the oxygen and moisture in the pressurized cabin to produce this odor. I say "apparently" because to this day NASA still does not have an adequate explanation for this phenomenon. But to this very day, astronauts and cosmonauts still remark about the ozone-like smell that lingers on their space-suits after returning from a space-walk outside the ISS.
In fact, an Iranian woman cosmonaut said that "space smells like a burnt almond cookie"!
(Probably each person would have their own, personal description of this odor.)
And NASA is actually trying to recreate this odor in order to train and prepare their future lunar astronauts for when they return to the Moon!

"Click" the above image to ENLARGE!!

Although NASA has yet to provide a proven explanation for how moondust generated this "burnt gunpowder" smell, they have proposed a couple interesting theories:
One explanation is that the Lunar Lander's oxygen atmosphere literally "burns" the moondust. Because oxygen is very reactive it could actually chemically bond with the moondust. This process is nothing more than oxidation, and is the same thing as "burning", but it happens too slowly for smoke or flames to be produced, yet the oxidation of moondust might produce an aroma like

“burnt gunpowder”.

Another explanation involves how moondust is actually formed. When meteoroids hit the moon, they reduce rocks to jagged dust. This is a process of constant hammering and smashing (see image below).
Over time, molecular bonds in the moondust are broken, producing “dangling bonds” – which are unsatisfied electrical connections that need atomic partners. When astronauts inhaled moondust, what happened was those dangling bonds sought “partners” in the moist membranes of the nose. When this happened, the astronaut’s sense of smell would respond by registering this “chemical reaction” to the brain as being “a strange odor” .



Moondust is formed by pounding; the “hammers” are meteoroids.
Image credit: Prof. Larry Taylor, University of Tennessee.

What all of this has to do with why there is an odor emanating from my Norton County specimens is this:
I see a connection between – how the pulverizing of moonrock by meteoroids produces this odor in moondust – with the brecciation and production of impact melt in the parent body of the Norton County meteorite!
I found that this odor was only prevalent in the most brecciated specimens where dark-colored impact melt had infused with the light-colored breccia clasts of the enstatite achondrite.

What this means is that this odor (along with the brecciation) is an ancient record of the impact event that occurred on that planetary body.
This means that these meteorite specimens are also samples of the same odors from space that, up until now, only astronauts were able to smell.

This is all made possible because of:
the large size of the individual masses from the Norton County fall, as well as
the prompt recovery of these masses from this fall, and more importantly
the prompt placement of the brecciated specimens into plastic bags.
All of this served to protect this “odor” and to minimize its contact with atmospheric moisture and oxygen.

“Click” the above image to ENLARGE!!

I feel very fortunate to have had this opportunity to “smell space”!
I found it difficult, but I’ve tried to convey in words what it is that I am personally experiencing when I smell my specimens. But this experience would be unique for each person, and probably would be described differently and uniquely by each person.
Although this smell emanating from my Norton County specimens is the result of the brecciation of an enstatite achondrite, I doubt that the pulverized anorthosite on the moon has a much different smell. So, I feel that I now have something in common with the NASA astronauts and can better appreciate, if not their visual and aural, at least their nasal experiences while they were on the moon and while traveling thru space.

References:

- **Carancas impact event – Wikipedia, the free encyclopedia**

Location in the Puno Region in Peru where the *meteorite* struck.16°39'52?S **....** such as a local gas explosion, because *meteorites* don't give off *odors*." **...**
en.wikipedia.org/wiki/Carancas_impact_event

- **Antarctic Meteorite Newsletter 24,1 – Petrographic Descriptions**

February 2001 **...** The entire exterior surface of this carbonaceous chondrite is covered with thick black fusion crust with polygonal fractures. The interior is black, earthy material with a sulfurous odor. This meteorite has an oxidation rind and rust halos. Thin Section (, 4) Description: Tim McCoy; **...**
curator.jsc.nasa.gov/antmet/amn/amnfeb01/petdes.htm

- **Is The Abee *Meteorite* A Remnant From Mercury? | Life Info Zone.com**

Sep 3, 2009 **...** In fact, if you were to cut open a piece of Abee *meteorite*, you would like encounter a *smell* that is like discharged gun powder; **...**
www.lifeinfozone.com/…/is-the-abee- ***meteorite****-a-remnant-from-mercury/*

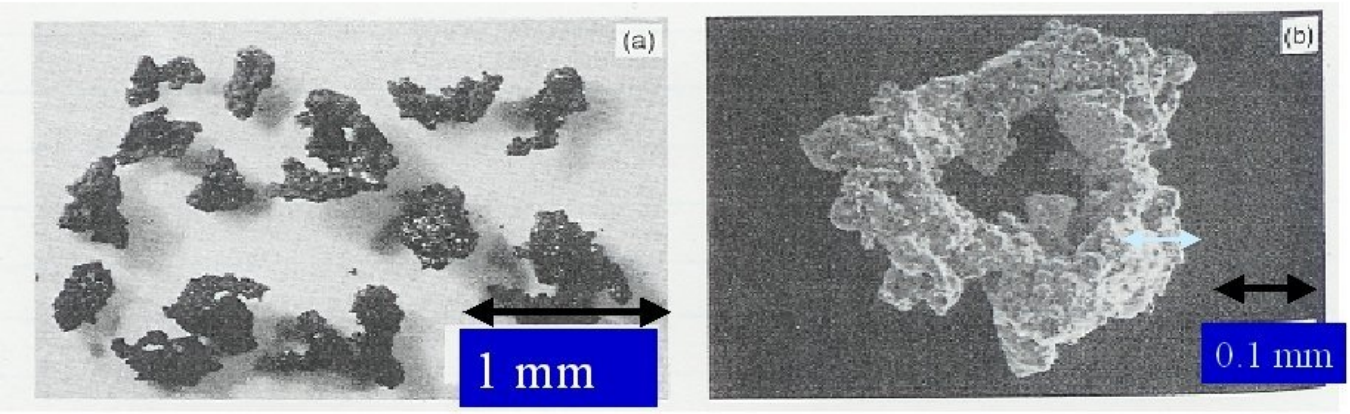
Search Results – for "astronauts smell gunpowder odor"

1. **The Mysterious *Smell* of Moondust – NASA Science**

   Apr 5, 2010 **...** It's nothing like *gunpowder*. So why the *smell*? No one knows. **...** *Apollo astronauts* were specific. Moondust *smells* like burnt *gunpowder*.) **...**
   *science.nasa.gov/science-news/science-at…/30jan_* ***smell****ofmoondust/* -

What is Lunar Dust Like?

- Similar to Ash
  - Diverse Size Distribution
    - Mean size = 19 microns
  - SiO_2 (44.72%) and Al_2O_3 (14.86%)
  - Properties
    - Magnetic (Fe^0 Patina)
    - Jagged
    - High Porosity



2. **The *Smell* of Moondust | Universe Today**

   Jan 30, 2006 **...** *Apollo astronauts* were specific. Moondust *smells* like burnt *gunpowder*.) Curiously, back on Earth, moondust has no *smell*. **...**
   *www.universetoday.com/11314/the-**smell**-of-moondust/* – Cached

3. **The Mysterious *Smell* of Moondust**

   Schmitt says, "All of the *Apollo astronauts* were used to handling guns. **...** It's nothing like *gunpowder*. So why the *smell*? No one knows. ISS astronaut Don **...**
   www.ufodigest.com/moondust.html – Cached – Similar

4. **Moon Dust *Smells* Like Spent *Gunpowder***

   Apr 23, 2010 **...** So this might produce this burning *gunpowder smell*. **...** Jack Schmitt, an *Apollo* 17 *astronaut* and geologist, has the distinction of being the **...**
   *www.todayifoundout.com/.../moon-dust-**smell**s-like-spent-**gunpowder**/* – Cached

5. **fired gun shot on the moon? says *Apollo* – BigFishTackle.Mobi ...**

   Apollo astronauts were specific. Moondust *smells* like burnt *gunpowder*.) Curiously, back on Earth, moondust has no *smell*. There are hundreds of pounds of **...**
   www.bigfishtackle.mobi/cgi-bin/bigfish.cgi?post=241370 – Cached

6. **The Mysterious *Smell* of Moondust – Space News – redOrbit**

   Jan 31, 2006 **...** (Note: Burnt and unburnt *gunpowder* do not *smell* the same. *Apollo astronauts* were specific. Moondust smells like burnt *gunpowder*.) **...**
   *www.redorbit.com/news/space/375271/the...**smell**_of.../index.html* – Cached

7. **Space, the final frontier of smells! | Ask MetaFilter**

   Jan 28, 2004 **...** I've read that the *Apollo astronauts* smelled something from moondust: **...** the initial *smell*, was a *smell* like *gunpowder* a little bit. **...**
   *ask.metafilter.com/4967/Space-the-final-frontier-of- **smell**s* – Cached

   Get more discussion results

8. **Moondust *Smells* Like**

   Jan 22, 2009 **...** Sniff it—"it *smells* like spent *gunpowder*," says Cernan. How do you sniff

moondust? Every *Apollo astronaut* did it. They couldn't touch their ...
www.docstoc.com › *Current Events* › *Current Affairs* – Cached

9. ***Smell* of *Gunpowder***

   6 posts - 6 authors - Last post: Sep 9, 2006

   I happen to be in the group liking the *smell* of burnt *gunpowder*. ... where the author stated that the *Apollo* 11 *astronauts* were armed. ...
   lofi.forum.physorg.com/ ***Smell****-of-* ***Gunpowder****_4813.html* – Cached

   Get more discussion results

10. **Retro Thing: The Scent of Moondust**

    Oct 3, 2006 ... Almost 34 years ago, *Apollo* 17 *astronaut* Gene Cernan succinctly summed up the scent of moondust: "It *smells* like spent *gunpowder*. ...
    *www.retrothing.com/2006/10/the_****smell****_of_mo.html* – Cached

11. **Space – Retro Thing**

    Almost 34 years ago, *Apollo* 17 *astronaut* Gene Cernan succinctly summed up the scent of moondust: "It *smells* like spent *gunpowder*." It turns out that the ...
    www.retrothing.com/space/page/2/ – Cached

12. ***Astronaut* describes what space *smells* like – Boing Boing**

    Feb 20, 2008 ... The *smell* is probably a combination of stuff that has been outgassed by ... One of the *Apollo astronauts* (I forget which one) said that when the ... told is sort of like a mix of *gunpowder* and alcohol or maybe gasoline. ...
    boingboing.net/2008/02/20/ ***astronaut****-describes.html* – Cached – Similar

13. **New Mars • View topic – Mars Smells?**

    11 posts - 5 authors - Last post: May 18, 2004

    P.S.: Actually, I always sort of liked the *smell* of "spent *gunpowder*" from a shotgun; it's a very unique *odor* (I used to accompany my father ...
    www.newmars.com/forums/viewtopic.php?t=2925 – Cached

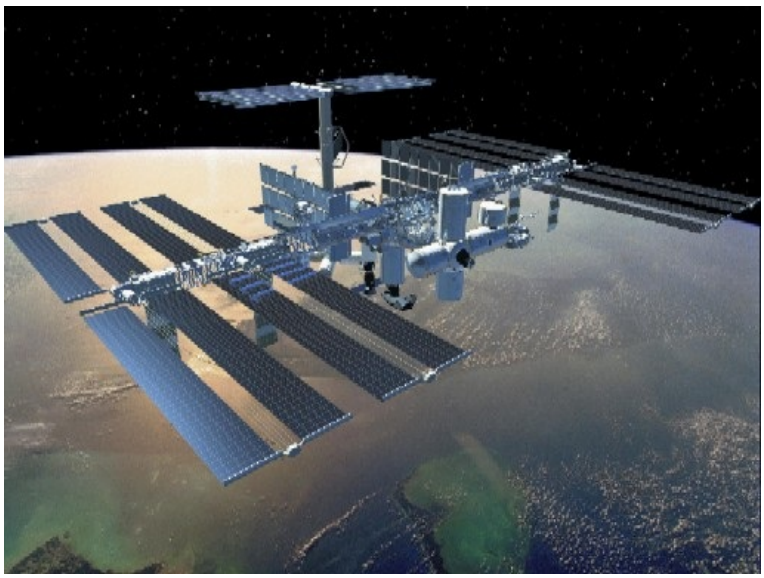
    Get more discussion results

14. **Three Squirrels in a Pressure Cooker » The *Smell* of our Moon**

    Feb 6, 2006 ... "It is really a strong *smell*," radioed Apollo 16 pilot Charlie Duke. "It has that taste — to me, [of] *gunpowder* — and the *smell* of *gunpowder*, too. ... Schmitt says, "All of the *Apollo astronauts* were used to handling ...
    www.threesquirrels.com/?p=203 – Cached – Similar

15. **Althouse: "Space *smells* like a 'burned almond cookie.'"**

    Sep 28, 2006 ... I was thrown for a minute, because A. Space would have no *smell*, at least not one that the human nose could detect and B. If it ... Well, the *Apollo astronauts* reported that fresh moon dust *smells* like burned *gunpowder*. ...
    *althouse.blogspot.com/../space-****smell****s-like-burned-almond-cookie.html* – Cached



16. **Sulfur Deposits May Make Mars Stink**

While it gives off an unpleasant *odor* and can stir up a headache, ... several *Apollo astronauts* noticed they had tracked back into their ... the *smell* was likened to wet ashes in a fireplace, even spent *gunpowder* from a just fired ...
www.rense.com/general50/stinks.htm – Cached – Similar

17. ***Astronaut* Says He Wasn't Prepared for *Smell* of Space**

31 posts - 6 authors - Last post: Sep 6, 2009

Re: *Astronaut* Says He Wasn't Prepared for *Smell* of Space, Quote. The *Apollo* crews spoke of the Moon *smelling* like *gunpowder*. *Gunpowder* is a ...
www.godlikeproductions.com/forum1/message874737/pg1 – Cached

Get more discussion results

18. **United States *Astronaut* Hall of Fame, Titusville, Florida**

It is a hall of fame PLUS an extensive collection of *Astronaut* ... (carried back on *Apollo* 15); and some unappetizing examples of Soviet space food. ... "Moon *Smell*" display, which attempts to recreate the *gunpowder odor* of moon dust. ...

Show map of 6225 Vectorspace Blvd, Titusville, FL 32780
www.roadsideamerica.com/story/14389 – Cached – Similar

19. **Artworks to Show – Page 15 – All Metal Forums**

Aug 29, 2010 ... "It has that taste — to me, [of] *gunpowder* — and the *smell* of ... Schmitt says, "All of the *Apollo astronauts* were used to handling guns. ...
www.allmetalforums.com/forums/showthread.php?p=672448 – Cached

20. ***Apollo*:The Right Stuff**

OTHERWORLDLY *ODOR*. When the *astronauts* took off their helmets inside the LM ... in a fireplace" and Buzz as "spent *gunpowder*". It was the *smell* of moondust. ...
www.weirdload.com/ ***apollo****.html* – Cached – Similar

21. **Fogonazos: Top 10 coolest facts about space missions**

All of the *Apollo astronauts* said moondust *smell* like burnt *gunpowder*. Curiously, back on Earth, moondust has no *smell*. There are hundreds of pounds of ...
www.fogonazos.es/2007/11/top-10-coolest-facts-about-space.html – Cached

22. ***Smell* of space is funny, say Discovery pilots | TopNews**

Mar 29, 2009 ... Buy *Apollo* Tyres With Target Of Rs 81 · Sensex Gains 116 Pts In Noon ... According to ex-NASA *astronaut* Thomas Jones, a veteran of three ... adding that the *smell* is also similar to burnt *gunpowder* or the ozone *smell* of electrical equipment. ... The suit *smells* like plastic inside," he added. ...
www.topnews.in/ ***smell****-space-funny-say-discovery-pilots-2145051* – Cached

23. **Dust-busting, Lunar Style**

Mar 26, 2007 ... *Apollo astronaut* Eugene Cernan, after an encounter with lunar dust. ... Some astronauts reported *smells* of caldron, a *gunpowder* sort of *smell*, as soon as they went ... they started *smelling* these oxidation type *smells*. ...
www.astrobio.net/interview/2281/dust-busting-lunar-style – Cached

24. ***Apollo* 11 Moon landing: ten facts about Armstrong, Aldrin and ...**

Jul 18, 2009 ... When the *astronauts* took off their helmets after their moonwalk, they noticed a strong *smell*, which Armstrong described as "wet ashes in a ...
www.telegraph.co.uk/.../ ***Apollo****-11-Moon-landing-ten-facts-about-Armstrong-Aldrin-and-Collins-mission.html* – Similar – Add to iGoogle

25. **SpikedHumor.com » Space *Smells* Like Fried Steak & Hot Metal ...**

Oct 18, 2008 ... "We have a few clues as to what space *smells* like. .... The moon also had a *smell*, as reported by the *Apollo astonauts*...like spent ...
www.spikedhumor.com/.../Space- ***Smell****s-Like-Fried-Steak-Hot-Metal.html*

26. **Houghton Mifflin Science: Cricket Connections**

No, *Apollo astronauts* used special rakes to collect Moon dirt. ... And it has a *smell* very few

people, if any, have *smelled* on the Earth. It *smells* something like spent *gunpowder*, like you've just fired a shotgun or something and you **...**
www.eduplace.com/science/hmsc/3/d/…/cktcontent_3d.shtml – Cached – Similar

27. **Review: Moonbase Alpha**

    Jul 11, 2010 **...** All that's missing from this lunar experience is that *gunpowder-smell* of regolith the *Apollo astronauts* reported when they returned to their **...**
    www.pars3c.com/2010/07/11/review-moonbase-alpha/ – Cached

28. **Conspiracy Journal #456**

    Feb 15, 2008 **...** (Note: Burnt and unburnt *gunpowder* do not *smell* the same. *Apollo astronauts* were specific. Moondust smells like burnt *gunpowder*.) **...**
    uforeview.tripod.com/conspiracyjournal456.html – Cached

29. **What does the moon *smell* like? – Ask Jeeves Search**

    According to *Apollo astronauts*, it smells a lot like *gunpowder*. … Once their helmets and gloves **...** Natural Gas *Odor Smell*. Popular Question Categories **...**
    *uk.ask.com/qotd?…**smell**… – United Kingdom* – Cached

30. **77 Out-of-This-World Facts about the Moon**

    Jun 5, 2010 **...** Moon dust is said to *smell* like spent *gunpowder*.g **...** Only 12 people have been on the moon: the *astronauts* on the *Apollo* missions from 1969 to 1972.h **...** g "The Mysterious *Smell* of Moondust." NASA. January 30, 2006. **...**
    facts.randomhistory.com/moon-facts.html

Search Results – for "odor from meteorites"

1. **'*Meteorite* Man' Wants Chunk of Canada *Meteorite* | World | Epoch Times**

   Dec 2, 2008 **...** Most *meteorites smell* like sulphur, says Haag, but there are some that have the odor of starter fluid. These are extremely rare and provide **...**
   www.theepochtimes.com › World › International – Cached – Similar

2. **Cosmic Log – Sparks fly over *meteorite***

   Oct 10, 2007 **...** Michael Farmer *Meteorite* hunter Michael Farmer kneels at the rim of a **...** "I'm sure there was a heavy sulfur *smell*. That is not abnormal. **...**
   cosmiclog.msnbc.msn.com/archive/2007/10/…/406411.aspx – Cached – Similar

3. **The Comics Curmudgeon » I love the *smell* of *meteorite* strikes in …**

   I love the *smell* of *meteorite* strikes in the morning. Gasoline Alley, 7/27/07. For the last several years — or, oh, let's say decades — Gasoline Alley has **...**
   joshreads.com/?p=1179 – Cached

4. **Re: [*meteorite*-list] Carancas: Arsenic *smell* ?**

   Re: [*meteorite*-list] Carancas: Arsenic *smell* ? Dave Gheesling Thu, 19 Mar 2009 21:35:27 -0700. Darren/All, The thinner atmosphere on Mars — and the lower **...**
   *www.mail-archive.com/ **meteorite**-list@**meteorite**central…/msg72338.html* – Cached

5. **Re: [*meteorite*-list] Carancas: Arsenic *smell* ?**

   Re: [*meteorite*-list] Carancas: Arsenic *smell* ? Jeff Kuyken Thu, 19 Mar 2009 23:12:12 -0700. Hi Dave,. I believe fusion crust is created not only by the heat **...**
   *www.mail-archive.com/ **meteorite**-list@**meteorite**central…/msg72344.html* – Cached
   Show more results from www.mail-archive.com

6. **Blackholes and astrostuff: The Saskatchewan (Buzzard Coulee) *Meteorite***

   Jan 22, 2009 **...** The *meteor* has a *smell*? Really? "I'm about to *smell* it again, excuse me,……., okay I'm back, awesome." – LOL LOL LOL awesome! **...**
   *blackholesandastrostuff.blogspot.com/…/saskatchewan-buzzard-coulee-**meteorite**.html* – Cached – Similar

7. ***Meteorites* Guerlain Perfume, a women's fragrance (2000)**

   meteorites is a nice, even if simple and somewhat linear, scent of powdered iris and violets – or to be more precise, the *smell* of the face powder in a **...**
   *www.fragrantica.com/perfume/…/**Meteorites**-4045.html* – Cached – Similar

8. ***Meteorite* crash landing causes a stir in Peru – Travel – LATimes.com**

   Sep 21, 2007 **...** Peru investigates *meteorite* said to be causing sickness · Arizona's *Meteor* Crater: A **...** "But there was this terrible *smell*, really strong, **...**

*travel.latimes.com/…/la-trw-**meteorite**-causes-a-stir-in-peru21sep07* – Cached – Similar

9. **Boy Hit by *Meteorite* Traveling at 30000 MPH (I *smell* conspiracy …**

   This thread has been pulled. Okay.
   www.freerepublic.com/focus/f-news/2270494/posts – Cached – Similar

10. **Has the *meteorite* brought new disease to Earth? | Opinion …**

    Sep 24, 2007 **…** He said it's highly unlikely for a *meteorite* to *smell* like lead or silver. These substances exist in *meteorites* in negligible amounts, **…**
    en.rian.ru/analysis/20070924/80570359.html – Cached

11. **Peruvian *Meteorite* Still Puzzling Scientists – Science News …**

    Sep 24, 2007 **…** But Ishitsuka said he doubts reports of a sulfurous *smell*. *Meteor* expert Ursula Marvin said that if people were sickened, "it wouldn't be **…**
    www.foxnews.com/story/0,2933,297610,00.html – Cached – Similar

12. **Black helicopters circle 'Welsh Roswell' • The Register Forums**

    Aug 23, 2010 **…** Yep, I've played with *meteorites* of all types and whilst they are insanely cool, they don't *smell* of sulfur. In fact they don't *smell* at all **…**
    forums.theregister.co.uk/forum/1/2010/08/23/welsh_roswell/ – Cached

13. **Murchison *Meteorite*- What A Fireball Over Australia Might Tell Us …**

    Apr 2, 2009**…** stones were found they were still warm and had a smoky, aromatic *smell*. **…** The smoky aroma hinted that there was more to this *meteorite* **…**
    *www.science20.com/…/murchison_**meteorite**_what_fireball_over_australia_might_tell_us_about_origin_life* – Cached

14. ***Meteorite* Mayhem Part II: Maybe Missile Mayhem? | Bad Astronomy …**

    Sep 20, 2007 **…** I said it didn't sound like a *meteorite*; in fact, the impacts reported **…** That would explain the foul *smell* and the release of methane and **…**
    *blogs.discovermagazine.com/…/**meteorite**-mayhem-part-ii-maybe-missile-mayhem/* – Cached – Similar

15. **PSRD: Interstellar Organic Matter in *Meteorites***

    May 26, 2006 **…** Gunky *Meteorites*. Some carbonaceous chondrites *smell*. They contain volatile compounds that slowly give off chemicals with a distinctive **…**
    *www.psrd.hawaii.edu/May06/**meteorite**Organics.html* – Cached – Similar

16. **The Accretion Desk – *Meteorite* Times Magazine Articles …**

    By any other word would *smell* as sweet." Romeo and Juliet (II, ii, 1-2). Had the Rose City *meteorite* fallen 16 years earlier, its name could have been much **…**
    *www.**meteorite**-times.com/Back_Links/…/Accretion_Desk.htm* – Cached – Similar

17. **HowStuffWorks "*Meteor* Strike in Peru"**

    Sep 25, 2007 **…** A *meteor* strike in Peru may have made up to 600 people sick, **…** for several minutes after impact and that a *smell* of sulfur filled the air. **…**
    science.howstuffworks.com › … › Astronomy › The Solar System – Cached – Similar

18. ***Meteorites* Petrified Wood Roadside Attraction in Arizona**

    Sep 22, 2009 **…** I want to *smell* that *smell*, you know, that *smell* from the pine trees," **…** 3 User Submitted Responses to "*Meteorite* Hunters and Desert Rats" **…**
    *www.vagabondjourney.com/…/**meteorite**-hunters-desert-rats/* – Cached – Similar

19. **Contagious Fear: Mass Sociogenic *Smell* Weapon | Danger Room …**

    Jan 28, 2008 **…** However, US *meteorite* hunter Michael Farmer soon arrived on the scene and confirmed **…** "The *smell* was caused by triolite, an iron sulphide, **…**
    www.wired.com/dangerroom/2008/01/contagious-fe-1/ – Cached – Similar

20. **What to do if you find a *meteorite*? [Archive] – Bad Astronomy and …**

    Sep 29, 2003 **…** If you find a rock you think might be a *meteorite*, there are several places to get **….** I *smell* a hoax! It was their grandpa's Model T Ford, **…**
    www.bautforum.com › … › Science and Space › Astronomy – Cached – Similar

21. **Is The Abee *Meteorite* A Remnant From Mercury? | Life Info Zone.com**

    Sep 3, 2009 **…** In fact, if you were to cut open a piece of Abee *meteorite*, you would like encounter a *smell* that is like discharged gun powder; **…**
    *www.lifeinfozone.com/…/is-the-abee-**meteorite**-a-remnant-from-mercury/* – Cached

22. **Guerlain *Meteorites* Giant Butterfly Pearls – W 2008 reviews …**

    Guerlain *Meteorites* Giant Butterfly Pearls – W 2008 was rated 4.7 out of **…** I love the *smell* and I think the container is pretty when sitting on my vanity. **…**
    www.makeupalley.com/product/…asp/…/ ***Meteorites****…/Highlighters*

23. **Brazil *Meteor* Fireball Produces *Meteorites* — Signs of the Times News**

    He commented that the air had a "strong *smell* of iron". The *meteorite* appears to be an ordinary chondrite with both primary and secondary fusion crust. **…**
    *www.sott.net/…/210962-Brazil-****Meteor****-Fireball-Produces-****Meteorites*** – Cached

24. ***Meteorites* in Iowa's History**

    Rock fragments showered an eight square-mile area, and local residents reported a *smell* of sulphur. As with Iowa's other *meteorites*, fragments now are **…**
    *www.igsb.uiowa.edu/Browse/****meteor****/****meteor****.htm* – Cached

25. **Society for Popular Astronomy :: View topic – Possible *Meteorite* …**

    12 posts - 7 authors - Last post: Nov 26, 2005

    She emphasised the *smell* and characterised it as a little like the *smell* **…** Ordinary small *meteorites*, maybe up to a metre or two in size **…**
    www.popastro.com/phpBB2/viewtopic.php?t=1449 – Cached – Similar

    Get more discussion results

26. ***Meteorite* Strike – from Usborne Publishing**

    In 2000, a *meteor* caused two sonic booms and a foul *smell* in the air in the Yukon Territory, Canada. A NASA aircraft flew through the debris, searching for **…**
    *www.usborne.com/****meteorites****trike/* – Cached – Similar

27. **Police: *Meteor* falls on beach – Israel News, Ynetnews**

    Apr 24, 2010 **…** Another lifeguard, Yossi Mizrahi, said: "The *meteorite* kept on burning and gave off an odd *smell*. It kept on burning even when we put it in **…**
    www.ynetnews.com/articles/0,7340,L-3880008,00.html – Cached

28. ***Meteor* Crash in Peru Caused Mysterious Illness**

    Sep 21, 2007 **…** Locals described the *meteorite* as a bright, fiery ball with a smoke trail. The sound and *smell* rattled residents to the point that they **…**
    *news.nationalgeographic.com/…/070921-****meteor****-peru.html* – Cached – Similar

29. **If There Ever Was… a book of extinct and impossible smells, by …**

    Oct 23, 2008 **…** Mark Buxton recreated the *smell* of the Peruvian *meteorite*; I can't say what he did exactly, but I assume he left out the foul *smell* of **…**
    www.nstperfume.com/…/if-there-ever-was-a-book-of-extinct-and-impossible- ***smell****s-by-robert-blackson-perfume-books/* – Cached – Similar

30. **» *Meteorite* Is Making People Sick In A Peruvian Village Dvorak …**

    Sep 18, 2007 **…** That sounds more like a volcanic vent than a *meteorite*. A volcanic vent would explain the *smell* and other symptoms. **…**
    *www.dvorak.org/…/****meteorite****-is-making-people-sick-in-a-peruvian-village/* – Cached

Video: Fiery Meteorite Falls on Israeli Beach
Another lifeguard, Yossi Mizrahi, said: "The meteorite kept on burning and gave off an odd smell. It kept on burning even when we put it in the water and it melted seashells as if they were candles."

Dream comes true with meteorite find
Kevin Meade – July 14, 2006 – Verified: David Elliott with the 17kg meteorite
It took him more than two years to locate them, but the two meteorites western Queensland grazier David Elliott found on his property are further proof that he has an uncanny knack for spotting rare rocks.

My previous articles can be found *HERE*

For for more information, please contact me by email: *Bolide*chaser*

Please Share and Enjoy:

Meteorite-Times Magazine

IMCA Insights – September 2010

by IMCA TEAM

IMCA Insights – September 2010
Commemorating the Schwetz Iron
by Andrzej S. Pilski

More than 20 years ago I started my meteorite adventure by reading a great work by Dr. Jerzy Pokrzywnicki „Meteorites of Poland" (Studia Geologica Polonica, Vol. 15, 1964). Then I visited Polish meteorite collections to learn how meteorites actually do look like. In the collection of the Museum of the Earth in Warsaw, the capital of Poland, I could see a rusty slab of an iron meteorite labelled Schwetz. I knew already that it was the one and only specimen of this iron meteorite in Polish collections, traded from Berlin for a specimen of the Łowicz mesosiderite shower.

534g thick slice of Schwetz in the collection of Muzeum Ziemi Photo courtesy A. S. Pilski

Despite the little experience I had in preparing irons I dared to ask the Museum to let me refresh the slab in order to show its nice Widmanstätten pattern hardly visible under the rust. Much to my surprise the director of the Museum accepted my proposal. Moreover he agreed to cutting off a small slice for the collection of the Olsztyn Planetarium in trade for a slice of the Seeläsgen iron for the Warsaw collection.

516.7g slice of Schwetz after cutting off a slice for Olsztyn and etching Photo courtesy A. S. Pilski

The results of etching were beyond my expectations. The pattern was bright and clear and in the Museum they liked the slice so much that they placed its photo on the cover of their catalogue “Meteorites and Tektites in the Collection of the Museum of the Earth” by Teresa Hanczke. I included the story into my introductory book on meteorites (in Polish) “Nieziemskie skarby” (Unearthly treasures).

6.4 g slice of Schwetz from the collection of Olsztyn Planetarium on display at monument Photo courtesy Ryszard Biernikowicz

The book was read by Bogdan Tarach from the village of Kozłowo near Świecie, former Schwetz. He was impressed to learn that he lived next to the place where a meteorite had been found. He tried to find another meteorite in the area and one day he came to visit me in Frombork with his truck full of stones. I checked them but unfortunately I could find no meteorite among them. Several years passed and one day I was told that the authorities of the town of Świecie wanted to commemorate the meteorite that had been found near their town. They had built a monument, and last August I got an invitation for the unveiling ceremony on August 21, 2010. The timing didn't fit my schedule, but the organizers insisted. I was surprised: why did they want just me to be there?

Bogdan Tarach (right) and the author (left) at the display case next to the monument Photo courtesy Ryszard Biernikowicz

The mystery was solved when I arrived at Kozłowo and was welcomed by the same Bogdan Tarach who visited me in Frombork. Having served many years as village administrator in Kozłowo and member of the Council of Świecie Bogdan Tarach talked the authorities into commemorating the meteorite find somehow. Finally his idea was accepted as part of a project of building a recreation area at Wda river, formerly called Schwarzwasser.
Here is the quotation I could read about the find of Schwetz iron in the paper by Pokrzywnicki: „Im Frühjahre 1850 wurde bei dem Abtragen eines sandigen Hügels für Ostbahn auf dem linken Ufer des Schwarzwassers bei Schwetz an d. Weichsel eine Eisenmasse etwa 4 Fuss unter der Oberfläche der Erde an der Gränze des oberen Sandes mit dem darunter liegenden Lehm gefunden. Sie war kluftig und ohne Mühe zu trennen. (…) Die ursprüngliche Gestalt der Eisenmasse ist ungefähr die eines geraden rechtwinklichen an der Kanten ganz abgerundete Prizma. Sie ist 9″ hoch, 24″ lang und 171/2″ breit. Die ganze Masse wiegt 43 Pfd. 81/4 Lth." (Pogg. Ann. Ergänz., Vol. IV, 1854, S. 390 und 454).

The main mass of the Schwetz iron in the collection of the Museum für Naturkunde in Berlin Photo courtesy Dr. Ansgar Greshake

Norbert Classen kindly translated this passage into English:

“In spring 1850, during the excavation of a sandy hill for [the building of the] Ostbahn [Prussian Eastern railroad line] on the left bank of the Schwarzwasser Creek near Schwetz an der Weichsel, an iron mass was found 4 feet [1.2m] below the surface at the transition from sand to the underlying clay. It [the mass] was fissured and could be easily divided. (…)

The original shape of the iron mass is approximately that of a straight rectangular prism with fully rounded edges. It is 9″ high, 24″ long, and 17.5″ wide [Prussian inches, i.e., ~23x62x45.5cm]. The entire mass weighs 43 pounds [Berlin pounds, i.e., 21.5kg].” (Pogg. Ann. Ergänz., Vol. IV, 1854, p. 390 and 454)

Bogdan Tarach starts the unveiling ceremony Photo courtesy Ryszard Biernikowicz

Bogdan Tarach told me that according to his knowledge the meteorite was found during excavations for pillars of the railway bridge. That’s why he suggested to place the monument at the bridge on left bank of the Wda river. The monument was situated between the road and the river and is two-sided so it can be read both by hikers and cyclists from the road and canoeists

from the river.

Unveiling the monument Photo courtesy Ryszard Biernikowicz

The ceremony was started by Bogdan Tarach who described briefly the efforts which led to the building of the monument, and then four notables were asked to unveil the monument together: Bogdan Tarach, Jerzy Wójcik – president of the Council of Świecie, Tadeusz Pogoda – mayor of Świecie and me, as a representative of IMCA and the person responsible for triggering Mr. Tarach's interest in meteorites that finally led to the creation of the monument.

Wadi – the guardian of the slice of Schwetz Photo courtesy Jan Woreczko

Two of the three specimens of Schwetz in Polish collections were brought to the unveiling ceremony and were displayed in a special case next to the monument; the small 6.4 g slice from the Olsztyn Planetarium, and a 127.6 g slice from the collection of Jakub Radwan. The last one I spotted a few years ago offered for sale by Sergey Vasiliev. It was priced far beyond my reach, but fortunately another Polish collector had been able to purchase it and soon I was asked to refresh it as its etch pattern was rather weak. Of course, I agreed with pleasure. The result was nice again, then the slice was sold to its current owner and displayed during the meteorite conference in Wrocław, Poland, two years ago. The owner loaned it for the meteorite exhibition in Warsaw, and kindly agreed that the slice could be brought to Kozłowo and Świecie for that special

celebration. Responsible for the slice were Jan Woreczko and Wadi, owners of a large meteorite collection who kept their eyes on it all the time.

Jacek Drążkowski, an astronomer and meteorite collector born in Świecie, who also helped with preparing the monument and ceremony, talks about the Schwetz iron
Photo courtesy Ryszard Biernikowicz

The monument seen from the river Photo courtesy Jan Woreczko

Then there were a few speeches followed by many discussions and photos at the monument and at the display case, an later everybody was invited to an educational picnic in an old castle in the town of Świecie.

The castle of Świecie Photo courtesy Jan Woreczko

The display case with both specimens of Schwetz/Świecie was moved to the castle, where visitors could see and hear four talks on the Schwetz iron and on meteorites in general, could gaze at the Sun, and later at the Moon and the stars with a telescope on the tower of the castle, or look at the starry sky in a portable planetarium and play in the court of the castle.

The picnic ended late at night.

Looking at the Sun with telescope brought to the tower from Olsztyn Planetarium Photo courtesy Ryszard Biernikowicz

Please Share and Enjoy:

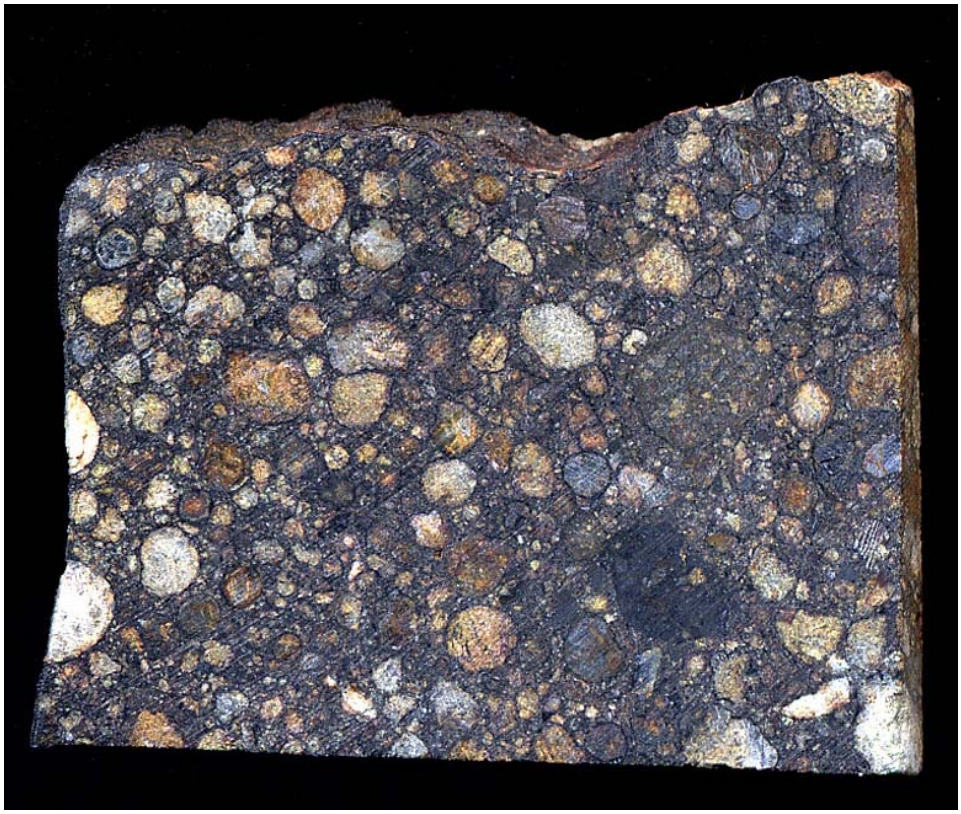
Meteorite-Times Magazine

NWA 2377

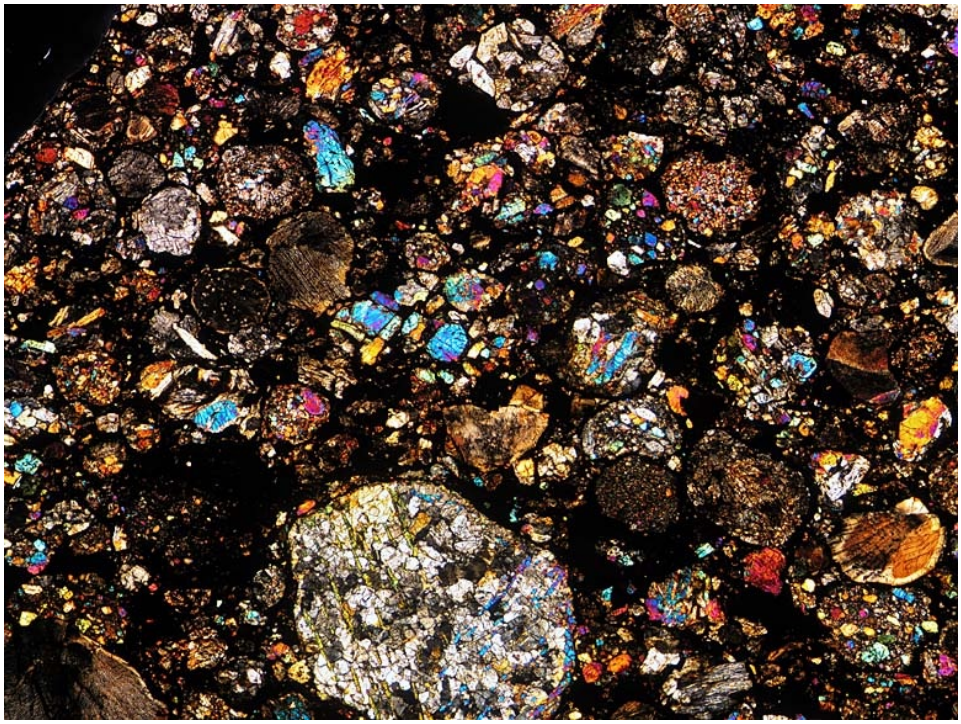
by John Kashuba

Chuck,

There are a lot of pictures of NWA 2377 L3.7 on the web. No doubt this is because it's such a good example of a chondrite. It's got a dark matrix with large contrasting well defined chondrules. Mike Bandli (collector, dealer, hunter) sees "a candy filled chondrule matrix". Yes, I'm adding another part slice picture to the worldwide cybermass. I just have to. But I'll show you some new thin section pictures too. I just got my first thin section of this baby and it's really pretty good. John



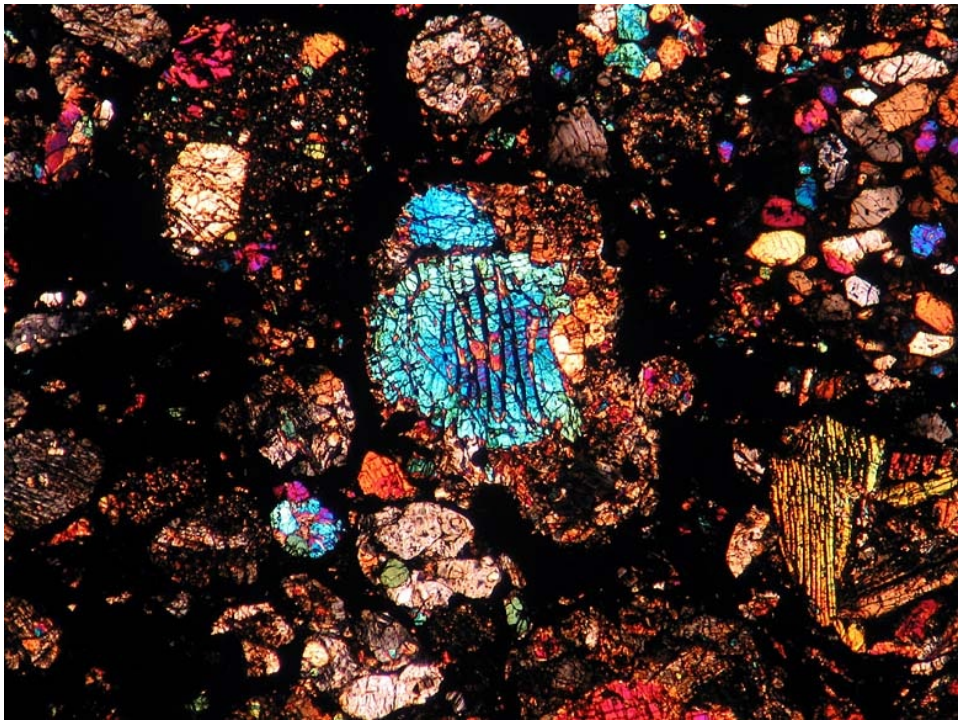
This part slice is about 30 mm long. It looks like all the rest but you see what I mean.



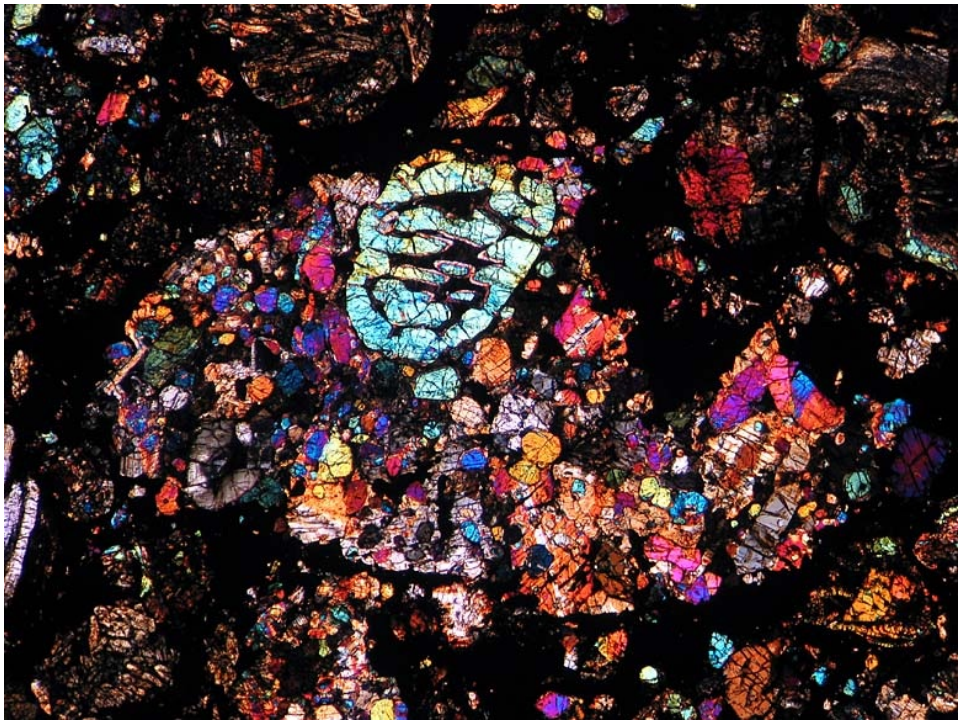
This is my version. The view is about 9.3 mm wide.

Peter Marmet (all around nice guy) has a low magnification view of NWA 2377 on his THE COLORFUL WORLD OF THIN SECTIONS page.

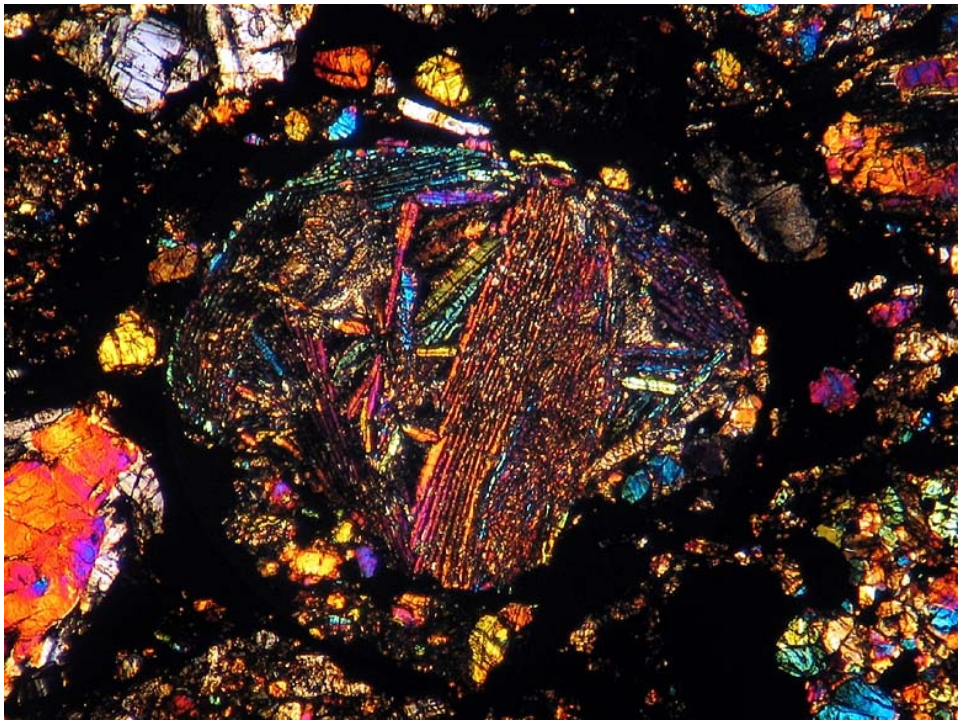
But what struck me most is that there are several compound chondrules on this one slide. You don't find those every day. Here's a finely barred chondrule inside a porphyritic one.



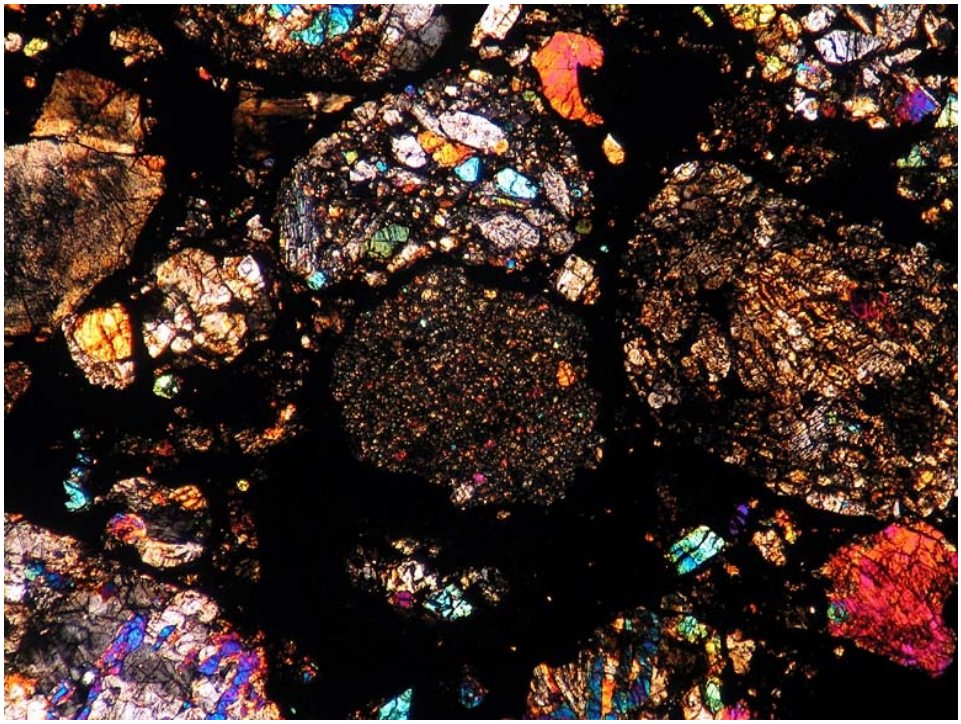
Another barred chondrule that had material accrete and crystallize around it.



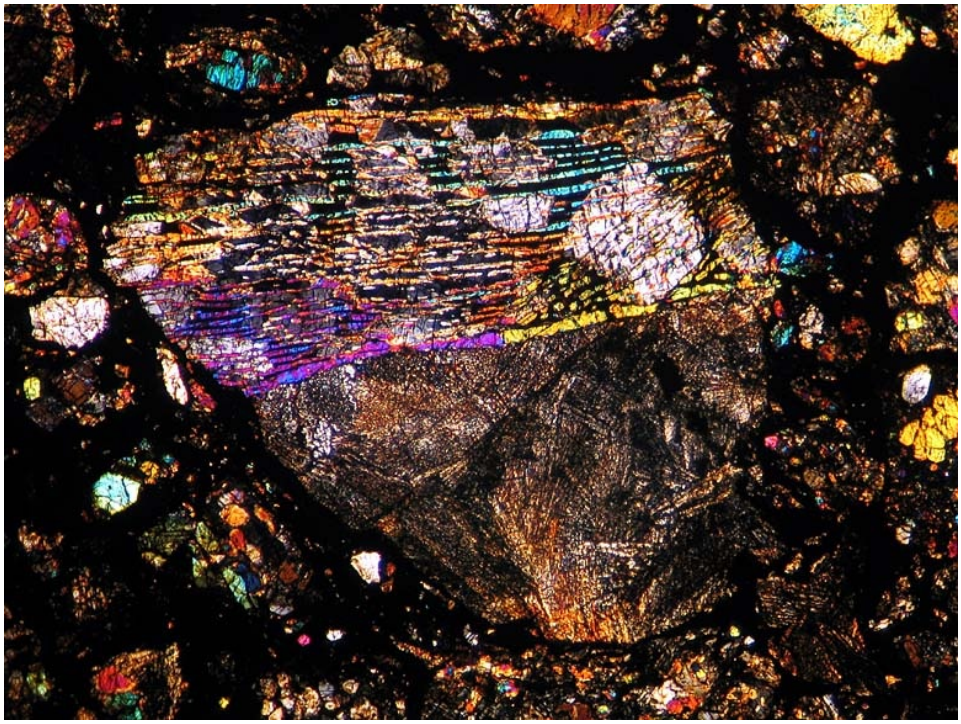
And a big one, over three millimeters long.



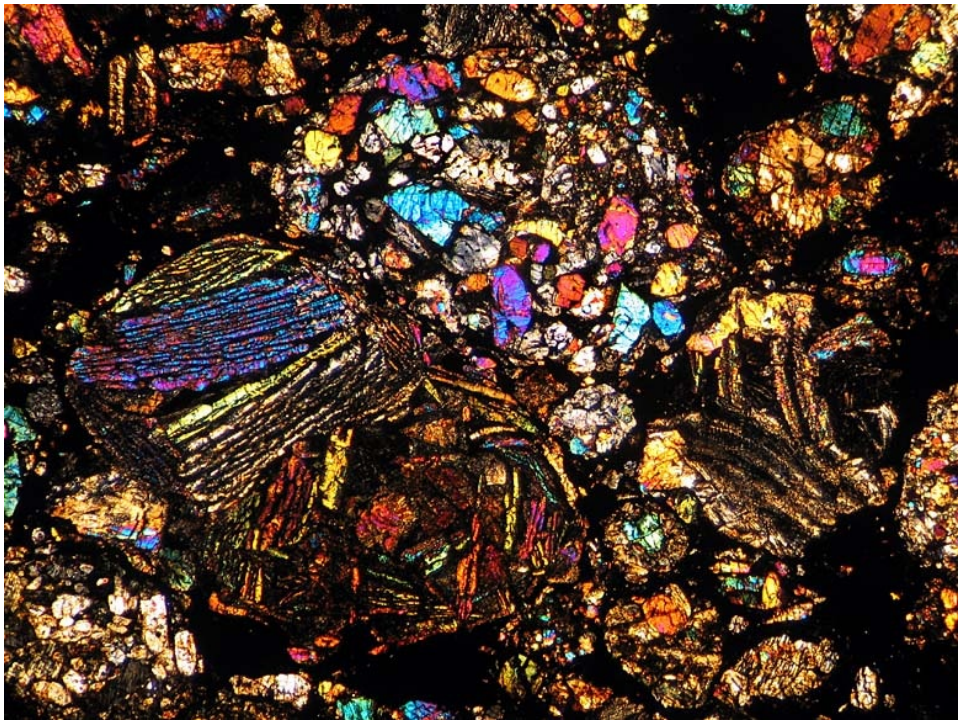
Does it look like this formed around a BO chondrule fragment?



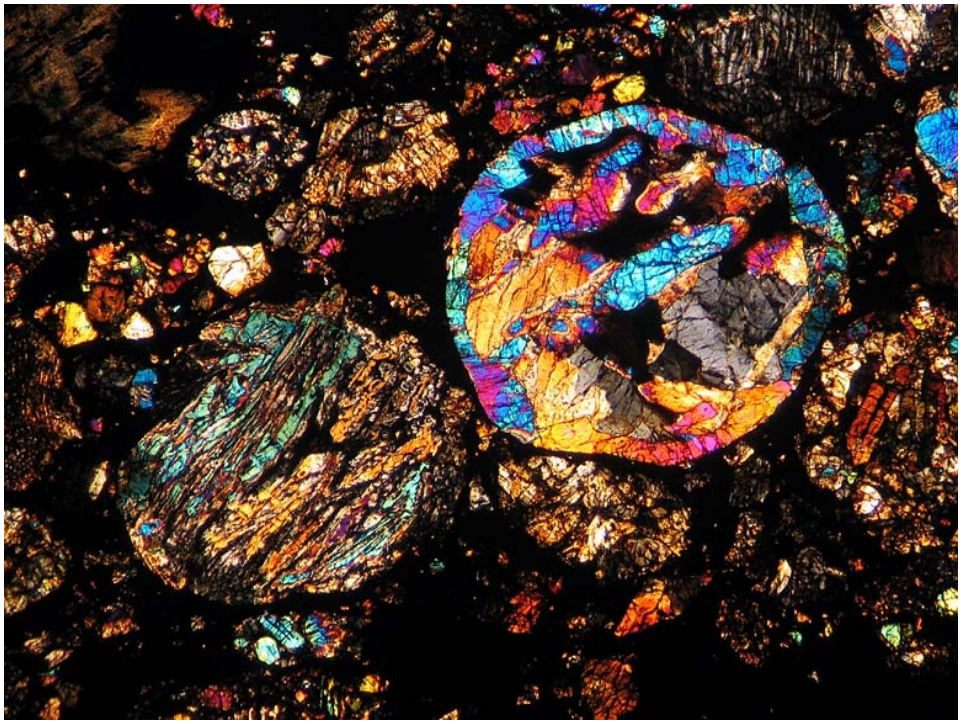
The variety of features on this slide is amazing. This granular aggregate contrasts with the POP chondrule above it.



Quite a variety of textures here.



Assorted forms.



Finally, these two; neighbors but different.

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Meteorite-Times Magazine

Meteorite Calendar – September 2010

by Anne Black

IMPACTIKA METEORITE FALLS CALENDAR			SEPTEMBER	
These meteorites fell in September but the exact dates are unknown.				
1843 Picote 1869 Yorktown (New York)	1875 Mornans 1886 Bradford Woods	1930 Aguada 1930 Malampaka	1933 Noyan-Bogdo	
1	2	3	4	5
1997 Worden	1905 Modoc 1955 Zvonkov 1967 Wiluna	1808 Lissa 1910 Grzempach 1939 Santa Cruz	1852 Mezö-Madaras 1886 Novo-Urei 1930 Plantersville 1980 Mianchi 1982 Gujargaon 1990 Burnwell	1812 Borodino 1814 Agen 1854 Linum 1878 Dandapur 1925 Numakai
6	7	8	9	10
1880 Chetrinahatti 1911 Demina 1918 Saratov	1753 Luponnas 1868 Sauguis 1924 Unkoku 1995 Dong Ujimqin Qi		1829 Krasnoi-Ugol 1831 Wessely 1961 Bells	1813 Limerick 1930 Oldenburg 1978 Lishui
11	12	13	14	15
1954 Arbol Solo 1963 Karatu		1768 Lucé 1822 Epinal 1902 Crumlin 1937 Kainsaz 1976 Qingzhen	1836 Aubres 1988 Palca de Aparzo	1897 Gambat 1910 Baroti
16	17	18	19	20
1843 Klein-Wenden 1920 Kushiike 1969 Suchy Dul	1879 Tomatlan 1937 Mabwe-Khoywa 1945 Soroti 1945 Atoka		1775 Rodach 1869 Tjabe 1910 Khohar 1949 Karewar	1950 Murray 1980 Richland Springs
21	22	23	24	25
1865 Muddoor 1934 Rio Negro 1949 Beddgelert 1949 Akaba	1887 Phu Hong 1893 Zabrodje	1873 Khairpur 1899 Donga Kohrod 1936 Macibini 1944 Torrington	1942 Maziba	1996 Fermo
26	27	28	29	30
1873 Santa Barbara 1939 Glanggang 1939 Selakopi 1973 Lichtenberg 1999 Kobe	1632 Minamino 1825 Honolulu 1908 Kangean	1891 Guéa 1969 Murchison	1928 Naoki 1938 Benid	1984 Binningup
e-mail: (impactika@aol.com)				

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Meteorite-Times Magazine

Ensisheim

by Michael Johnson

Ensisheim using three cm cubes and one inch cube. They are the faux antique ones that Tom Phillips makes. Here is the message to the Meteorite List where Tom explained the cubes, naming them after me, Martin Horejsi and the reason a picture of the cubes with Ensisheim is important.
http://www.mail-archive.com/meteorite-list@meteoritecentral.com/msg82108.html

© Martin Horejsi

Meteorite-Times Magazine

Indochinite 42.2 grams

by Editor

Indochinite 42.2 grams

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by Editor

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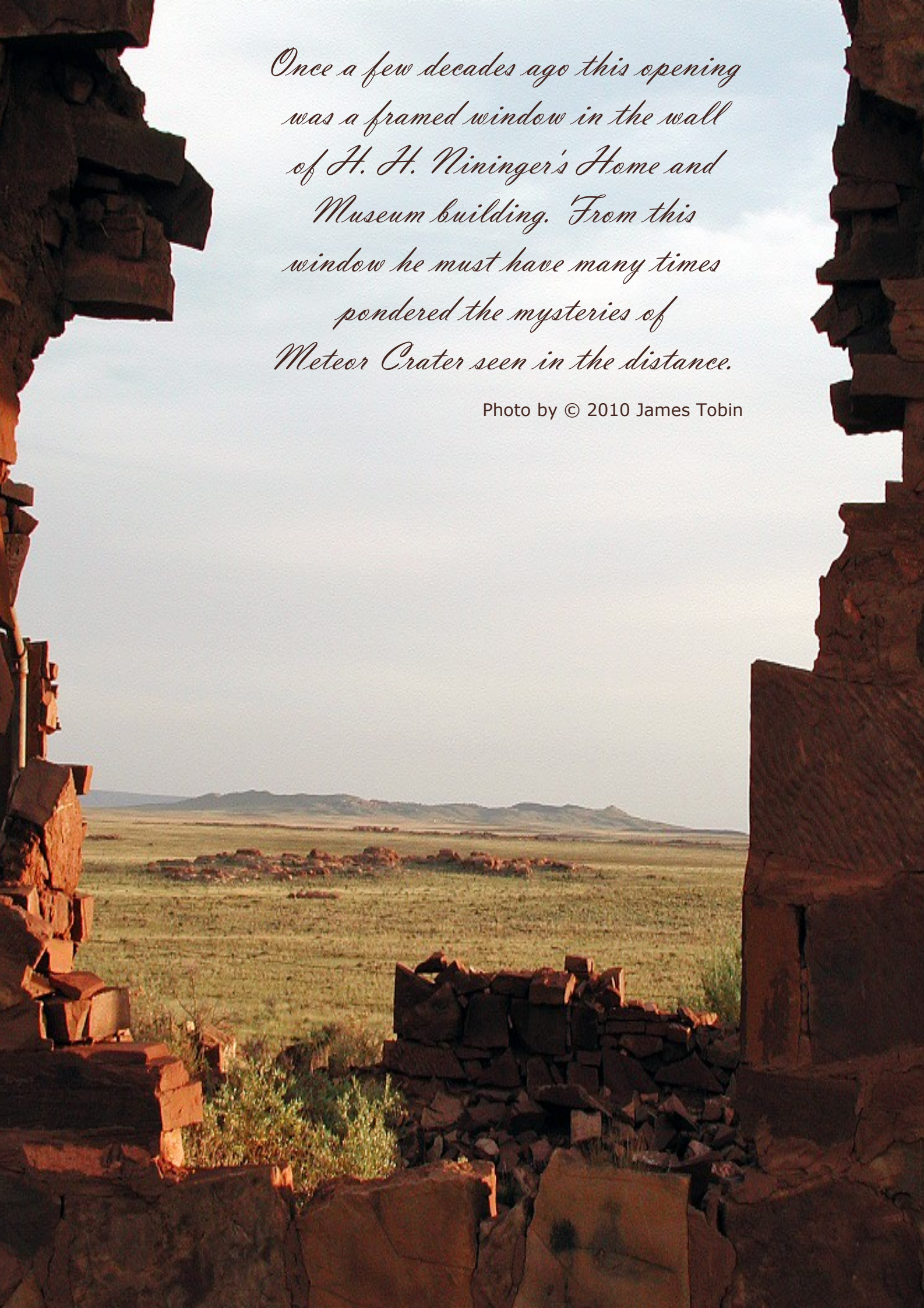

Once a few decades ago this opening was a framed window in the wall of H. H. Nininger's Home and Museum building. From this window he must have many times pondered the mysteries of Meteor Crater seen in the distance.