HOLBROOK GROUP HUNT

2011 - 99TH ANNIVERSARY
Meteorite Times Magazine

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by Editor

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In the classic blending of a howardite, the emerald colored inclusions of diogenite from the asteroidal underworld mingle with the ashen hues of the eucrite upper class.

It's tough to know where to start describing the collectable rarity of a meteorite such as Zmenj.

Maybe with the country that it calls home? There are only five documented meteorites from Belarus, a country slightly smaller than Kansas but with three times as many people.

Or maybe with the classification of Zmenj? As a howardite witnessed to fall, it is part of a select group of only 20 stones world wide.
From a research article on Zmenj, this sketch map portrays the obvious: Zmenj is a busy mix of surface and subsurface rock likely bourne from a collision deep in space.

Or possibly with the date it fell? The year 1858 is a long time ago. One hundred fifty-three years to be exact. And the 1800s hold only half the total number of witnessed howardite falls reducing the select group to a number countable on your fingers.

Or could it be it’s total known weight? At only 246 grams, there is less than one-quarter of a kilogram ever known, and that number has fallen significantly over the 15 decades that Zmenj walked this planet. So much so that less than one half of the initially reported mass is accounted for in collections according to the Catalogue of Meteorites. The Vienna Museum is listed as containing a 106g piece representing the the main mass of the solo stone of Zmenj that fell to earth. From there the size drops to 25g of Zmenj in Moscow, followed by 6.8g in New York. And that's it. Period.
This face is much darker than the fresher looking one presented above. The light colored matrix has fallen victim to earthly attacks just as the sensual marble expressions in Rome are discolored and dissolved by our ceaseless production of new atmospheric chemicals.

The only polished face on my slice of Zmenj is this edge. Some meteorites lose detail under a polish, but I think Zmenj is enhanced, its beauty more clearly differentiated compared to the other weathered face.

In a 1992 research report titled "A Geochemical Study of Russian Eucrites and Howardites" by Lindstrom & Mittlefehldt discussed Zmenj, Yurtuk and Erevan. I addressed the double hammer stone nature of Yurtuk.
last year in April. I presented the rare cubed Zmenj here. I guess that just leaves Erevan, right?

Until next time….

The Accretion Desk welcomes all comments and feedback. accretiondesk@gmail.com
At least a couple times a year I receive specimens from someone who thinks they have found tektites at a new location. Often it is somewhere in Arizona or Utah. So this month we are reviewing the differences between tektites and other natural glasses.

Specimens received from the finder for testing. Lower left specimen shows cut face where a slice was taken by author for testing.

Sometimes the finders have some knowledge of locations where non tektites glasses have been found in the past. They will say something like these were not found near Safford or some other location where the apache tears and similar obsidian individuals have been recovered. I guess the first thing to say is there are apache teardrop type stones all over the place. Some are definitely nicer and prettier colored then others. But, they are obsidian types. Most obsidian is gray when seen in thin sliver. It is black in any thicker amount. However, it may have a lavender hue to it and these are quite attractive. When seen thin it will nearly always have some cloudiness. By contrast tektites are essentially mineral free and totally amorphous. Everything in tektite glass was completely melted and cooled too quickly for mineral crystals to form.

Obsidian and tektite share the fact that they are both natural glasses. Obsidian is a igneous rock that can contain phenocrysts of minerals that were present in the magma. Obsidians can also be banded. But splashform tektites will always be very homogeneous in color. As glasses both are supercooled liquids and should not be classed with minerals since they do not have any orderly arrangement of atoms, in other words no crystal form.

The most dramatic test for determining tektite origin or obsidian glass is to drive the elevated levels of water and trapped volatiles from the obsidian with high temperature. Putting tektites and obsidians in an oxyacetylene flame will result in the obsidian frothing up into essentially pumice. While the gas and water free tektite will only melt slightly with the same heat applied to it. There is nothing real scientific about my test methods. However, it does make use of one of the most important aspects of tektite nature, that
being their formation at such high temperatures that all water was disassociated into oxygen and hydrogen gas and never incorporated into the glass itself. The few bubbles found in tektites have gas at a rarified pressure further suggesting their formation at extreme altitude. Obsidians in contrast reflect by frothing up in the flame test the driving force of volcanic eruptions. They still contain the evidence of the gas and steam which blew them from under the earth.

So with that brief background allow me to present the results of Heating Test 2.0. I offered some pictures a few years ago. These are all new.

Specimen on the left is a piece of Central California obsidian collected by the author. The specimen second from the left is a slice of a suspect stone submitted already cut by the finder from a location in Arizona. Third from the left is a small slice cut by the author from a complete individual stone submitted by the finder from the same location in Arizona. And finally, on the right is a Thailand teardrop tektite that had a broken point which I was willing to sacrifice.

The left three specimens have all responded to the test as would be expected for obsidians. They were all gray and cloudy stones. The California obsidian was somewhat clearly and had a hue of lavender. It frothed the easiest since it was a broken flake with a razor thin edge. It therefore melted the easiest and fastest. But, it frothed well into the thick interior of the top surface. The two suspected tektites are clearly frothed up as obsidian would. The tektite as expected shows only minimal melting since the glass is remarkably high temperature stuff. As almost always seen there is a slight gunmetal sheen on the tektite which this author attributes to something in the composition in the tektite glass which deposits on the surface during the flame test. This might be wrong but is my first guess for why this iridescence is always seen after heating.
This photo shows the back side of the two suspect test subjects. Their gray color and surface texturing can be seen.

Whether they are called Americanites, Columbianites, lavender glasses, Apache tears, or Utah glass. If they are gray and cloudy they are very likely obsidian. If they foam up in a heat test they are obsidians. Some are very attractive and some are colorful enough to be collectable on the own. But, once again we have seen they are volcanic in origin; full of water and gases.

More often then not I get the same reaction from individuals after telling them their obsidians are not tektites; that I get when I tell people their rocks are not meteorites. They know that they are what they think they are, and they do not want to be confused by the facts or the knowledge they could gain. So I generally do not do any examinations anymore. I send individuals to others who have more time and patience for the work. But, with these obsidians it was a topic we have not discussed in a number of years and I hope the information is useful. And besides there is nothing more fun then firing up the torch and burning some rocks.

Till next month, Jim

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Meteorite-Times Magazine

Meteorite Market Trends
by Michael Blood

Like 3 likes. Sign Up to see what your friends like.

This Month’s
Meteorite Market Trends

by Michael Blood

Please Share and Enjoy:

by Robert Verish

Make no mistake, this was a GROUP meteorite-hunt. Maybe one of the largest group-hunts. Probably the largest one with the highest percentage of "beginner" hunters. (And I've led a couple of those kind of group-hunts.) Certainly, this was one of the largest group-hunts with the highest number of "first-ever" meteorite finds!

And speaking of numbers, here they are:
45 meteorite hunters found 93 meteorites (13 were first-ever finds) in a one-day period (July 16, 2001) totalling 440 grams.

So, a big "THANK YOU" goes to Ruben Garcia (who is always the first person to volunteer to be host for any social gathering), for taking a casual comment about a "99 year anniversary" and to turn it into a fun, group meteorite hunt (not that Ruben needs an excuse to socialize). And the same "Thank you" goes to Jim & Wendy Wooddell for their logistical support and managing of the daily (and nightly) activities, which insured a successful social event.

And to all of those who have taken the time to share their images and videos of the Holbrook Hunt with us, a big "Thank you", as well. I'm sure glad that Ben Fisler's son, Erik, is such a good photographer, and that they took time from finding all of those meteorites in order to record this "event". Because, I think they'll be
talking about this "group hunt" or many years from now.

Although this group hunt has been ably documented by many of those in attendance, I still wish I had taken more images while hunting in the strewnfield. Especially of people making their very first meteorite find, because this only happens once in each finder's lifetime. And to be able to re-live this event (even vicariously) through its recording, would be reinvigorating to the soul of every meteorite hunter.

So, my article this month will be primarily a compilation of everyone's images and reports. At least, all of those images and reports that I could find. Hopefully, this will serve as a convenient "Reference" in the future for those who will be making plans to attend the "100th Anniversary Holbrook Meteorite Hunt".

But I did record the group activities the evening before and after the Saturday hunt. And that is what I would like to comment on here. Upon arriving at the Motel 6 on Friday evening and entering into the central courtyard, it was as if we had registered for a symposium, because we encountered several dozen people standing around in small circles engaged in animated discussions (talking about meteorite-recovery). All that was missing were the name-tags.
A good percentage of these people had never found a meteorite, and a few had never gone on a meteorite hunt before coming to Holbrook. Some of these neophytes had brought rocks they had found with the hope that one of the more experienced hunters would deem their "hopeful" as being a meteorite. All of the others were intently listening, trying to learn why these meteor-wrongs were not meteorites. The crowd around Ruben Garcia was particularly large. It seemed like the meteor-wrong discussions were going to last all night.

In an effort to answer everyone's questions, Ruben brought out his collection of Holbrook stones and conducted an impromptu free-clinic on "Meteorite Identification". I feel that Ruben's extra effort in educating, by conducting this class on meteorite ID, was a factor in the overall success of the hunt the next day. After Ruben's free-seminar, conversations over dinner would be centered on meteorites. After dinner, small groups would form to continue discussing various meteorite-related subjects long into the night.
Then the next evening, even after a whole day of meteorite-hunting, everyone pitched-in to make the awards ceremony as memorable as making your first find. Jim and Wendy found the time to make Certificates of Achievement for all 47 participants, as well as, the trophy awards, not the least of which was the award bestowed upon Ruben for his unique social skills which made possible this anniversary as a historical day in meteorite-recovery.

After Ruben accepted his award, he and Erik personally awarded each meteorite hunter with their Certificate, and in addition, if that person hadn't made a find that day, they were given an original Ruben Garcia genuine Holbrook meteorite along with limited-edition Mr.Meteorite ID Card & CoA (which were much larger than any of the fragments that I found)!! By my count, there were 19 people who were presented with a Holbrook meteorite gratis-free by Ruben!
As I mentioned earlier, I have some images of the Holbrook mini-meteorites that I found. I've uploaded those and I've made them available on-line on my "Image Gallery of microscopic Holbrook Meteorites". Just wanted to comment here on some of the other activities that centered on the "99th Year Anniversary" Holbrook Meteorite Hunt.

I am looking forward to next year, and to the "100th Anniversary Holbrook Meteorite Hunt".

Click here to go to "Bob's Findings Article for August 2011 - Gallery of Images" to see more images of microscopic Holbrook Meteorites - 2011.
REFERENCES:

The Wikipedia: entry for Holbrook
- contains links to the Holbrook Meteorite.
http://en.wikipedia.org/wiki/Holbrook,_Arizona

Bob Verish: his 1998 website for the micro METEORITES -
- found on his first-ever trip to Holbrook, webpage titled:
"Bolidechaser Travels to Holbrook"
May 1, 1998
Holbrook Meteorite (L6) Strewn Field
Navajo County, Arizona
http://bolidechaser.tripod.com/trip4/holbrook.htm

Ruben Garcia - post in Club Space Rock:
where he first proposed the idea of a "group hunt" to be held on the anniversary of the Holbrook fall, with MANY comments:
Holbrook 99th anniversary Meteorite Hunt
Posted by MrMeteorite.com
on May 27, 2011 at 11:36AM in "Meteorite Hunting"
http://meteorites.ning.com/forum/topics/holbrook-99th-anniversary

The following "References" are links to posts sent to the Meteorite-List soon after the "99th Year Anniversary - Holbrook Meteorite Hunt":

Ruben Garcia: his first post titled:
[Meteorite-List] 99th year Anniversary Holbrook Hunt – A Huge Success!

Jim Wooddell: his first post with reply to Ruben titled:
[Meteorite-List] 99th year Anniversary Holbrook Hunt – A Huge Success!

Mark Bowling: his reply to Jim and Ruben's post titled:
[Meteorite-List] 99th year Anniversary Holbrook Hunt – A Huge Success!

Ruben Garcia: his second post titled:
[Meteorite-List] 99th year Anniversary Holbrook Hunt – A Huge Success!

The following "References" are links to images and videos taken by individuals who attended, or actually hunted on July 16th, at the "99th Year Anniversary - Holbrook Meteorite Hunt":

Michael Mulgrew: his first post, including
a link to an image of his "first ever" meteorite find (made during the Holbrook Hunt) in his reply to Ruben's 2nd post, titled:
[Meteorite-List] 99th year Anniversary Holbrook Hunt – A Huge Success!

Jim Wooddell: his next post, which includes
a link to his website's "Scrapbook" with his images taken during the Holbrook Hunt
in his reply to Ruben's 2nd post, titled:

**[Meteorite-List] 99th year Anniversary Holbrook Hunt – A Huge Success!**
*by Jim Wooddell*
*Mon Jul 18 12:55:56 EDT 2011*

Hello everyone, once again!
I apologize, if I am bugging anyone! I just posted Wendy's and my Holbrook Hunt finds in my scrapbook. Note the little steel-blue Iron meteorite I found. I had several field comments on this one...like "WOW!"
Check it out.
I also posted the only field picture I took that day (shame on me) of Richard's Garcia's 47 grammer! What an awesome stone and my new phone takes fair pictures!
Hope you enjoy..
http://desertsunburn.no-ip.org/ScrapBook/07162011/index.html
Jim Wooddell

Ruben Garcia:
- included a link to a VIDEO in his *Mon Jul 18 21:37:04 EDT 2011* post to the Met-List, titled:

**[Meteorite-List] 99th Anniversary Holbrook Hunt VIDEO!**

Erik Fisler:
- included a link to a great montage of IMAGES in his *Tue Jul 19 03:04:48 EDT 2011* post to the Met-List, titled:

**[Meteorite-List] Photos of Holbrook Anniversary Hunt & Finds**

Michael Mulgrew:
- included a link to a great gallery of IMAGES (as part of his Holbrook Hunt "trip-report"), in his reply to Erik Fisler's post, titled:

**[Meteorite-List] Photos of Holbrook Anniversary Hunt & Finds**
*by Michael Mulgrew*
*Wed Jul 20 01:42:08 EDT 2011*
List,
Please allow me to share my pictures from the weekend's hunt:
-Michael in so. Cal.

Nick Gessler:
- included a link to his recently updated Holbrook webpage which have excellent images of his microscopic finds from the 2011 July 16th Hunt in his post to the Met-List, which started an interesting thread, titled:

**[meteorite-list] Holbrook under the microscope... Nicholas Gessler, Ph.D.**
**[meteorite-list] Holbrook under the microscope... Erik Fisler**
**[meteorite-list] Holbrook under the microscope... Jim Wooddell**

**[meteorite-list] Holbrook under the microscope... Nicholas Gessler, Ph.D.**
http://www.duke.edu/web/isis/gessler/holbrook.htm
*Jim Wooddell:*
has a link to a file containing all of the results from the 99th Anniversary Holbrook Meteorite Hunt on his YahooGroup website known as "DesertSunBurn" (which also has images taken during the Holbrook Hunt) which is in a folder on his Group's website, the folder is titled: [Files]
"Holbrook 2011 REVISION 2.xls"
an Excel file listing the "Holbrook Hunt" participants, the 93 finds made on that day (July 16th), and
the 440g total weight found - with underlined numbers giving links to images of finds.
http://tech.groups.yahoo.com/group/desertsun_burn/files/

Abe Enochs:
- was at Holbrooks with his son and filmed this VIDEO
[can't find his post to the Met-List], although it is listed with other videos HERE!
But his video is titled:
[Holbrook - 99th Anniversary Meteorite Hunt ] on YouTube!
http://www.youtube.com/watch?v=X hp63iAOhs&feature=youtu.be

Click here to go to "Bob's Findings Article for August 2011 - Gallery of Images" to see more images of microscopic Holbrook Meteorites - 2011.

To go back to the top of this page, click on the word "REFERENCES:" for the list of links pertaining to the 99th Anniversary Holbrook Hunt. My previous articles can be found *HERE*

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

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2011 IMCA Board Elections

The snow has all melted on the Rockies. The Denver Show is just a few weeks away. Yes, it is this time of the year again, time for our Yearly Elections! And to make it absolutely sure that not one single member missed this opportunity to become a Director or to vote for their favorite candidates; we are devoting a whole issue of our newsletter to it.

First of all, since you must be a Member in good standing to vote, this might be a good time to check on that, do we have your correct current email address? Did you pay your dues for 2011? If you are not sure, this would be a good time to check by asking the Board (election@imca.cc).

What's next?

In accordance with our ByLaws, three Board Members will be elected in 2011, and at least six Candidates will be up for election (our ByLaws require a minimum of two Candidates for each vacant Board position). Something that brings us to the first phase of our public elections: the Nominations.

Nominations: Volunteers Wanted!

The requirements to be a Candidate are very simple: you must have been a IMCA Member in good standing for at least two years. And since we are an International Association we really want the Board to be International too, so go ahead be a Candidate, even if your English is not perfect. If you have any questions regarding your Membership, this would be a good time to contact us, and to ask about your status.

A great many of you do qualify. So tell us now that you want to participate in the shaping of our Association for the future. If you really must think about it first (or ask a few questions) we will give you until September 14, 2011, but we must have your email announcing your candidacy no later than September 14, 2011, midnight (Eastern Time). Remember – we need at least six Candidates as our Bylaws require two Candidates for each open slot on the Board. We're just waiting for a sign from you!

Contact the Nominations and Elections Committee at election@imca.cc to let us know that you want to be a Candidate for the Board of Directors. If you want to nominate someone else, that's also fine with us – just make sure that the Nominee is aware of that nomination, and that he’s actually willing to accept it. In any case, we will have to receive a formal notice by the Nominee, stating that he accepts his nomination no later than September 14, 2011, midnight (Eastern Time).

FAQ: How much Work is it?

We often have been asked how much work it is to serve on the IMCA Board of Directors. Is it time consuming? There's no simple answer to that, and it certainly depends on if you are just serving as a Board Member, or as a Board Officer. Naturally, the Officers will have to invest a bit more time and energy into their respective tasks – but then, you won't have to volunteer for an Officer's position after the elections.

In any case, be prepared to engage in a frequent discussion with the other Board Members, voting on Membership Applicants, resolving disputes, investigating complaints, etc. Besides that, you might be asked to serve on one of the Committees, such as the Nominations and Elections Committee, the Membership Committee, or the Website Committee. Of course, you will be a bit busier if you are a member of the Nominations and Elections Committee at this time of the year.
Besides that, working on other Committees, such as the EoM Committee, can mean a lot of work: just ask Sergey Vasiliev and Bob Falls who do a fantastic job in constantly updating the IMCA Encyclopedia of Meteorites. Just have a look, and you will see what we mean. Thanks to Sergey and Bob for all of their time, great work, and enthusiasm.

The continuing work on the EoM, the open discussion of international meteorite laws, business practices, and other important issues will sure keep all new and old Directors busy, but don't worry, we all have a life beyond IMCA and its Board of Directors, and we are all used to teamwork. Of course, we would prefer to see Candidates running that are more active Members, and who are actually willing to give their best for our Association. But then, we are fully aware of the natural restrictions put upon us by everyday life, and other commitments.

So, What’s Next?

After the nomination phase, which will end on September 14, 2011, midnight (Eastern Time), we will take a few days to verify the eligibility of all the Candidates, and we will publish the names of all the Candidates on September 17, 2011 via our IMCA Mailing List. The Candidates will then have two weeks time (from September 17 to October 01, 2011, midnight, Eastern Time) to explain to our Membership why they want to be a Director, and to answer all your questions (again, via our IMCA Mailing List). And we will actually vote during the week of October 02 to October 09, 2011. Please have a look at our official Election Schedule for more information, and technical details.

Official IMCA Election Schedule

September 14 (midnight Eastern Time): **Deadline for Nominations**

Contact the Nominations and Elections Committee (election@IMCA.cc) to let us know that you want to be a Candidate for the Board of Directors. (eligibility requirements – 2 years as a dues paying member in good standing)

September 17: **Publication of the List of Candidates**

September 17 - October 01 (midnight Eastern Time): **Campaign**

The Candidates may tell the Members (via our IMCA Mailing List ONLY) why they want to sit on the Board of Directors, and answer other Member's questions. Their statements and answers will be published to our entire Membership during that time (again, via our IMCA Mailing List ONLY).

October 02 - 09 (midnight Eastern Time): **Election Week**

All members may vote for the three Directors only ONCE at any time during this period. Voting begins October 02 and ends midnight October 09 Eastern Time. The special voting email address will be published via the IMCA Mailing List. (If you are not on the IMCA Mailing List and wish to vote, contact the Nominations and Elections Committee). Please be sure to use the mailing address we have on file for you, so we may verify that the vote is coming from a registered, eligible Member.

Please contact us if you have any questions. We're looking forward to your participation, and to your votes. Thanks.

Other Ways to Support the IMCA

If you are not sure if you want to run for the IMCA Board of Directors, but willing to actively support the IMCA there are indeed other options, such as volunteering to help in one of our various Committees, or by answering some of the many questions which we receive via our Contact form. We would be very grateful for any kind of help you can offer, especially since the number of questions and requests has been exploding ever since the "Meteorite Men" have become popular through TV, and other media have focused on the subject. So if you are willing to help, contact us, or just drop us a line via our Contact form (questions@IMCA.cc), and we will be in touch with you. Thanks.

Best Regards to all of you!

In the name of the IMCA Board of Directors,
Anne Black, President IMCA Inc.
Begaa NWA 4910 LL3.1: Now This is a Chondrite!
by John Kashuba

For a long time Begaa had no official name and several stated classifications. Now Begaa is a synonym for NWA 4910 LL3.1. Whether this change is welcome, a comedown or something else is a matter of opinion. But we can agree that it is one fine meteorite. It’s a rock you can show any novice and say “THIS is a chondrite!”

This cut shows a distinct internal orientation. Slice. Begaa NWA 5910 LL3.1
Okazaki and Nakamura (2005) tell us that in addition to chondrules, matrix and CAI, chondrites contain, isolated mineral grains, metal sulfide lumps, igneous rock fragments from impact melt and metamorphosed chondrules and chondritic clasts. Begaa likely contains all of these. Thin section in transmitted white light. Begaa NWA 5910 LL3.1
Radial pyroxene chondrule. The two dark bands radiating from the right side are laths of pyroxene in optical extinction. These dark bands would move to other locations, though still radiating from the same origin, if the polarizing filters were rotated. Thin section in cross polarized light. Begaa NWA 5910 LL3.1

A radial pyroxene chondrule with numerous domains. In some, the laths are too fine to resolve with an optical microscope so they are called cryptocrystalline. Rotating the polarizing filters would cause “shadows” to move within these cryptocrystalline zones – revealing their similarity to the better defined RP sectors. Thin section in cross polarized light. Begaa NWA 5910 LL3.1
A portrait of contrasting textures. On the left is a porphyritic olivine-pyroxene chondrule. The individual internal crystals show natural crystal faces. That is, the phenocrysts are euhedral. On the right is a granular olivine chondrule. Thin section in cross polarized light. Begaa NWA 5910 LL3.1
A barred olivine chondrule with a thin rim (and some additional growth beyond it). There are several sets of bars, each in optical continuity with the adjacent rim. Thin section in cross polarized light. Begaa NWA 5910 LL3.1

This is an enveloping compound chondrule since one chondrule completely encloses another. In this case, the enclosed chondrule is the bold blue and red barred olivine chondrule. Thin section in cross polarized light. Begaa NWA 5910 LL3.1
This is the same enveloping compound chondrule as above. The polarizing filters have been rotated to where the enclosed BO chondrule is in optical extinction, highlighting its independent origin. Thin section in cross polarized light. Begaa NWA 5910 LL3.1
A chondrule surrounded by metal. It is “armored”. Thin section in incident light. Begaa NWA 5910 LL3.1

This roughly spherical, high-metal feature appears to have accreted in layers. Thin section in incident light. Begaa NWA 5910 LL3.1

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# Meteorite Calendar – August 2011

by Anne Black

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<thead>
<tr>
<th>METEORITE FALLS CALENDAR</th>
<th>AUGUST</th>
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<td><strong>1647 Steketee</strong></td>
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<td><strong>1810 Moereenort</strong></td>
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<td><strong>1974 Mayo Belos</strong></td>
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<td><strong>1882 Pavlovka</strong></td>
<td><strong>1998 Zsg</strong></td>
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<td><strong>1946 Perú Blanca Spring</strong></td>
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<td><strong>1971 Haréro</strong></td>
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<td><strong>1922 Kadoonah</strong></td>
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<td><strong>1991 Mount Tazerzait</strong></td>
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<td><strong>1993 Songyan</strong></td>
<td><strong>1976 Zhumonghe</strong></td>
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<td><strong>1855 Sahetmahet</strong></td>
<td><strong>1936 Crescent</strong></td>
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<td><strong>1875 Feld Chair</strong></td>
<td><strong>1970 Calvez de Mayo</strong></td>
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<td><strong>1928 Utzenstoff</strong></td>
<td><strong>1942 Kanturn</strong></td>
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<td><strong>1937 Putanga</strong></td>
<td><strong>1974 Naragh</strong></td>
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<td><strong>1976 Acapulco</strong></td>
<td><strong>1976 Zhumonghe</strong></td>
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<td><strong>1991 Mount Tazerzait</strong></td>
<td><strong>1936 Crescent</strong></td>
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<td><strong>1993 Dovar Mgbila</strong></td>
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<td><strong>1977 Al'Amareen</strong></td>
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<td><strong>1988 Ceniers</strong></td>
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<td><strong>1991 Mount Tazerzait</strong></td>
<td><strong>1989 Ralyn</strong></td>
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<td><strong>1887 Ohmunk</strong></td>
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<td><strong>1994 Bushkovka</strong></td>
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<td><strong>31</strong></td>
<td><strong>1872 Ovúvio</strong></td>
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<td><strong>1961 Ehole</strong></td>
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<td><strong>1991 Nolesville</strong></td>
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*Note: These meteorites fell in August but the exact dates are unknown.*

e-mail (impactika@aol.com)
Oriented Taza Meteorite – Northwest Africa 859

by Editor
Since I have been collecting tektites, I have been intrigued by some of the odd surface features on several of my specimens. I have seen these features described as "impacts," "bubbles," and "rings." But everyone I’ve picked up has raised more questions than answers. A few past articles have suggested how these features were formed, and I have continued my search for a specimen that might tell a more definitive story.

Past article references:
Meteorite Times June, 2006: "Exploding Tektite"

An extreme example

Right after a tektite is formed, and while it was still hot and in motion, the exterior would begin to cool at a faster rate than the interior. Since we know that tektites were shaped in flight, giving us the vast array of splash forms, we can conclude that the cooling exterior is still somewhat flexible. Any surface bubbles or thin areas on the cooling surface could rupture allowing the still molten interior to press and ooze out from the center. This could be the result of pressure from the outside cooling and contracting, from centrifugal force while the tektite is in flight, or from the force of impact with the ground when the exterior is deformed. Any of those forces could cause the hot interior to be pressed out of the new hole in the surface. The amount of material that would press out of the interior would depend on several factors, including the size of the specimen, the size of the breach, the fluidity of the core material, the plasticity of the exterior and the movement or deformation of the specimen after the breach occurred.
As you can see, this specimen is an extreme case of a surface "ring" on the end of 164 gram bar shaped splash form Vietnam Indochinite.
I think this is the first tektite I've ever owned that stuck it's tongue out at me in defiance.

The breach in the surface exterior is oval shaped, approximately 4 cm wide by 3 cm high. So much of the interior of the tektite was extruded that the central area at the end of the bar has deformed and thinned enough to allow light to pass through the remaining material (in the photo above, the thin area is just at the rear of the “tongue.”)
It looks just like someone opened and squeezed a tube of toothpaste -- thinning the pressed area and forcing the interior out of the available opening.

Until I came across this Vietnam Indochinite, I was not sure if these features were due to an impact or an interior bubble. With this specimen in my hand, and the examples of other tektites with similar "rings" for reference, I suggest that the simple explanation for these "ring" tektites is that they are the result of more fluid interior pressing out through a breach in the surface while the tektite was still molten. While I have no doubt that there are tektites out there with bubbles close to the surface, or even two tektites melded together from a collision, I think that this simpler explanation works for the majority of the specimens I have seen and collected.

Sean Murray
http://www.starcatching.com

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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.

Photo by © 2010 James Tobin