

Meteorites ✦ Adventures ✦ People ✦ Tektites

METEORITE TIMES

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May

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Meteorite Times Magazine

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Paul Harris

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Meteorite Times Magazine

Meteorites, Me, and the Newspaper

Martin Horejsi



Last month, I had the very great pleasure of spending time with a couple of reporters from our local newspaper. We first crossed paths back in March at a [fossil and mineral show](#) in town, and mentioned that meteorites were my game.

Several months later, I got an email out of the blue that the reporters were interested putting together a story about me and my meteorite collection. We met up and I shared some stones and stories. Then we met up again for more. And again for more. They were sincerely interested, and I was happy to share. The results of their labors appears here in a [Missoulian article available online](#), but in print, some of the pictures were quite large. Embarrassingly so.

In the past when I've talked to reporters, the topic often digresses into craters or dinosaurs, or fake meteorites, but this time the discussion stayed focused (mostly) on those aspects of meteorites I find so fascinating. The reporters were great about fact-checking, and triangulating information, and I applauded them for that. In today's world where "alternative facts" can carry weight, I was pleased that most of the facts stayed true to my message, and those that deviated were still close enough for the point I was making.

So for this installment of the Accretion Desk, please take a moment and enjoy a well-written meteorite person article.

Until next time....

Meteorite Times Magazine

The Moon In My Hand

James Tobin



Over the course of my life, I have cut thousands of rocks on diamond saws. Most of the rocks the last twenty years have been meteorites. But until yesterday I had never cut a lunar meteorite. There has been a significant amount of meteorite from The Moon recovered recently, Paul and I decided that we would get a large piece and cut it.

Initially, I had fears of the material being friable and that it would fall apart in the saw. To be honest, I had never had a large piece of lunar meteorite in my hands to hold. I have a nice selection of pieces in my collection, but they are mostly measured in milligrams. Last Christmas, I bought my wife a small individual of about one gram and another individual for myself of just over a gram. For even that recent a time it was a great thing, a whole stone from our nearest neighbor.

The lunar I cut was 148.1 grams. That was exciting to hold. I let my wife hold it too she loves anything about The Moon. The stone is classified, all the work is done but it not yet listed in the Meteoritical Bulletin. It is a feldspathic regolith breccia and seemed pretty solid actually when I had it in my hands.

I decided that I should photograph it extensively before cutting it into slices. One of the first thoughts I had was how different looking it was from other meteorites. How many of them have I walked past while hunting meteorites because it does not look like a meteorite at all without a fusion crust? It looked quite similar to the basalt you might find almost anywhere in the Mohave Desert except for the lighter colored white and gray clasts that show on the outside.





After I had taken several dozen images of the uncut meteorite with different lenses from whole views to close-ups to very close macro images, it was off to the lab to cut it. I warmed it gently measuring the temperature with my infrared gun to keep from heating it too much. Any temperature above about 150° F is hot enough to make a good strong attachment to dope wax. I dipped one of the pointed ends into a melting pot of dope wax and stuck it onto the end of one of my special aluminum dope sticks then held it until it cooled. I was ready to cut. I marked the two equal endpieces that were spoken for on the stone with cobalt blue pastel chalk.





My aluminum dope sticks function not only as a holder for the stone but also fit into the saw so that I can advance the stone over an exact amount after each cut. The dope stick is a mandrel that is pushed by a threaded rod with a knob that I turn to move it over. A disk on the threaded rod moves to the right as I turn the knob also and pushes in the plunger on a dial micrometer. I can just turn the knob and set the exact thickness of every slice. I do not have a wire saw but I can routinely cut slices with my .010 inch blade of just under one millimeter if the material is strong.

I have a precision forward and reverse mechanism that I built for moving the stone through the blade and back out after the cut is complete. I can go as fast or as slow as I want and the motor will allow. I have surfaces so smooth most of the time that there is very little lapping needed to remove saw marks. There just are not many grooves to grind off. I guess I am kind of proud of the saw I made. It is the end result of two decades of advancements in design, and it works very well.

Before I mounted the mandrel into the holder on the carriage, I cleaned the saw. It was a brown mess from all the chondrites I had cut for a year or so. There is no reason for me to clean it normally the coolant water recirculates and is filtered through screens in the bottom of the saw so only the very fine particles of cut meteorite can go to the water tank under the saw. This keeps the electric pump from being clogged or jammed by bits of stone. I cleaned the saw and washed out the tank because we wanted to save the waste from the cutting. I put fresh water in the tank. It takes about two gallons to submerge the pump.

I was ready to go. It was about 8 AM and had taken an hour to get prepared for what I hope was not going to be a frustrating and scary day. I put the stone in the holder and moved it over until the blue chalk mark aligned with the blade and locked the mandrel in place. I adjusted the lock nuts and disk so that they touched the micrometer plunger just barely. This would give me the most cuts until I had to reset them to let the plunger back out. I can get approximately one inch worth of cuts before the plunger has been pushed to its limit.

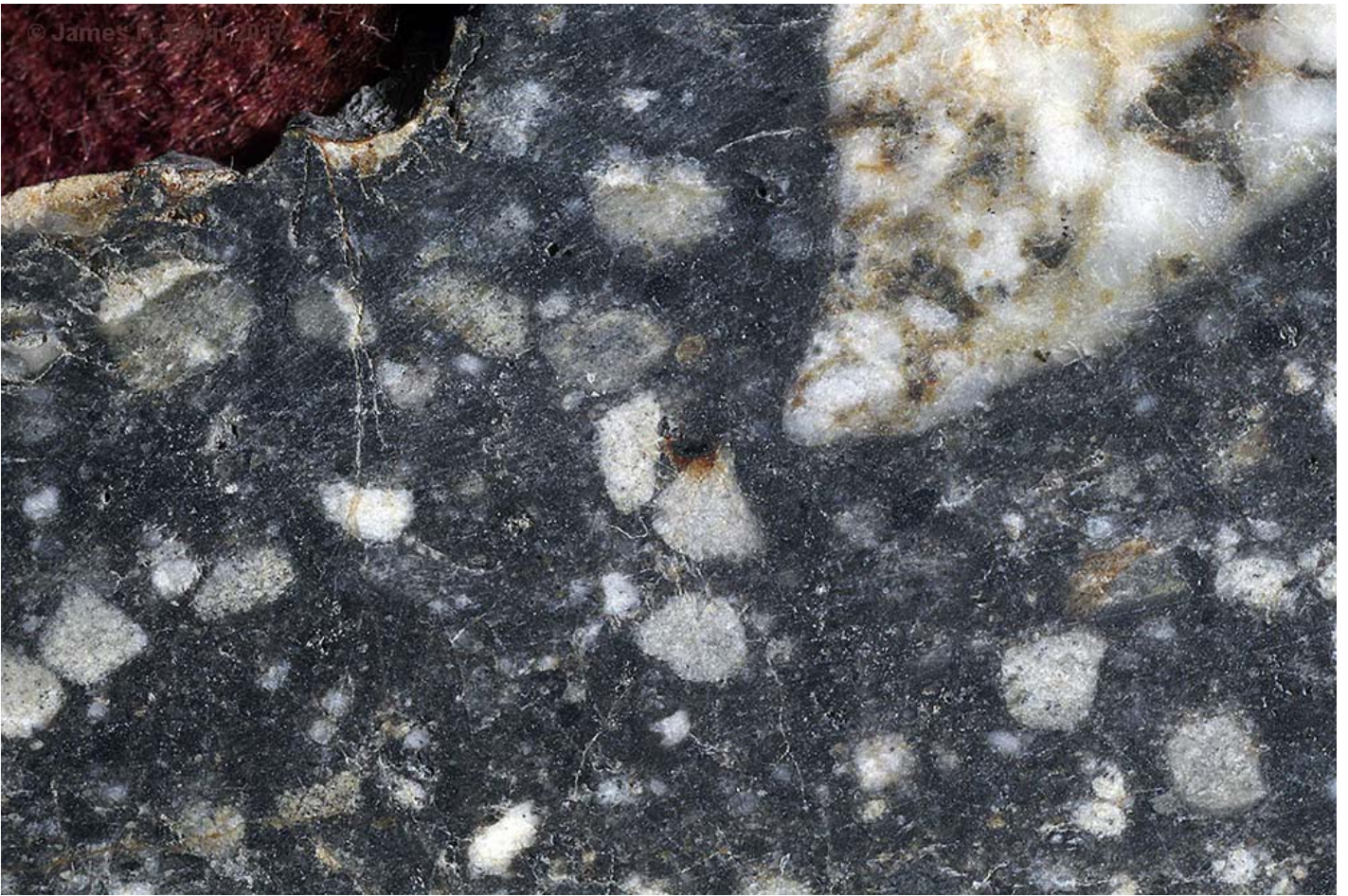
The blade was one that I had only used for a few cuts and was still good, so I began. I turned on the pump and saw motor and advanced the stone until it touched the blade. Then slowly and smoothly moved the stone forward until the endpiece fell off onto the foam rubber pad below the blade. A perfect cut. I now had the only tough decision of the day. How thin could I cut the slices? I dialed the stone over 100 thousandths and made the cut for my first slice. The cut was perfect. The slice was too thick I felt, so I dialed back the setting of the next one to .075 inch and made another cut. The stone was solid and strong, and the slice

came out just over one millimeter which is what I wanted. Over the next three hours, I sliced the stone into 18 slices and the two large endpieces. My big fear of a slice breaking which would expose the blade and let it deflect making a continuation of the cut very difficult did not happen. No need arose to cut any clean up slices to smooth up the stone. I had no bad slices with a step of two thicknesses.



Eighteen beautiful slices of the lunar meteorite now needed a touch on the diamond lap to smooth them on each side. Then a finish lap to the degree of polish I had to choose for them. I picked the 600 grit lap for smoothing them and the 1200 grit to leave the surface on one side at a low polish. It was just 12 noon when I finished cutting the slices, so I grabbed a bite of lunch before returning to the finishing work. I had 38 surfaces to smooth to 600 grit and 20 to finish to 1200 grit low polish. I also decided to polish the two endpieces to 50,000 mesh diamond a nice high polish. I was a little concerned about breaking the very thin slices while they were on the lapping machine. I often run it at a pretty high speed on thicker slices, chunks, and endpieces. But I slowed it way down for these one-millimeter slices. It would not really matter at this point if one cracked it would just be another piece to sell and make two which would be lower priced. But none broke and I was happy about how tough the stone was.

Each time I retrieved a slice or endpiece from the saw, I looked at it briefly. The big surprise for me was the tiny blebs of metal that I could see on nearly every surface. I was not expecting to find any metal. I knew that the impacts on The Moon put tiny amounts of metal in the material I just had not thought about seeing that in the one we were cutting. I found it very cool that metal was showing even if it was just a few tiny pin prick size blebs.



The small brown spot in the center of this image is a tiny bleb of iron. There are usually several even smaller bits of metal showing on most slices. The image below is angled to show the bright reflection of light from the blebs the large one is the same as the brown spot seen in the image above. Two other smaller ones also show.



I created 20 pieces from the 148.1 gram stone. I ended up with 123.282 grams of material after cutting. The cutting loss was 16.76% or 24.8 grams of material. I was happy with the amount of waste since the surface area of the slices is very large, and of course, we saved it. That will be a project of its own but something I have done with Allende before, recovering the dust for bottling. There is something about Moon Dust though that is far more special than Allende dust even with the diamonds that are in it.

It was not a scary or frustrating day at all; it was a good day. I finished about 4:30 in the afternoon and that included the weighing and placing into plastic cases of all the slices. I was seeing Paul the next day when he was in the area, getting the material to him was going to work out well. I had brought the meteorite home on Sunday and it was finished on Monday afternoon. About the fastest turn-a-round, I have ever done on a stone. I know the two individuals that are receiving the endpieces will be very happy with how they came out.

Meteorite Times Magazine

The 2017 Veterans Meteorite Hunt

Robert Verish



On the last weekend of April 2017, a small group of U.S. military veterans gathered in the Mojave Desert near Pahrump Nevada to take part in a “group meteorite hunt”. This was an open-invitation to all veterans, whether they had any experience at searching for meteorites, or not. The purpose of this gathering was to have a social function where veterans could meet and share in the experience of meteorite-hunting in the desert. This retreat was the brain-child of Jim Wooddell, and he had no trouble pitching the idea to the Granger Legacy, a veterans support group. He extended invitations to all veterans for his “meet-up” over the Internet through email and facebook. Readers may remember his [March 27th post](#) to the Meteorite-List:

[meteorite-list] Veterans Meteorite Hunt Happening!!!

Jim Wooddell via Meteorite-list <meteorite-list@meteoritecentral.com>

To: Meteorite-list@meteoritecentral.com Date: Mar 27 at 11:15 AM

Hi Folks!

I hope this message goes through!

Together with Granger Legacy, I am putting on a Veteran’s Meteorite Hunt On April 29th exclusively for Veterans of any of the 5 armed services.

There will be expert meteorite hunters to help guide Veterans during the hunt to help insure their best chance of finding a meteorite.

All veterans are welcome. A camp out and BBQ are happening, and the BBQ is no charge to the Veterans.

Breakfast is being served at no charge as well. PLEASE RSVP for head count.

The hunt will be near Pahrump, NV. Some of the Vets are staying at the Saddle West Hotel in Pahrump rather than camping. If you are a Veteran and are interested, please join the Facebook Group or contact me direct to sign up. <https://www.facebook.com/groups/156274051559087/>

V/R,
Jim Wooddell

As Jim stated above, he was teaming-up with “Granger Legacy” to host this **Veterans Meteorite Hunt**. For those of you who are not familiar with this non-profit, here is their simply-stated mission statement copied from their website:

Our Mission:

Granger Legacy's mission is to serve and support our nation's Veterans, their families, and community with a specific focus on the effort to wipe out the stain of 22+ Veteran suicides every day. [1]

The Granger Legacy's point-of-contact for this veterans group meteorite-hunt is James "Poppy" Wharton. Here is what the Granger Legacy website had to say about "Poppy":

[James Wharton](#) is the Director of Granger Legacy, an organization founded to carry on the legacy of his late son in law, Army Ranger Jason Granger after he intervened in the suicide attempt of a Ranger buddy and pointed him in a direction of healing and purpose. That Ranger buddy has in turned pulled brothers from the fire and is continuing the mission and living the Creed. We will do everything we can to support him and all Veterans and their families to combat PTS(d), the stigma, and advocate wherever we can beginning with Granger Outpost, an Equine Assisted Therapy ranch in Southern California. We are "For The Warrior, For The Wounded, and For The Widow" as Jason's tattoo abbreviated "FTW!"



Inside the campsite: from left to right – James "Poppy" Wharton, Bob Verish, Jim Wooddell, Wendy Wooddell. Image taken by Monika Waiblinger (2017).



Here are some of the attendees sitting around the campfire (from left to right): — David Rodgers, Connie Cejmer., Moni Waiblinger, Bob Verish, Sonia Dunkinson, Wendy Wooddell, Jim Wooddell — Image taken by James Wharton (2017).



After he cooked-up a wonderful breakfast for all of us, Poppy handed-out to each of the veterans one of these “medallions”. Photo courtesy of James Wharton (2017).

Veterans Meteorite Hunt — by “libuszowski”

— a “drone video” by Dave Libuszowski (with well-edited background music).

Published on May 4, 2017

“On April 29, 2017 Poppy Wharton from Granger Legacy, and Jim Wooddell put on a Veterans Meteorite Hunt at Stewart Dry Lake.

This video is a flyby at Base Camp. The winds were real heavy that day, so it was hard to control the drone at times...”



Here, on the end of a magnet-stick, is Poppy’s first meteorite find — a fragment (paired to StV 001) from the H6 chondrite that fell in Stewart Valley a long time ago. Image taken by James Wharton (2017).



I brought this labeled meteorite to show the attendees, as an example, how chondritic stones weather on a drylake, and from where all of the little fragments are originating — an early-2002 find (paired to StV 001) from the H6 meteorite that fell over Stewart Valley a long time ago. Image taken by Jim Wooddell (2017).



This is known as a close-up "in-situ" image of a just found meteorite, a find made by Roy Miller. Only a small portion of this stone stuck-up above ground level, and it was colored black like the numerous non-magnetic stones (instead of the deep brownish color of the H6 fragments), so it was a good thing that Roy hit this stone with his magnet-stick just to double-check. Photo courtesy of Roy Miller (2017).



After cleaning, a close-up of the L6 stone found by Roy Miller (~1ounce). Now given the provisional number [StV170429RoyM](#) — it is visually-paired to StV 002/004/005/017/020 (L6). StV 002 was the first find of more than two dozen freshly fusion-crustured, mostly whole individual L6-chondrites, forming an overlapping strewn-field over the pre-existing H6 strewn-field. Contrary to an erroneous label (that has been widely-spread), there is no “L4” strewn-field in Stewart Valley DCA. Photo courtesy of Roy Miller (2017).

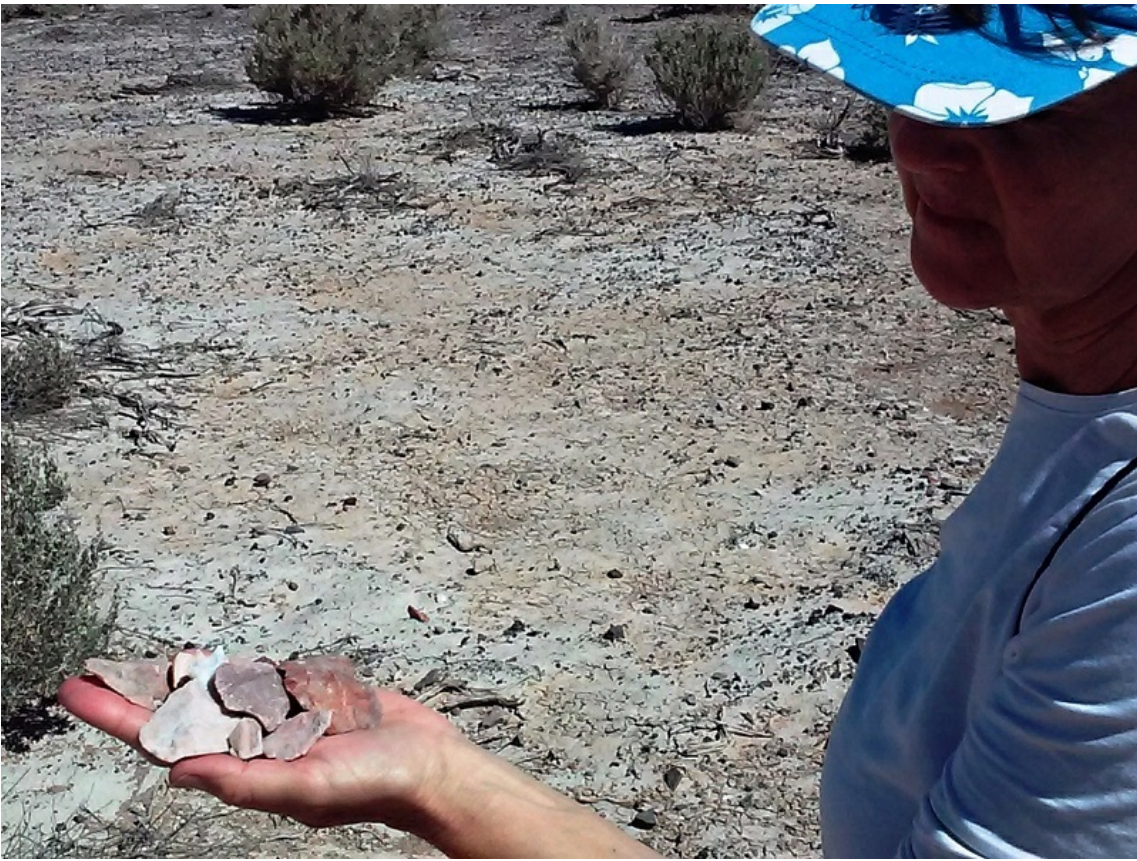


The Group Photo: from left to right – (starting with the left-most nose) Franny Wooddell (she was named after the Franconia Strewn Field — Her AKC name is “Franconia’s Little Fireball”), David Rodgers, Warren & Laurie Zwanka (from Florida), Cody Miller, James “Poppy” Wharton, Roy Miller, James Beauchamp (flew in from Oklahoma City), (Dolan) Dave Libuszowski, Wendy Wooddell, who is holding Jim Wooddell, who is holding Dozer Wooddell, Eric Rasmussen (his camera), and Ray Cornelius. Not Shown: Sonia Dunkinson (as well as, Sonia’s friend Connie Cejmer), and Moni Waiblinger & Bob Verish. Two Stewart Valley veterans, that were with us in spirit: the late Larry Sloan and John P. Wolfe. Image taken by Eric Rasmussen (2017).



Here is Moni holding some debitage while standing in the middle of a vast gravel bar. Or, is it all just one gigantic, paleolithic garbage-dump? Photo courtesy of Bob Verish (2017).

Before heading back home, I took Moni over to the shoreline where there was a dense accumulation of siliceous gravel, (which other than quartzite) rarely occurs on this dry-lake. Most of the pebble-gravel were in the form of slivers of a wide variety of jaspers, rhyolite and other fine-grained volcano-clastic rock (which is a very rare rock for this valley, and which suggests that these rocks have been transported). The shapes of these slivers strongly suggest that they have been “worked” by hand. The only reason that I don’t come flat-out and call this a paleo-tool-making site is because this debitage covers an area larger than two city blocks. Even more surprising is that we did not find one “arrowhead”, here. But then, this area is close to a road, and even closer to houses, so it shouldn’t be surprising that all of the “arrowheads” have already been hunted-out. We haven’t extensively searched the literature, but for now, we are convinced that this is a very well-known archeological site.



A close-up of what Moni is holding in her hand (most likely debitage). Photo courtesy of Bob Verish (2017).



The author (Bob) examining up-close, either an artifact, or a potential meteorite. Photo courtesy of Moni Waiblinger (2017).

[Granger Legacy](#) posted 17 new photos on facebook, on 2017 April 30 at 6:28pm · Pahrump, NV · Here is what Poppy wrote about the meet-up:

Our very first **Veterans Meteorite Hunt** was an amazing success! We were about 20 strong, counting Veterans and meteorite experts & enthusiasts.

I want to personally thank all who attended especially those that flew in from Oklahoma and as far away as Florida! Jim and Wendy Woddell, thank you for the impetus, planning, organizing, supplying , logistics... Thank you for everything!

Tammie Wharton, your chili, potato salad, and help organizing and loading for the trip made it possible for me to be a part of an amazing weekend. Thank you.

Brianne Barr, the cupcakes were awesome! Thank you for working all that baking and frosting into your hectic schedule... Would not have been possible without your support.

Nature and comraderie have a way of rebooting you when other options fail.

One Army Veteran told me during the morning hunt that she had finally been able to sleep the entire night and felt great. That, that right there, made it all worthwhile.

To those that continue to support us, thank you for making this possible.

Let's keep on keeping on!

James "Poppy" Wharton



These items are on my bookshelf above my desk.

It wasn't until after we returned home, I realized that there was a misconception about my function at this outing. It appears that some had considered me as one of the "meteorite-experts" and that my invitation was courtesy of my having discovered this Dense Collection Area (DCA). The truth is, actually, I am a [Vietnam Vet](#).^[3] So, I was invested into this "outing for veterans", a little more than just for the meteorites. It was my intent to, at the least, share the experience of camping in the desert for a couple days with my fellow veterans. I hope this article shows my appreciation and directs some attention towards the Granger Legacy and their efforts in combating the effects of PTS(d). ^[4]

Thank you, GL, and keep up the great job you are doing. And don't forget, "I've got your 6"!

References:

[1] [Granger Legacy](#), "War Is Hell. The Demons WILL Follow You Home!"

search results for Keywords: [James "Poppy" Wharton](#)

[2] [Meteoritical Bulletin Database](#), search results for

Keywords: Stewart Valley

[3] [The Crouching Beast](#): A United States Army Lieutenant's Account of the Battle for Hamburger Hill, May 1969, by Frank Boccia

[4] [Hamburger Hill](#): The Brutal Battle for Dong Ap Bia: May 11-20, 1969 by Samuel Zaffiri

External links:

[Stewart Valley 001](#) from the Meteoritical Bulletin: the entry for "StV 001" – as Published in Meteoritical

Society – Meteoritical Bulletin, Database:
Stewart Valley 001 (StV 001)
California, USA
Found: 2001 Feb 17
Classification: Ordinary chondrite (H6)

Physical characteristics: Type-specimen is from the 4th find (of more than 1000 fragments continually being found from this locality); a weathered-brown broken stone; a few finds are whole individuals with relatively fresh fusion crust (combined weight in excess of 24 kg). Some pieces can be reassembled into their original mass.

[Stewart Valley 002](#) from the Meteoritical Bulletin: the entry for “StV 002” – as Published in Meteoritical Society – Meteoritical Bulletin, Database:
Stewart Valley 002 (StV 002)
California, USA
Found: 2001 Feb 17
Classification: Ordinary chondrite (L6)

Physical characteristics: Type specimen is from the 22nd find from this locality, but is the first of more than two dozen freshly fusion-crust, mostly whole individual L6-chondritic stones, forming an overlapping strewn-field.

[Veterans Meteorite Hunt](#) — by “libuszowski”

— a “drone video” by Dave Libuszowski (with well-edited background music).

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“On April 29, 2017 Poppy Wharton from Granger Legacy, and Jim Wooddell put on a Veterans Meteorite Hunt at Stewart Dry Lake. This video is a flyby at Base Camp. The winds were real heavy that day, so it was hard to control the drone at times...”

[The Granger Legacy](#)

— a “streamed video” about The Granger Legacy by GallantFew, Inc.

Streamed live on Feb 10, 2015

“Jim Wharton is the Director of Granger Legacy, an organization founded to carry on the legacy of his late son in law, Army Ranger Jason Granger after he intervened in the suicide attempt of a Ranger buddy and pointed him in a direction of healing and purpose. That Ranger buddy has in turned pulled brothers from the fire and is continuing the mission and living the Creed. We will do everything we can to support him and all Veterans and their families to combat PTS(d), the stigma, and advocate wherever we can beginning with Granger Outpost, an Equine Assisted Therapy ranch in Southern California. We are “For The Warrior, For The Wounded, and For The Widow” as Jason’s tattoo abbreviated “FTW!”

My previous Bob's Findings can be found [*HERE*](#)

If you would like more information, then **“Click”** [HERE](#).

[bolidechaser at yahoo-dot-com](mailto:bolidechaser@yahoo-dot-com)

Meteorite Times Magazine

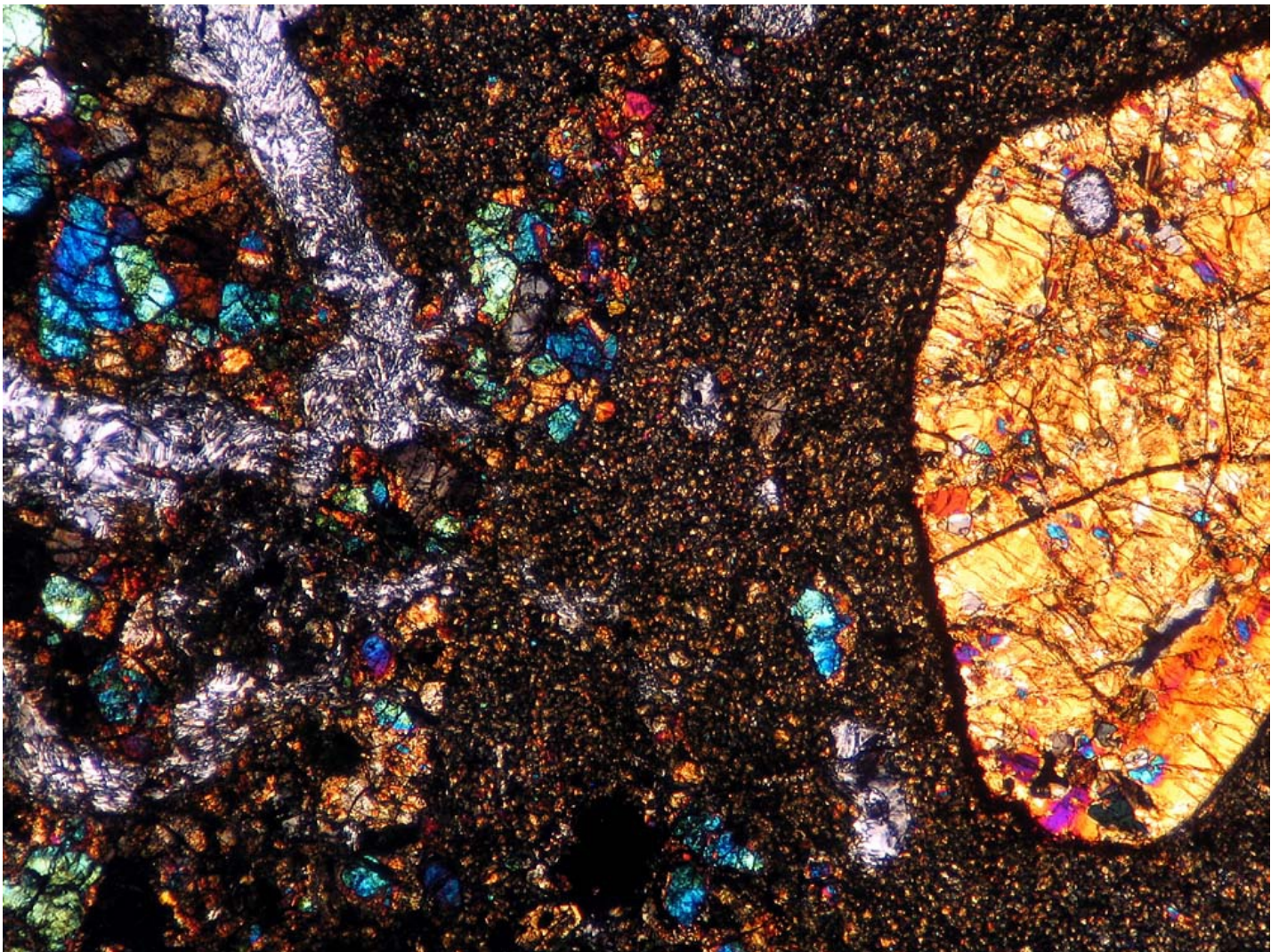
NWA 2824 Diogenite

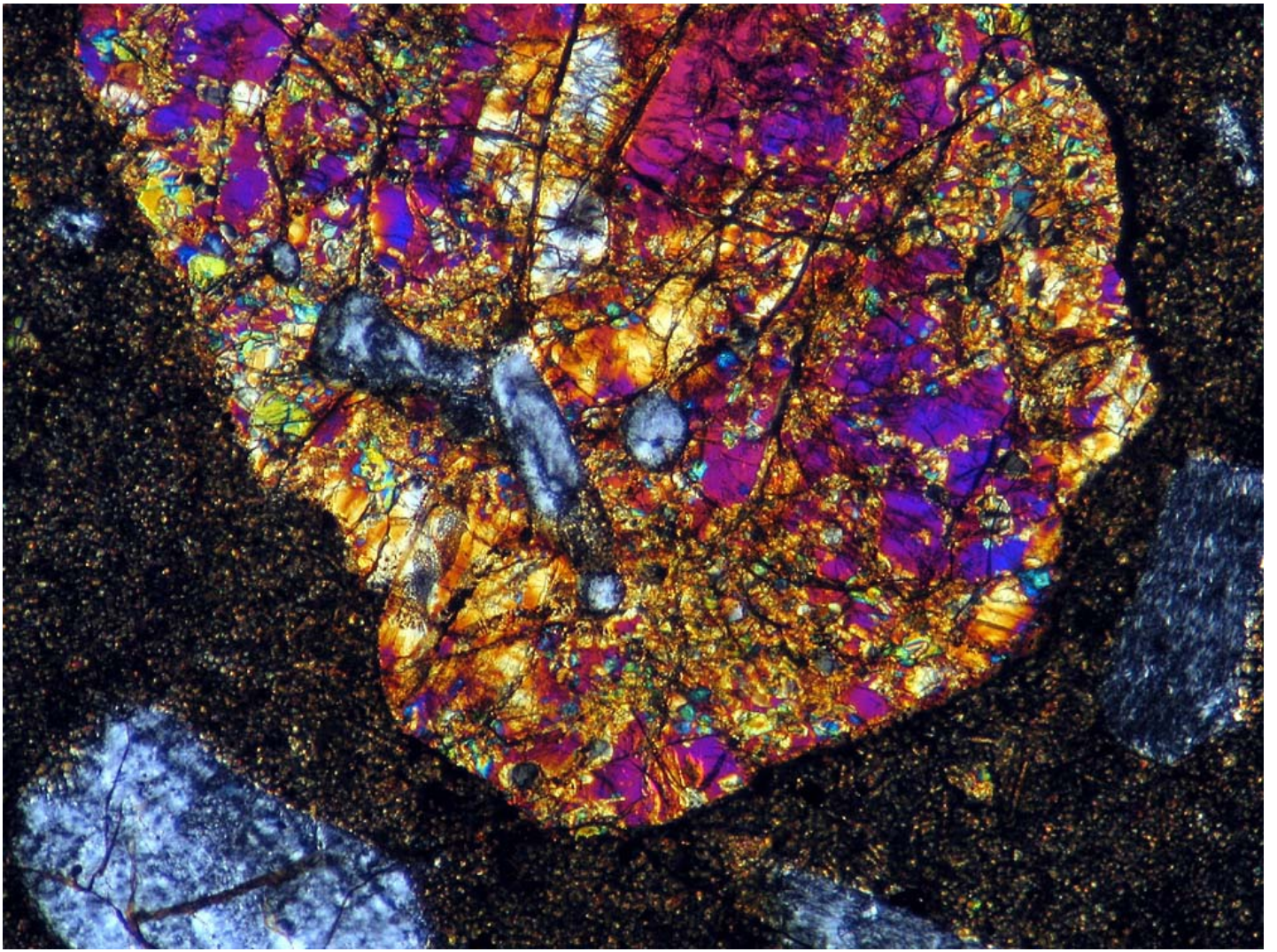
John Kashuba

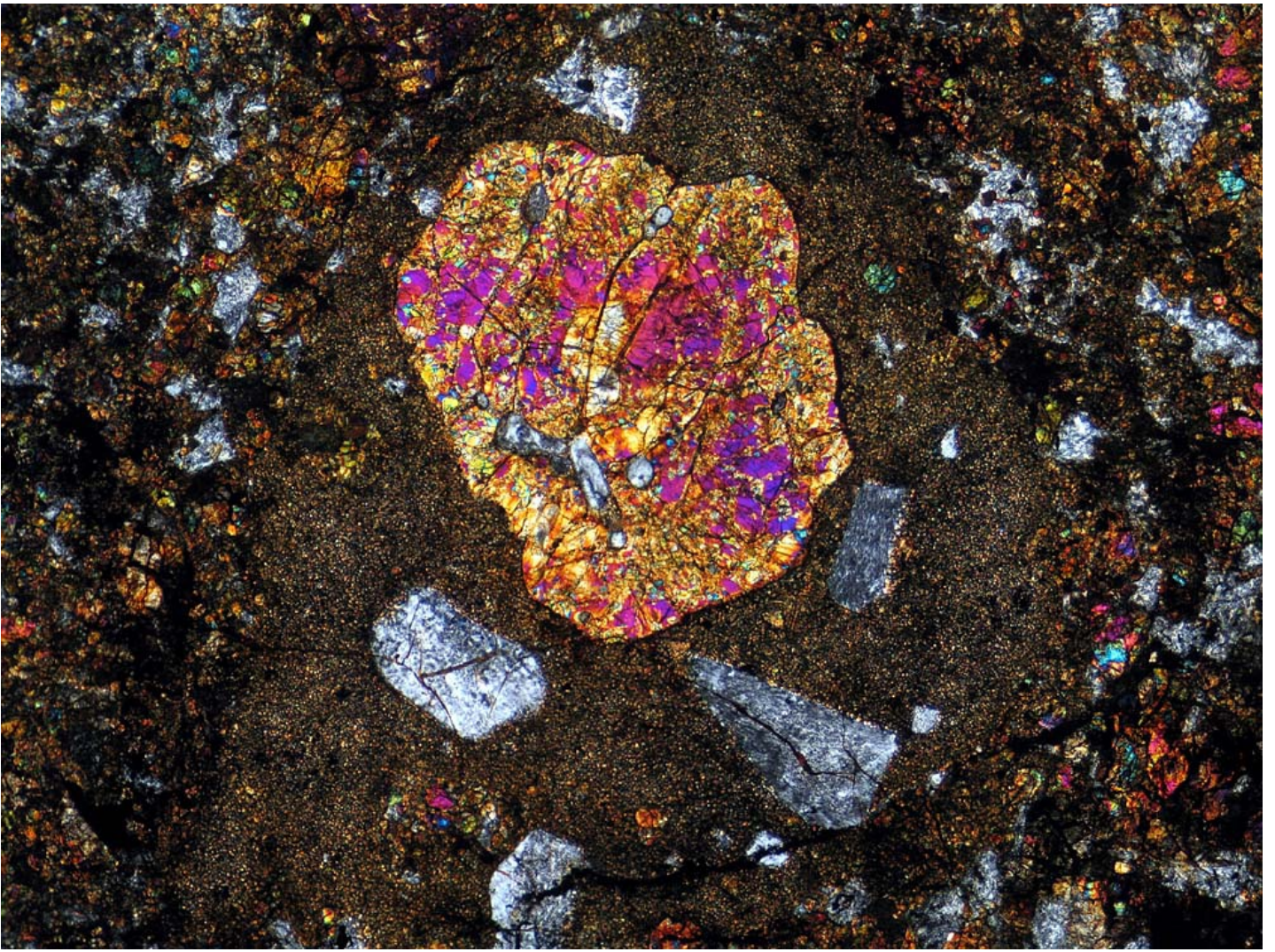
Ted Bunch and other researchers have described many shock induced features in this odd diogenite. We found some to photograph in a few thin sections, all viewed in cross-polarized light.

Brecciation is a common result of shock. The clasts in this polymict breccia have a variety of textures. Mechanical twinning, also called shock twinning, is apparent in numerous mineral grains. Sometimes very high shock will go beyond fracturing and cleaving minerals to producing planer deformation features (PDFs). These are extremely fine, very closely spaced glass-like layers in mineral grains. In nature they are rare outside of quartz and feldspar but they have been described in this and other meteorites. We believe we have found several examples. This diogenite is rich in plagioclase. The plagioclase, gray to white in cross-polarized light, melted under shock and recrystallized to striking spherulitic textures. Also, adjacent to these melts we found mineral grains with heat affected edges.

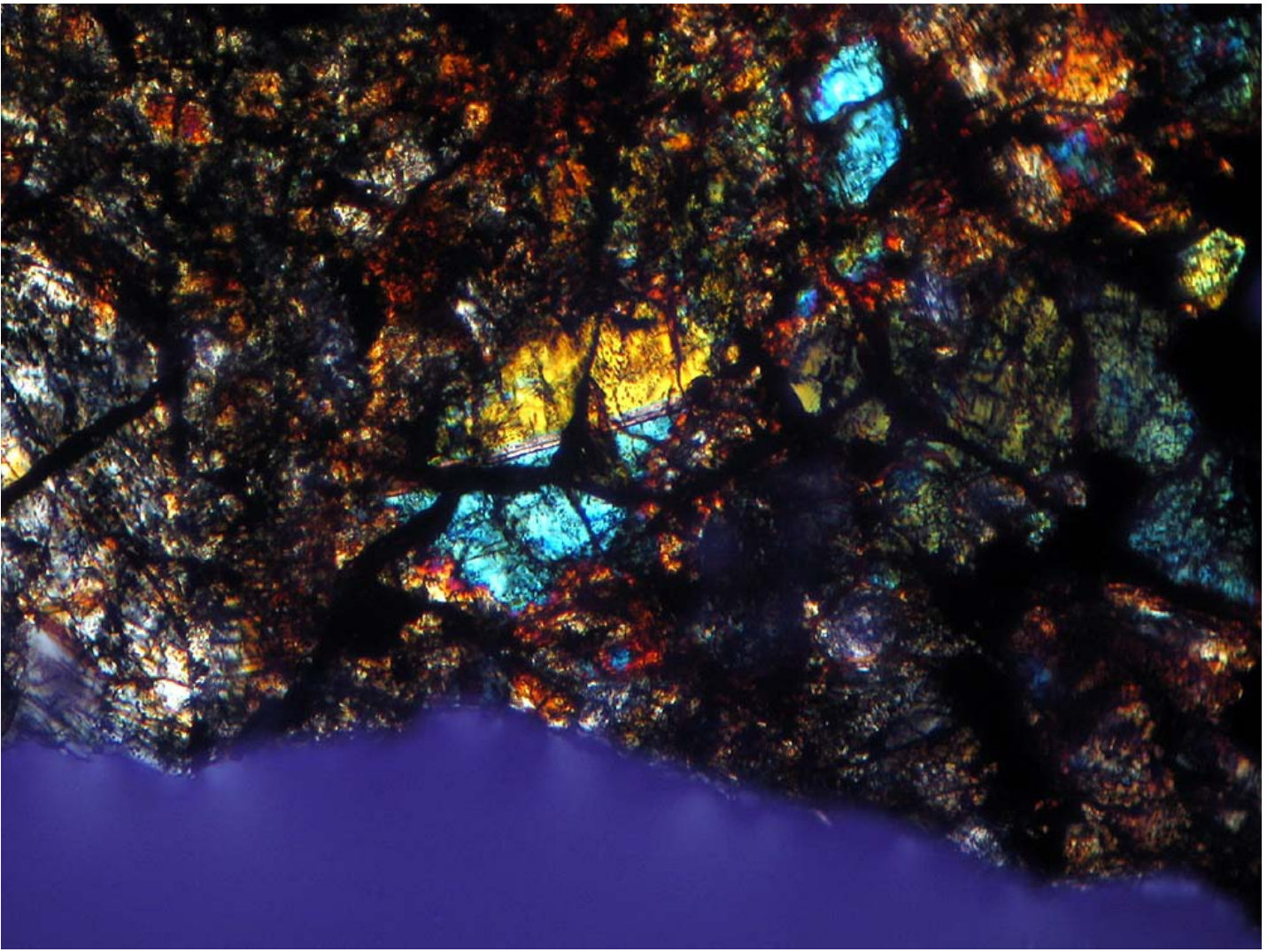
Clast textures vary widely. Some contain plagioclase. Some clasts are plagioclase.

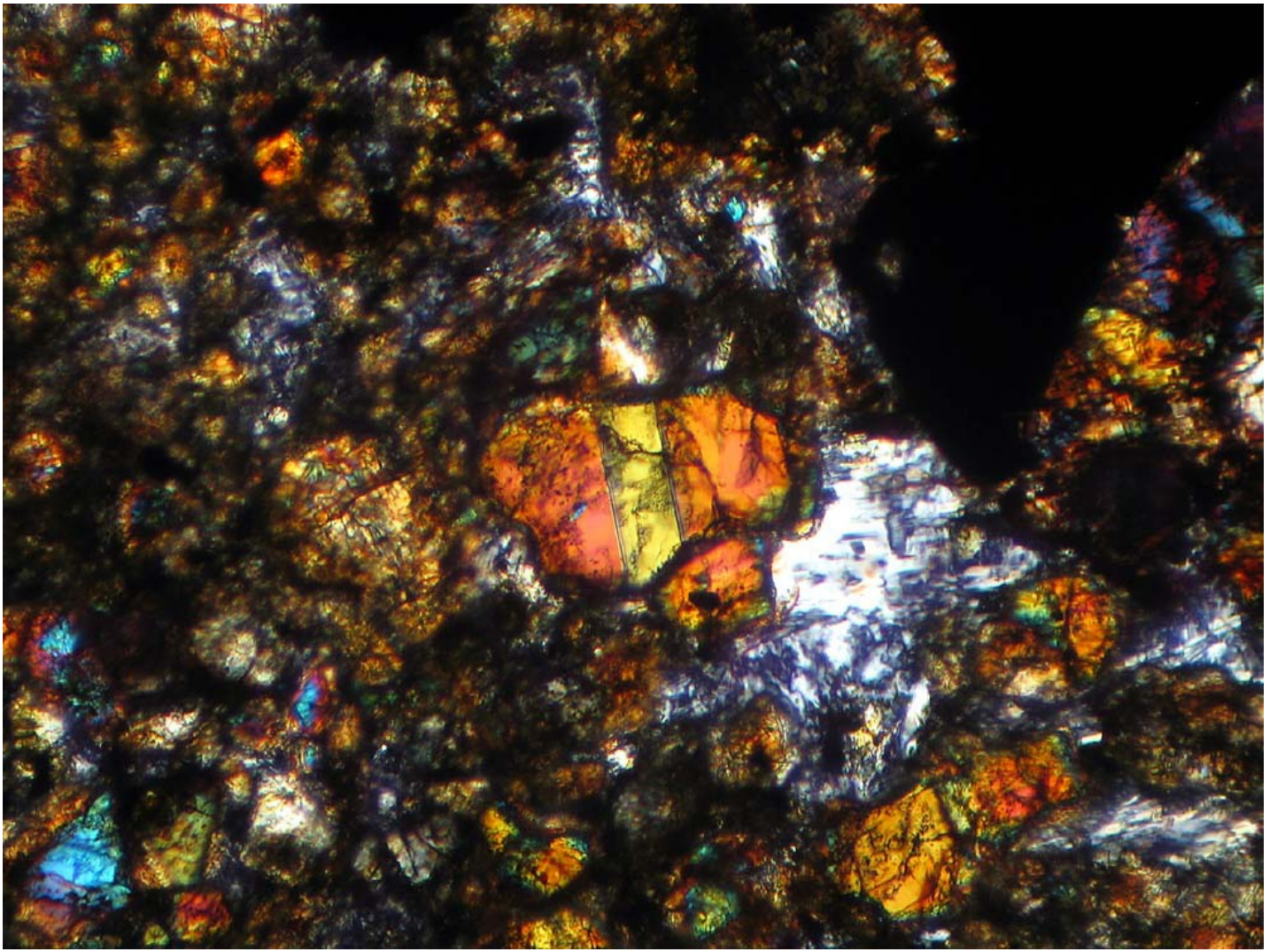


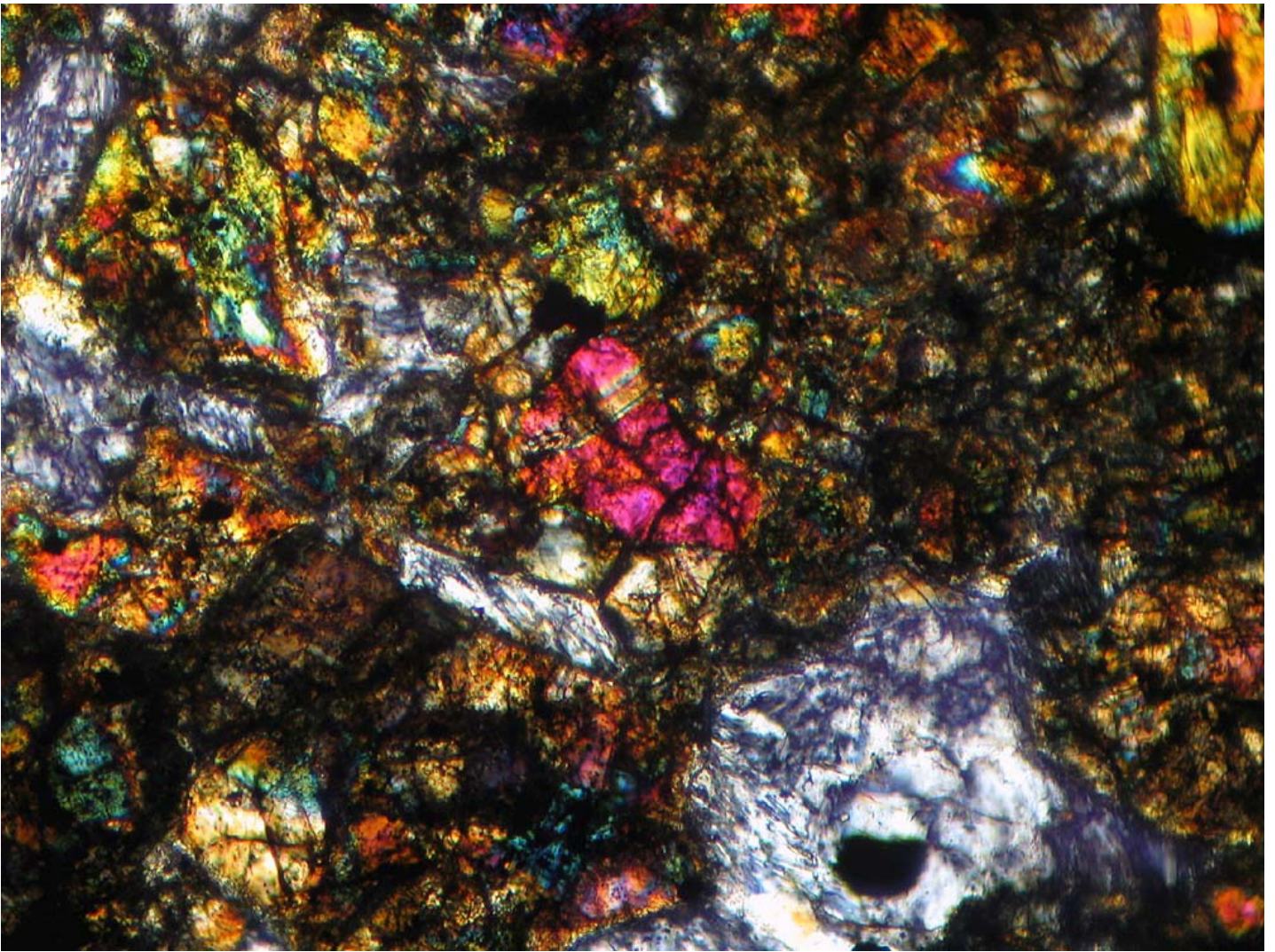




The color banding in these mineral grains is indicative of shock twinning.

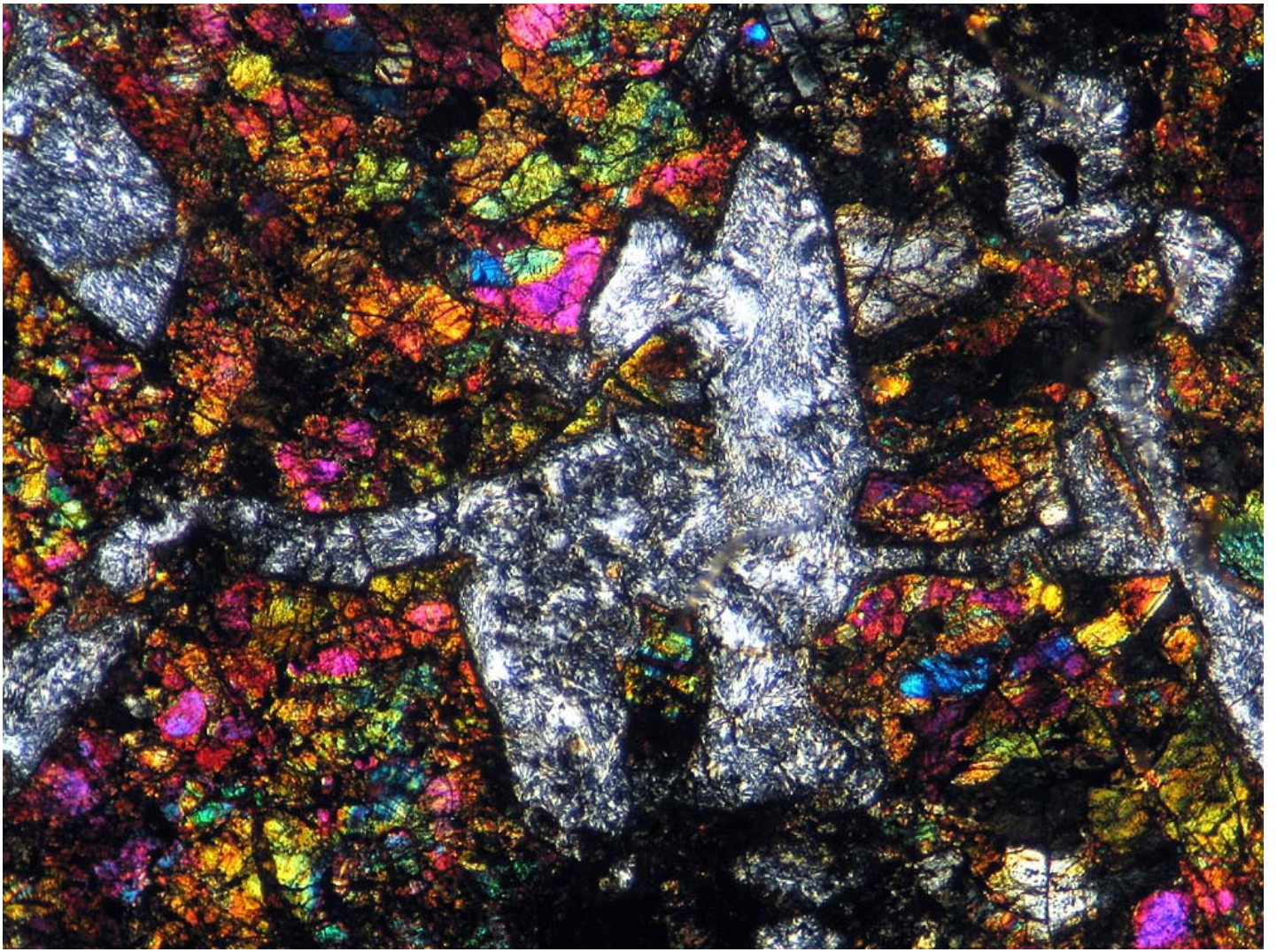


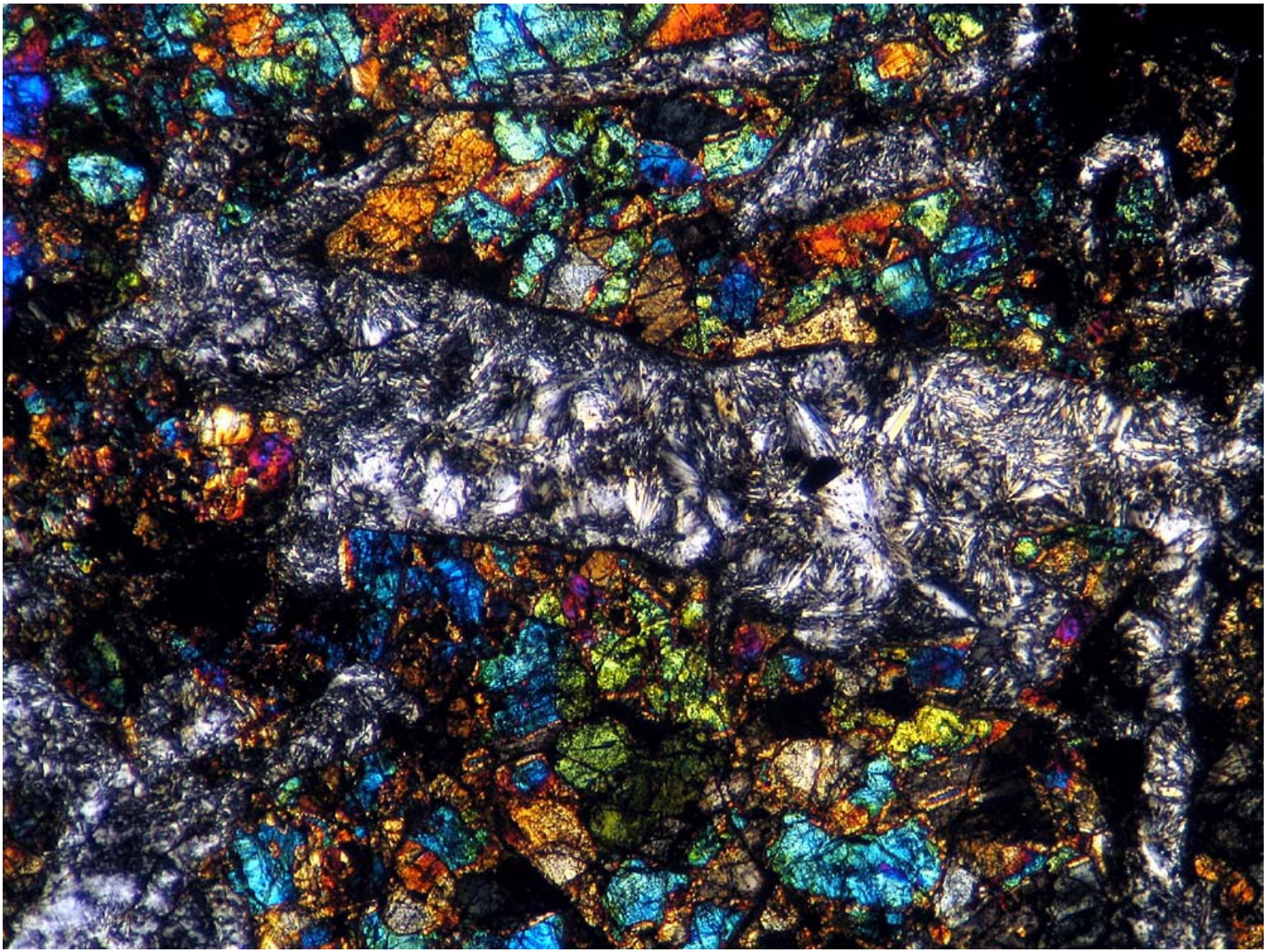


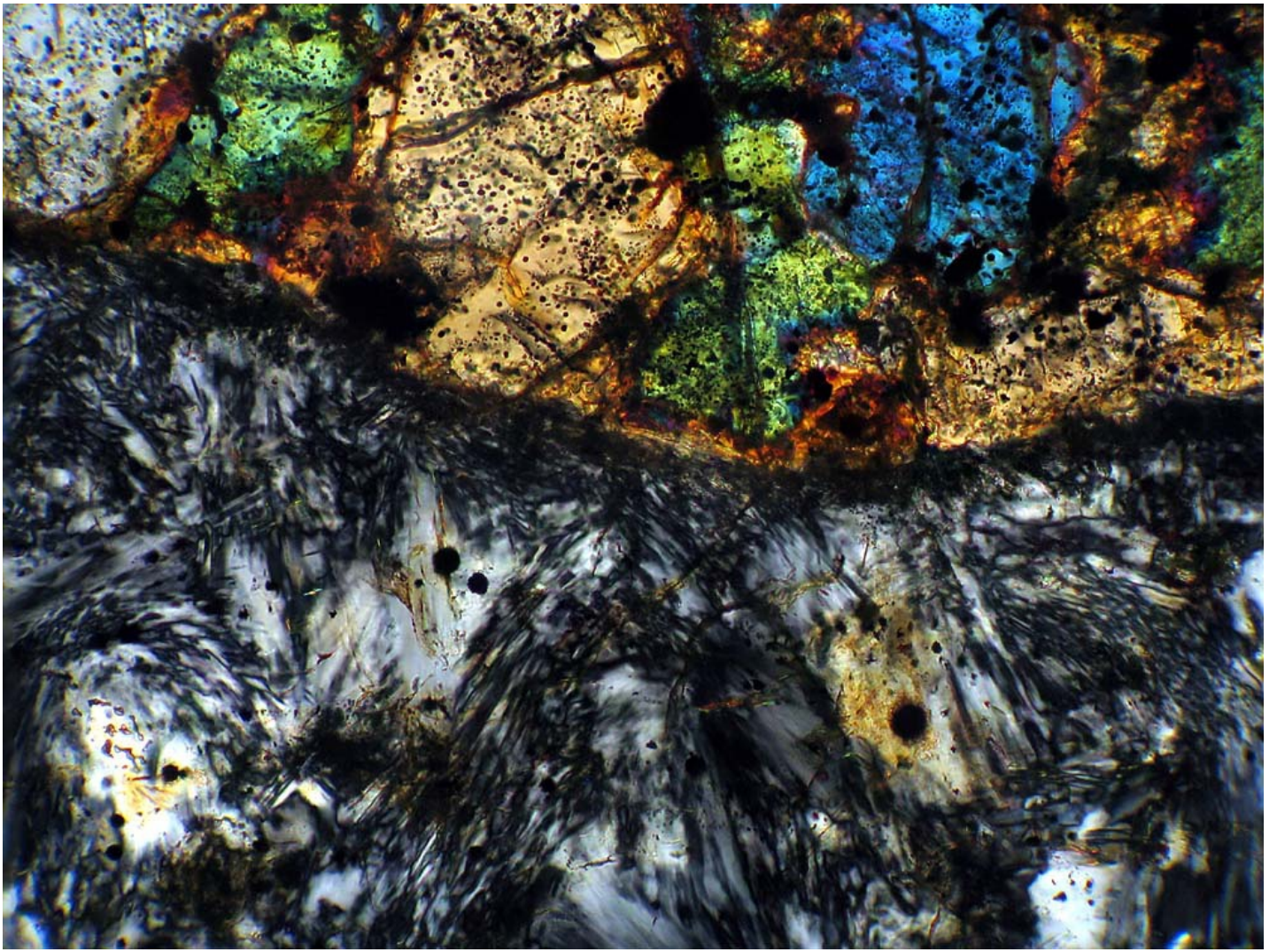


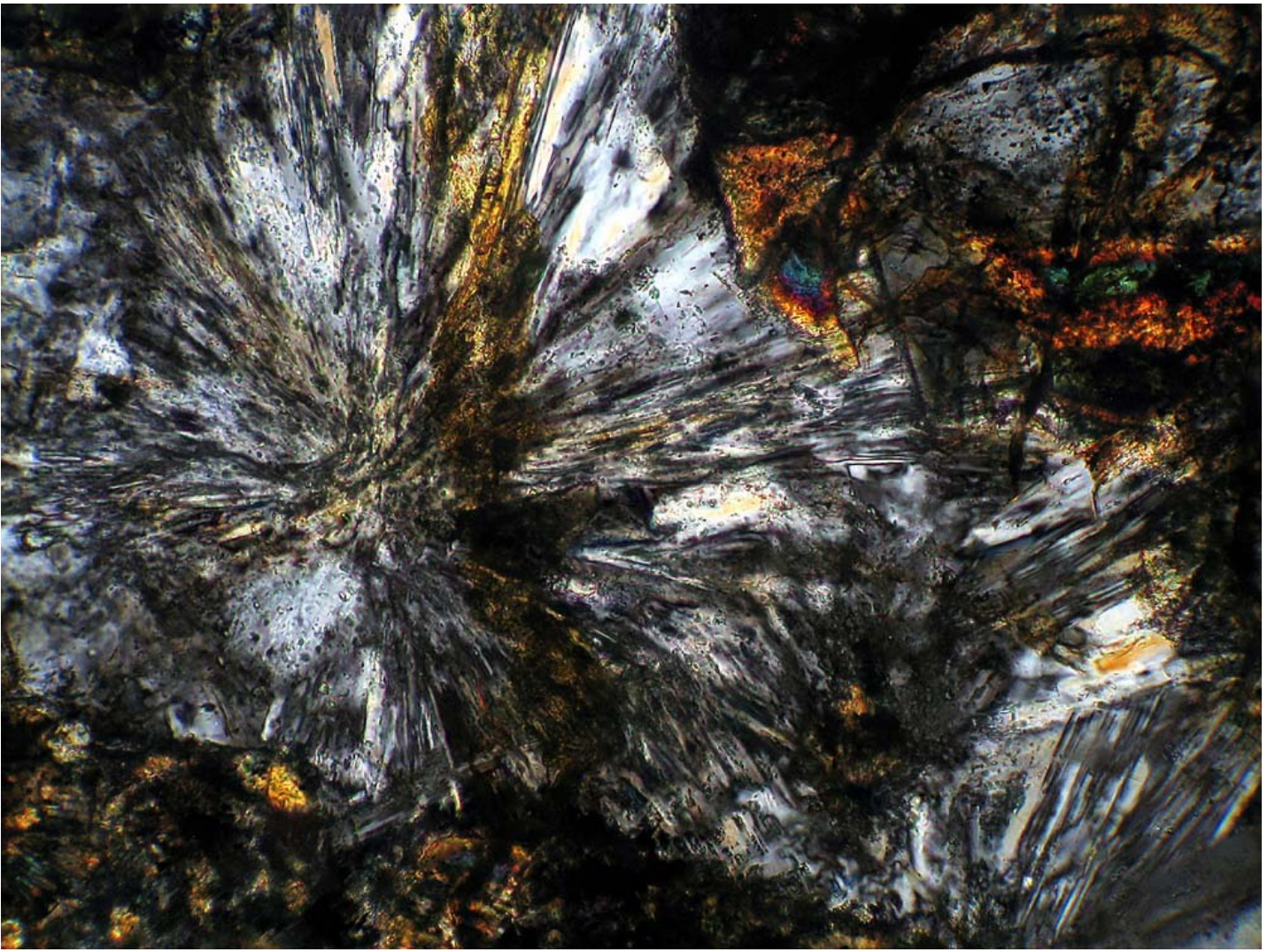
Recrystallized shock melted plagioclase is patterned with intersecting zones of radiating fibers. Portions of fibers show gray and black when they are near and in optical extinction when the thin section is viewed in cross-polarized light.

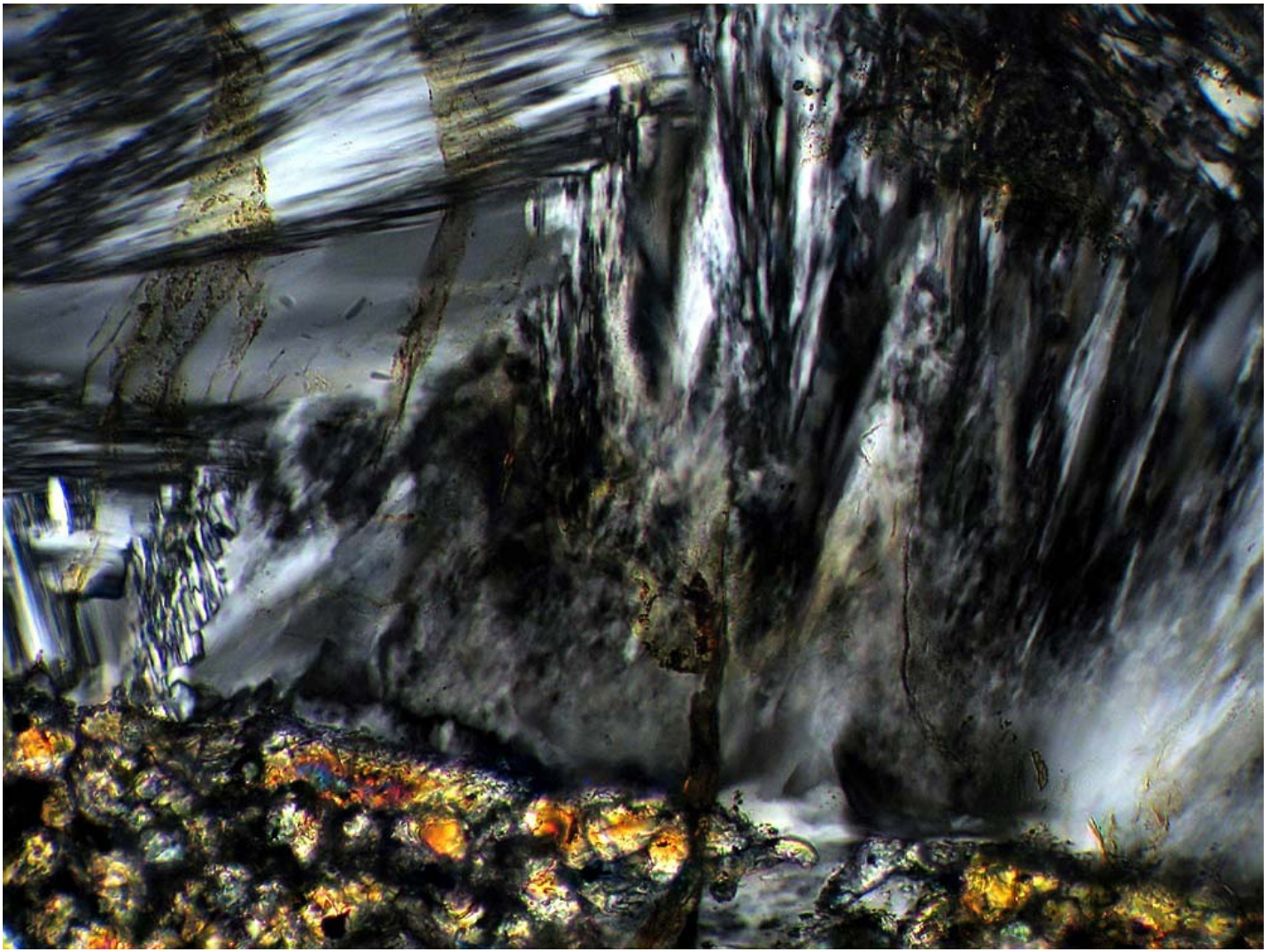


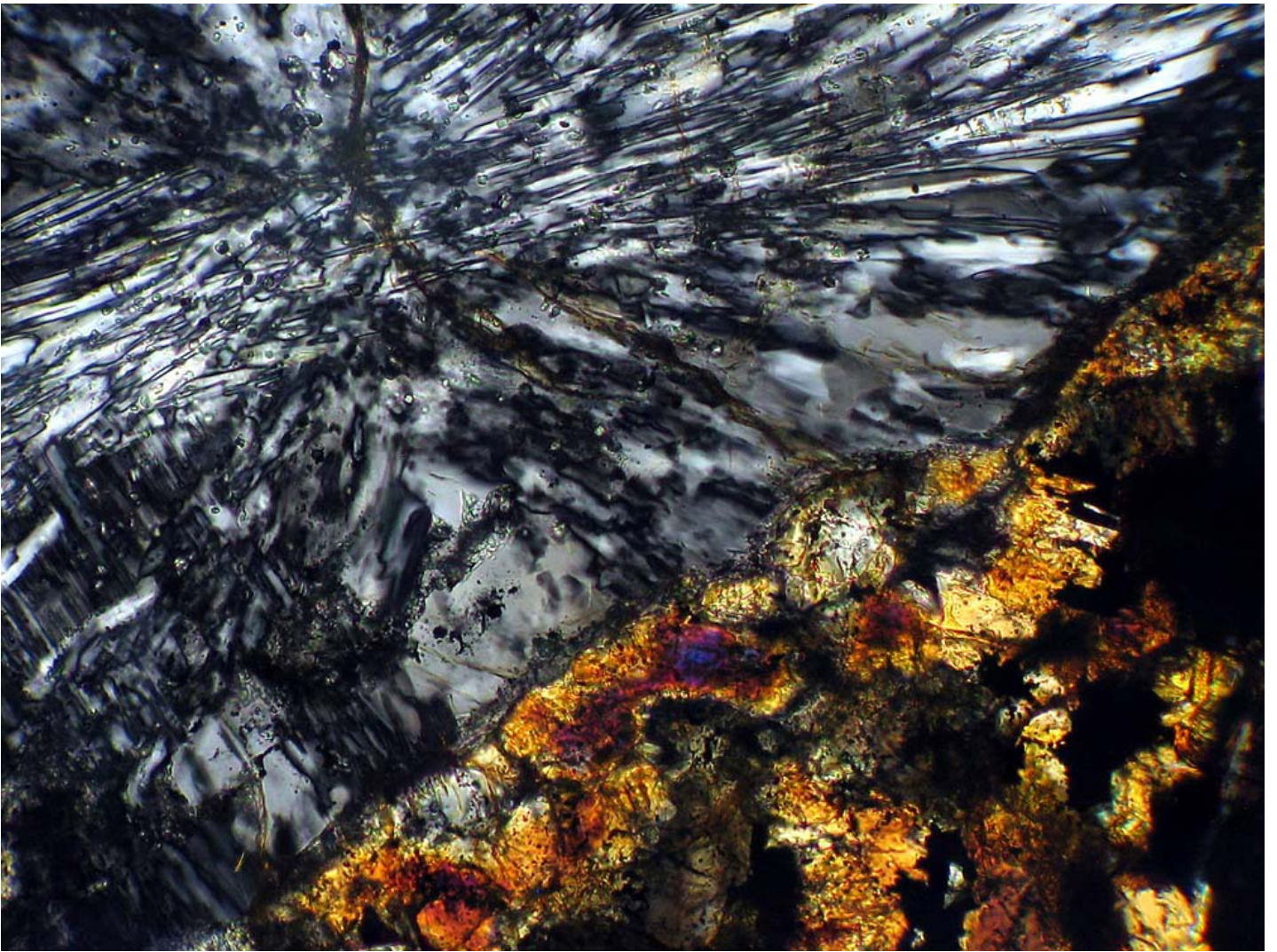




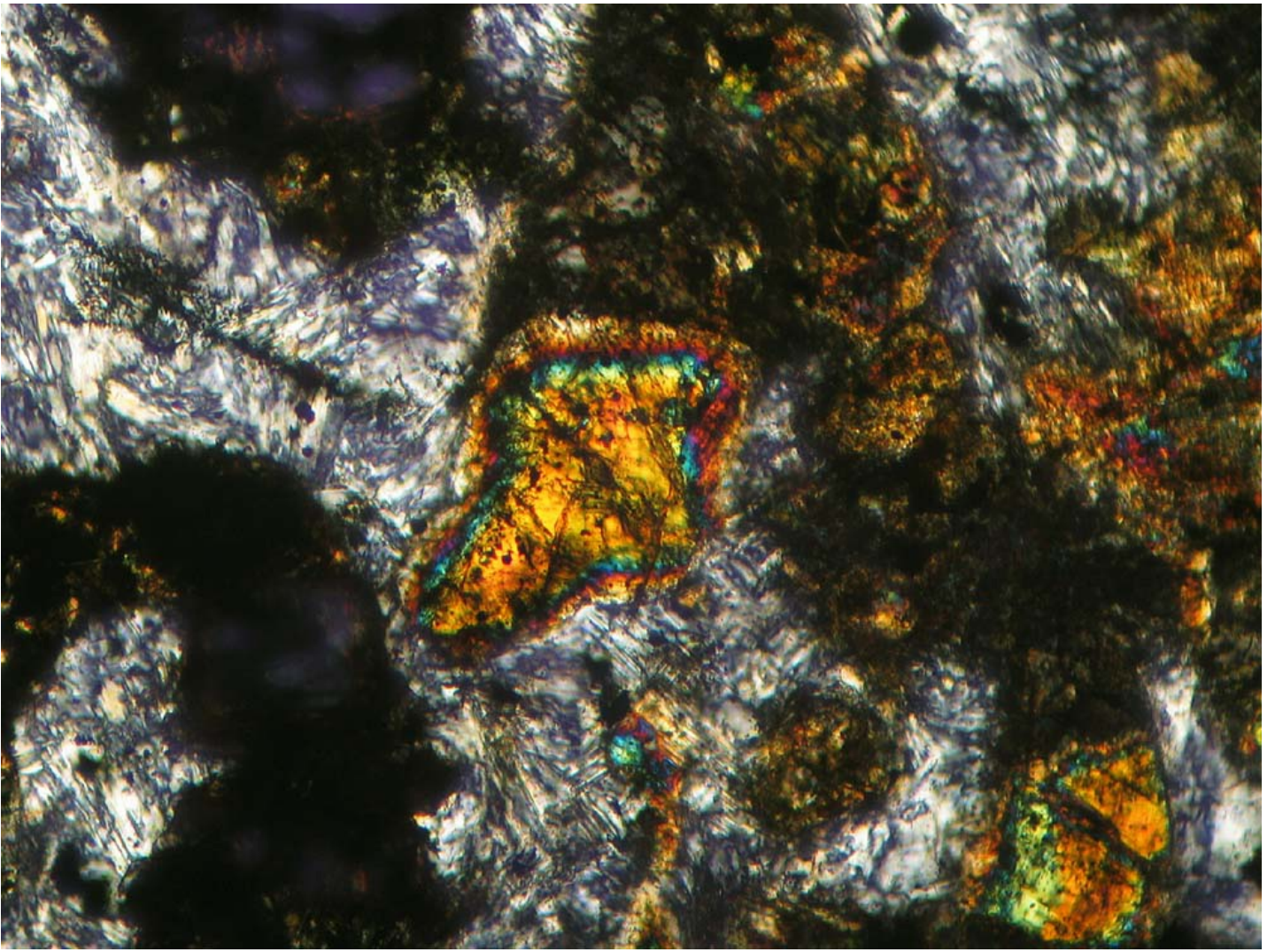


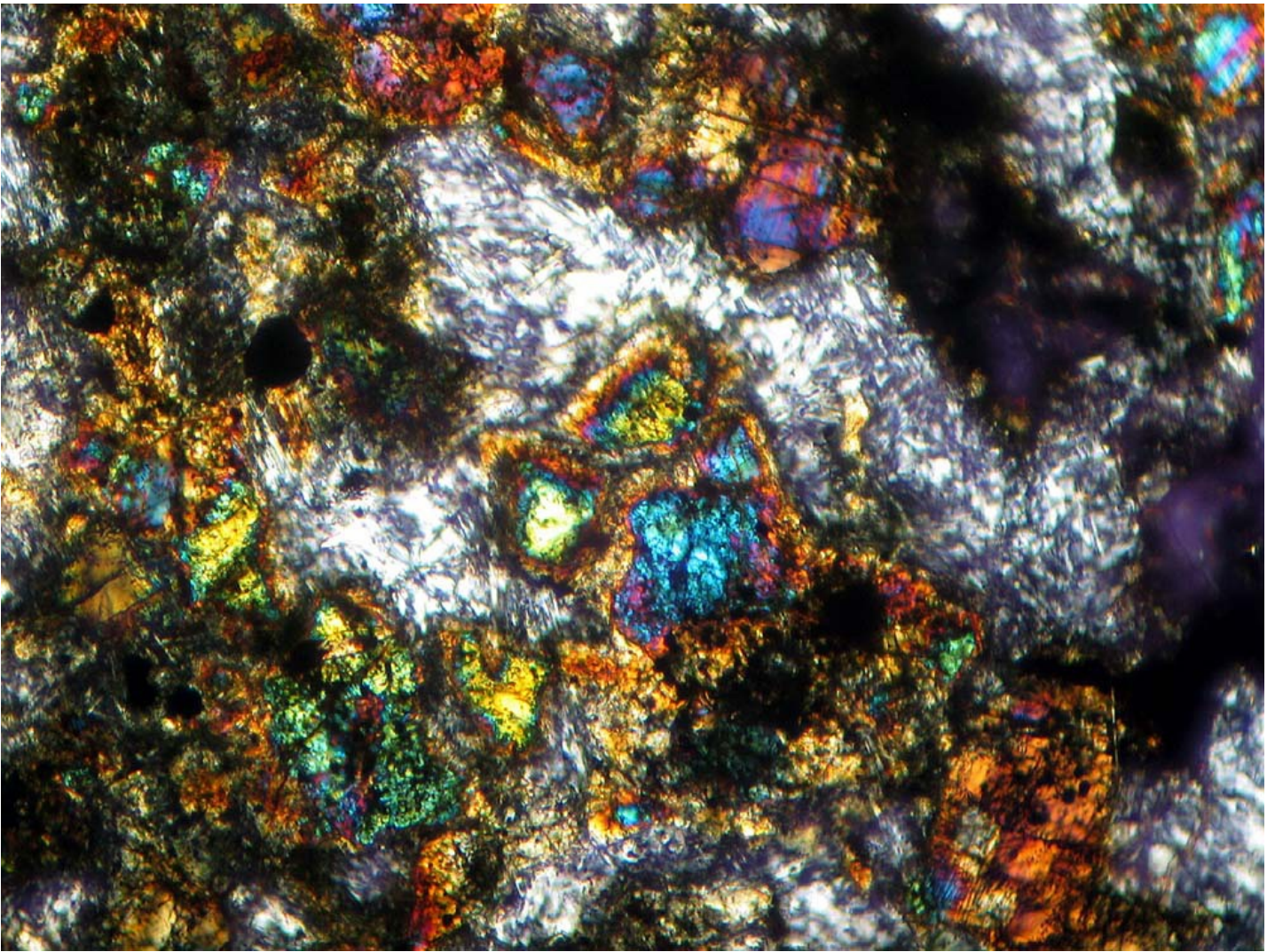




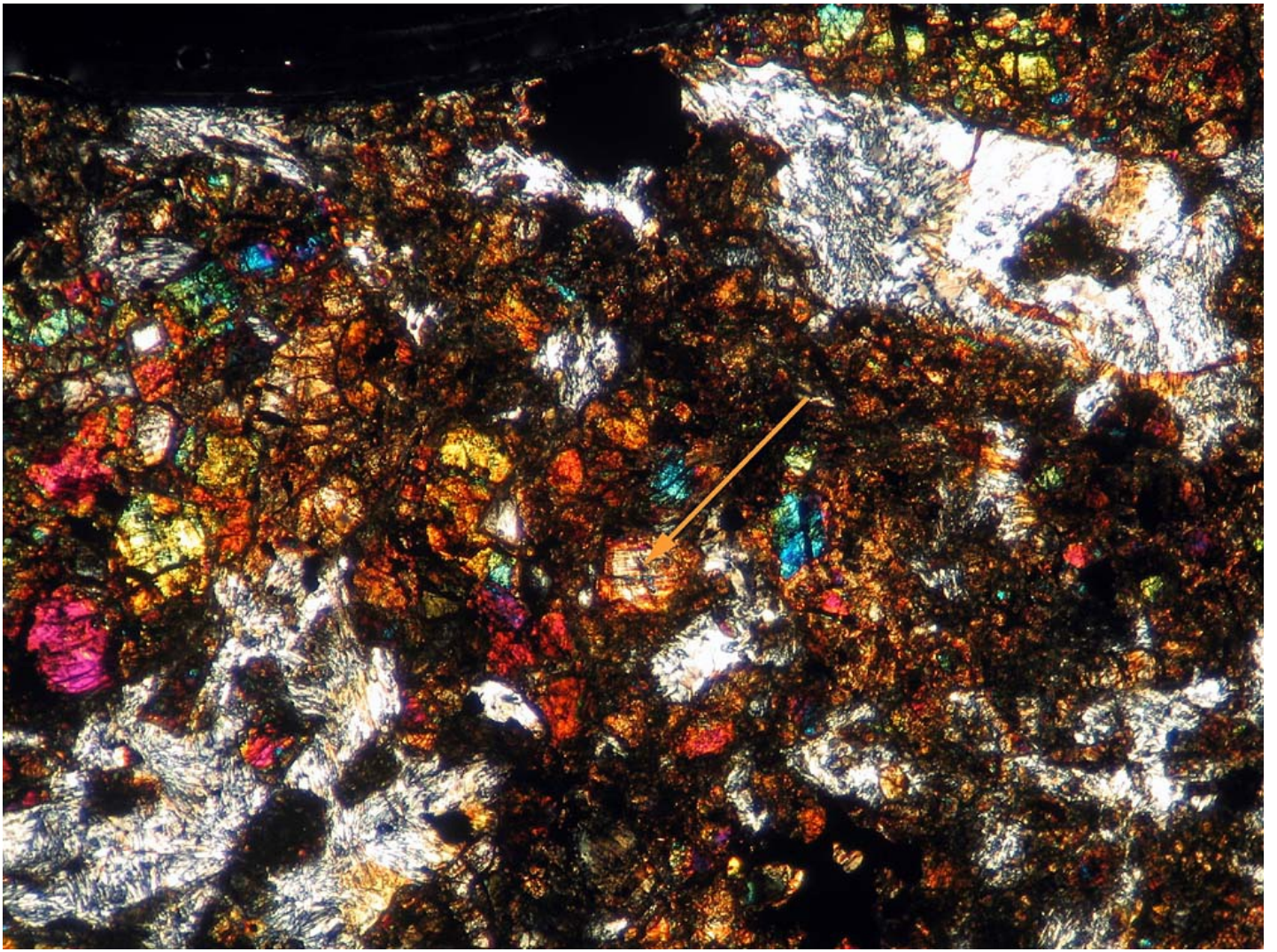


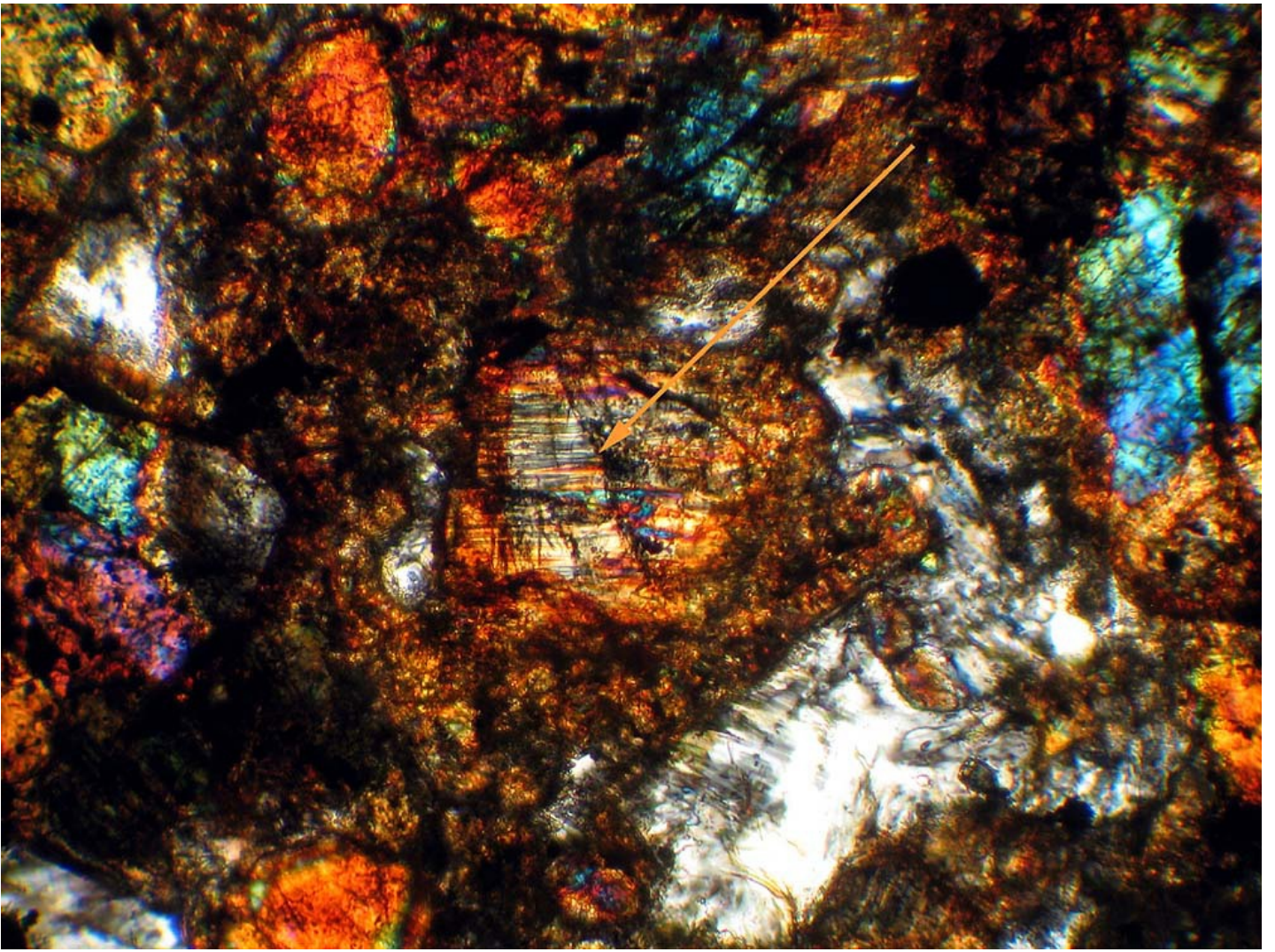
The most distinctly altered grain margins we found were on mineral grains well exposed to the plagioclase melt pockets.

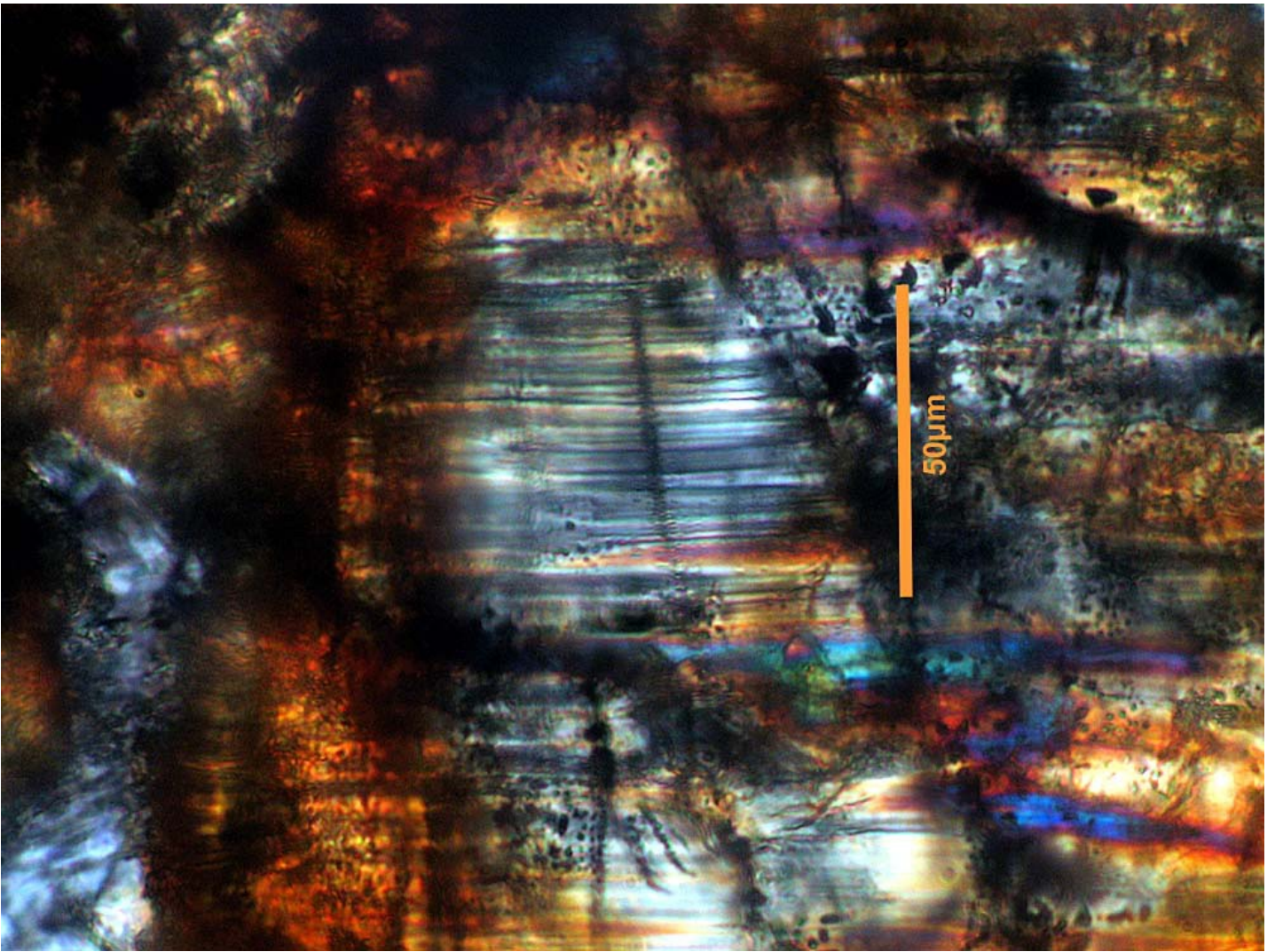




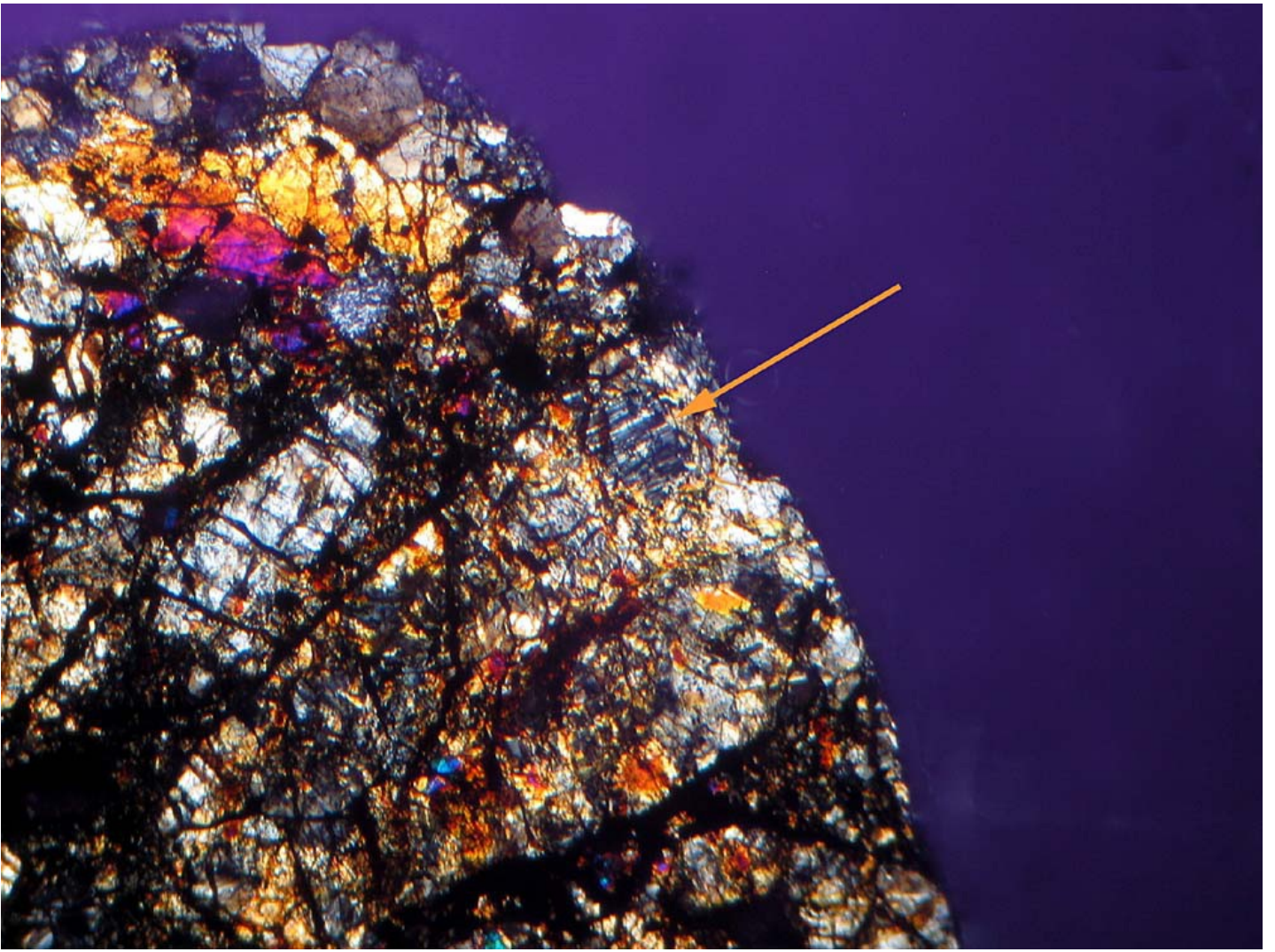
This set of PDFs is in a small wedge shaped grain at the arrow. The field of view of the first photo is 3mm wide. The scale bar in the third photo shows that the PDF lamellae are indeed fine and closely spaced. PDFs align within minerals along distinct crystallographic planes.

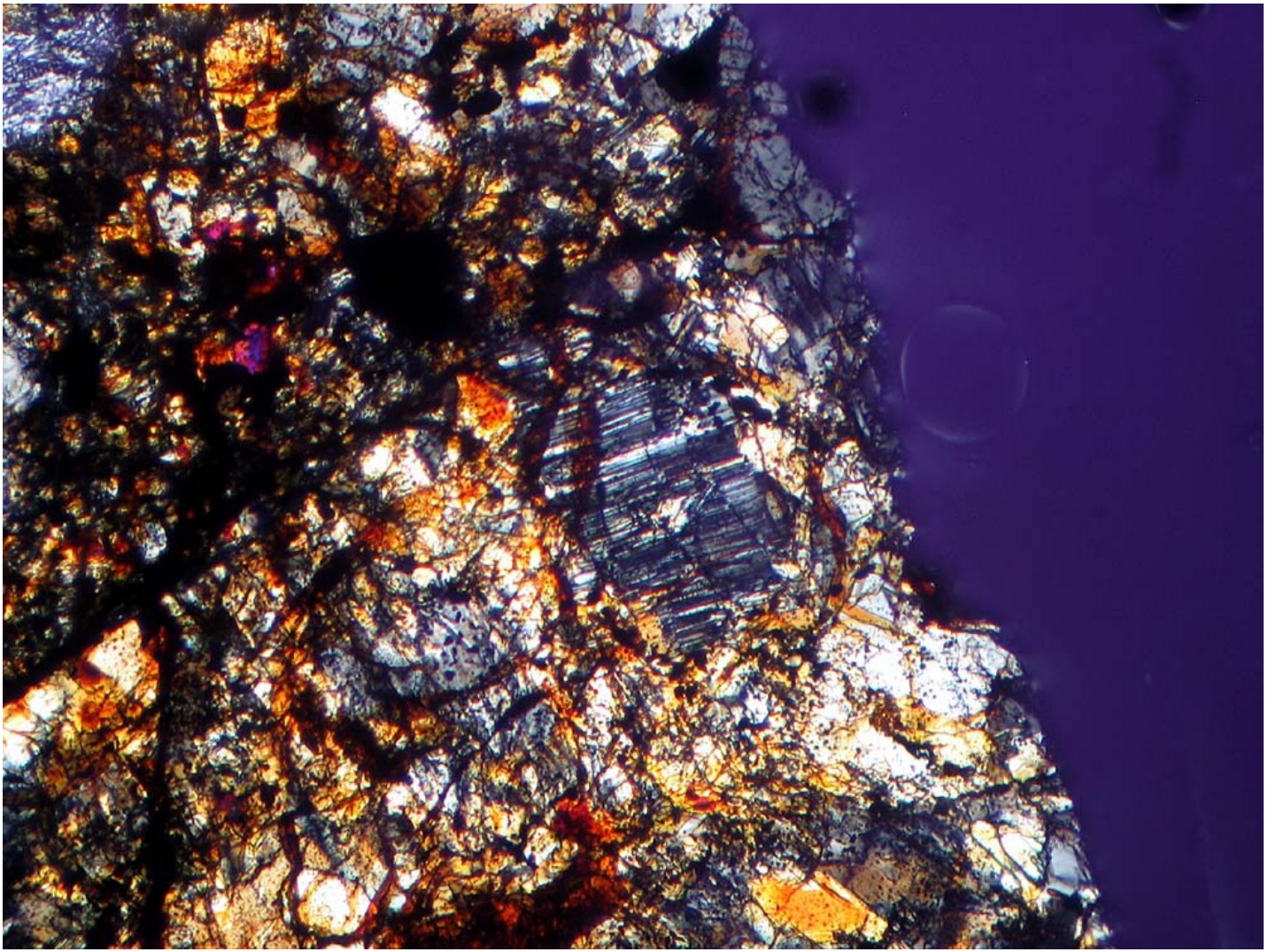


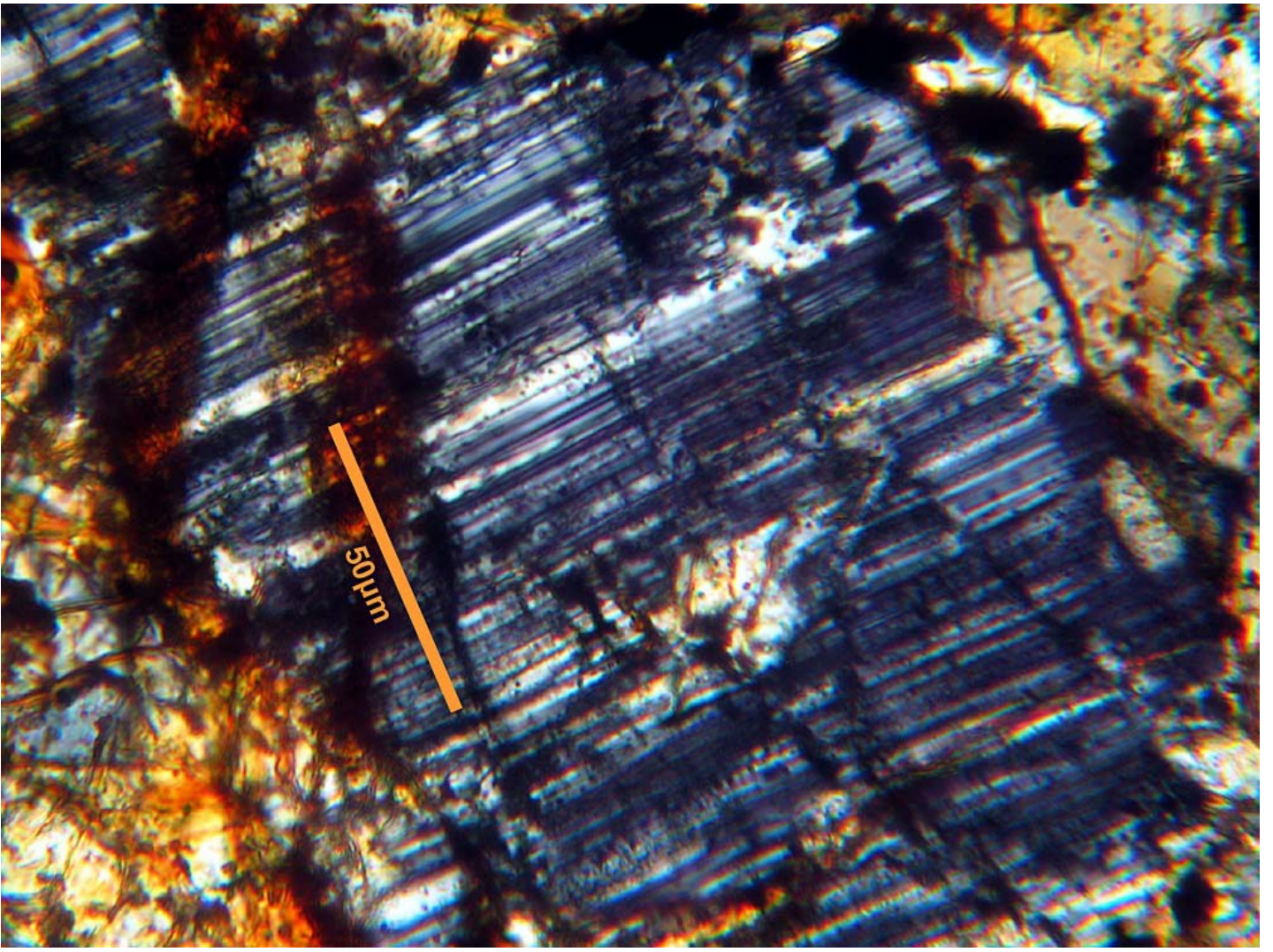




Similarly, this set of PDFs is in an inconspicuous grain near the edge of the sample. The field of view of the first photo is 2.2mm wide. These PDFs photographed better, perhaps because the planes of the PDFs might be perpendicular to the face of the thin section so we are viewing the PDF cleanly edge-on.







Norm's Tektite Teasers: An odd class of tektites that formed inside bubble chambers

By Norm Lehrman (www.TektiteSource.com)



Figure 1: A selection of Indochinite specimens showing low-viscosity flowage, bending, or stretching. Most pieces have at least one smooth side, like the interior of a bubble shard. These do in fact seem to be features that formed within bubble chambers.

When it is time for a new edition, I search through our collection and inventory looking for a stone or group of similar stones with a good story to tell. Over our years of sorting through crates of tektites till our fingers were raw, we have always selected out the unusual or unique or interesting or somehow special pieces. When I am seeking inspiration for the next column, I often find myself standing over one large flat-map drawer that contains our favorite “specials”. Several previous columns in this series have featured pieces from this specimen drawer (and those pieces graduated into our living room museum cabinet!).



Figure 2: Stretched, bent, and twisted!

A few days before this was written, we won an on-line auction for a very oddly-shaped Indochinite. A really unusual specimen! (figure 2). It is not, however, the centerpiece of this column, as I have not yet sorted out its story

It sent me to the “Specials” collection drawer, looking for its classmates, (and for good measure I searched all other drawers and cabinets where such specials might be hidden) When all were gathered into one place together, some basic themes, or types, became evident that I hadn't recognized before. Some of my favorite gems are truly one of a *kind!*

Kinds are important as each kind provides a record of some phenomena or special region within the impact fireball mushroom cloud. One example of anything in this context would be largely insignificant, but a repeating theme has a message worth considering.



Figure 3: A folded flap of stretched glass.

This article focuses on a peculiar group of tektites that took their form while behaving in a low-viscosity manner that yielded ropy fold and flow character. All of these are fragmental, and most show both a smooth surface with only trace pitting and a more typical outer skin of normal pitted ornamentation (not visible in most of these photographs). It appears that most, if not all, of this kind formed inside large complex bubble cavities. (see figure 1). There they were protected from aerodynamic forces and corrosive skin pitting

The skin textures on one or both sides are characteristically smooth and largely unpitted, like the inner surface of a bubble shard, which most clearly are, showing a typically pitted external tektite skin, separated by a thin glass wall from a smooth and sometimes ropy interior.



Figure 4: A tiny bulbous flow nose fold.



Figure 5: An ear-shaped folded flap demonstrating a thick plastic viscosity at time of formation.



Figure 6: Another folded "ear".

I had no sure idea what might lie at the end of this article, but I knew I would be learning something. Along the way, I fell in love, and with that, I would like to introduce the centerpiece of this edition's Tektite Teaser . In the selection of this apparent "kind", there was a rivulet of black glass flowing through a "U"-shaped channel. It resembles the look of molten tar.



Figure 7: The May 2017 Tektite Teaser! A rivulet of black glass that flowed like molten tar along the inside of a tubular bubble chamber.



Figure 8: Head on view of the nose of the flow, within bubble wall a few mm thick.

(Point worth emphasis): the fluid behavior here showcased was happening inside an already textured shell. Classic tektite dimpling happened very early. It had already formed when still-molten streams of glass drooled down the sidewalls of dark internal bubble chambers like this extremely rare example. Characteristic tektite skin ornamentation with “beaded” hemispheric pitting was not the result of terrestrial etching by soil acids as some continue to argue, but the work of buzzing fingers of plasma (I think) even while the glass was sufficiently hot to flow.



Figure 9: The typical tektite ornamentation of the exterior surface



Figure 10: The tar-like flow from above. A superb piece!

Meteorite Times Magazine

SPACE ROCKS MAGAZINE

Paul Harris

After much thought I have decided to publish a new quarterly magazine about hunting, collecting, and the science of rocks from outer space. I will not be accepting yearly subscription payments, only payments as each individual issue is published and ready to mail out to the subscribers.

If you have any questions please send me a private message or contact me using the email listed below. Your support is what will make this magazine a success for us all in the meteorite community.

Regards,

Michael Johnson
Editor-in-Chief, Space Rocks Magazine

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MAY 2017



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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.*

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