

<@Spauwe> Corundum

[22:14] <@Keirkof> yeah yeah, i'll grin at you all tomorrow morning at 7 when it's the magic sunday morning quiet hour ;p

[22:14] <@Spauwe> let's start with a statement

[22:14] <@Spauwe> Corundum makes the perfect gemstone

[22:14] <doos> I might sneak out quietly as well

[22:14] <@Spauwe> why?

[22:15] <doos> beauty, durability

[22:15] <@Keirkof> all kinds of colours? tis pretty hard?

[22:15] <@Spauwe> yep exactly

[22:15] <@Spauwe> let's get into that durability first

[22:16] <@Spauwe> what makes corundum unique in it's durability?

[22:16] <doos> it is relatively soft?

[22:16] * Crystal2 (n=fn-javac@205.234.124.140) has joined #gemology

[22:16] <Crystal2> Wow, I made it!

[22:16] <@Spauwe> hi crystal

[22:16] <@Keirkof> uhhhhh, besides it being 9 on the scale?

[22:16] <@Spauwe> welcome in

[22:16] <doos> hi Crystal2

[22:16] <DragonStek> hi

[22:16] <Crystal2> hi y'all

[22:16] <@Keirkof> hello crystal "

[22:17] <@Spauwe> let's continue

[22:17] <@Spauwe> keirkof

[22:17] <doos> heh

[22:17] <@Spauwe> you just mentioned it's hardness being right up at 9

[22:18] <@Spauwe> but when I say sapphire is more durable then diamond what do I mean with that?

[22:18] <doos> economics?

[22:18] <DragonStek> it wont crack like diamond does

[22:18] <Crystal2> less brittle

[22:18] <@Keirkof> its less prone to cleaving away from you, leaving you wondering what you've done?

[22:18] <@Spauwe> yep

[22:19] <doos> yep to what?

[22:19] <@Spauwe> sapphire has no cleavage

[22:19] <@Spauwe> yep to keirkof

[22:19] <@Spauwe> it fractures and parts though

[22:20] <@Spauwe> the parting can be because of certain inclusions lying in a plain

[22:20] <@Spauwe> anybody knows the identity of those inclusions?

[22:20] <@Spauwe> what are they?

[22:20] <doos> twinning

[22:20] <@Keirkof> no idea

[22:20] <@Spauwe> boehmite

[22:20] <@Keirkof> oh wait, rutile?

[22:20] <@Spauwe> Any other reasons why a corundum crystal may part?

[22:20] <doos> polysynthetic twinning planes or healed fractures

[22:21] <@Spauwe> the twinning planes can be a 'weakness' in the structure as well yes

[22:22] <@Spauwe> but generally speaking sapphire has no weaknesses when it comes to

[22:22] <@Spauwe> wear and tear

[22:23] <@Spauwe> so up to the next aspect that might make sapphire the perfect gemstone

[22:23] <@Spauwe> it's beauty

[22:23] <@Spauwe> jeez

[22:23] <@Spauwe> beauty

[22:24] <@Spauwe> apart from the fact that nature has provided us with every colour of corundum, what differentiates sapphire from other gemstones that come in every colour like tourmaline?

[22:24] <doos> oh dear

[22:25] <@Keirkof> hmmm

[22:25] <doos> the softness in tone, subtle vibrant colors

[22:25] <@Spauwe> hint: it has to do with our fashioning of gemstones...

[22:25] <DragonStek> cutting

[22:26] <doos> pleochroism?

[22:26] <@Spauwe> cutting yes

[22:26] <@Spauwe> lustre is depending on what factors?

22:27] <doos> hardness and reflection

[22:27] <@Spauwe> right on

[22:27] <@Spauwe> and it's corundum's hardness that makes it take an excellent polish

[22:27] <@Spauwe> hence jacking up it's lustre

[22:28] <@Spauwe> combined with the factor of durability it gives us a gemstone that stays beautiful for a long time as well

[22:28] <@Spauwe> in comparison to zircon,

[22:28] <@Spauwe> which takes a sub adamantine lustre

[22:29] <@Spauwe> sapphires and rubies stay beautiful longer

[22:29] <doos> may I make a statement?

[22:29] <@Spauwe> and then there is colour

[22:29] <@Spauwe> since when do you ask?

[22:30] <@Spauwe> ?

2:30] <DragonStek> when sir

[22:30] <@Spauwe> waiting for doos' statement

[22:30] <doos> rubies of excellent quality are also much rarer than the best quality of diamonds and have been priced accordingly during the past milleniums .. only the past 100 years orso diamond has taken over economically wise

[22:31] <@Spauwe> the factor of rarity hasn't been discussed yet it's next on my list

[22:31] <doos> sorry

[22:31] <@Spauwe> but lets go there before colour then

[22:35] <doos> sorry

[22:36] <DragonStek> gemdealer

[22:36] <@Spauwe> ah yeah

[22:36] <@Spauwe> me not having access to fine sapphires every day of the week

[22:36] <@Spauwe> basically: it's very hard to provide customers with a steady flow of quality goods

[22:36] <@Spauwe> now, the thais have found a few ways to that:

[22:37] <@Spauwe> the thais

[22:37] <@Spauwe> heating

[22:37] <@Spauwe> filling

[22:37] <@Spauwe> diffusion

[22:37] <@Spauwe> any more?

2:37] <doos> quench cracking

[22:37] <@Spauwe> which is?

:38] <doos> heat synthetics and plunge them in a bucket of water

[22:38] <@Spauwe> (sidenote: it's unfair to name just the thais, everybody does it)

[22:38] <doos> makes them crack

[22:38] <@Spauwe> ok

[22:38] <@Spauwe> off course

[22:38] <doos> looks like some natural veils

[22:38] <@Spauwe> forgot about the synthetics there

[22:38] <@Spauwe> yep

22:38] <DragonStek> oh didnt know that

[22:39] <@Spauwe> heating will be necessary then after the cracking won't it?

[22:39] <@Spauwe> to partially heal the fractures again

[22:39] <doos> not that I'm aware off, but could find out

[22:39] <@Spauwe> creating the veils/fingerprints/healed fractures

[22:39] <doos> the cooling does that

[22:40] <Crystal2> that's what you do to fried marbles and usually the cracks stay inside and the surface isn't compromised

[22:40] <doos> similar yes

[22:40] <@Spauwe> fried marbles?

[22:40] <@Spauwe> I'll not ask

22:40] <Crystal2> yes, we used to make them as kids

[22:40] <@Spauwe> ok

[22:40] <doos> the balls we played with in the playground tim

[22:40] <@Spauwe> I'll ask

[22:40] <doos> "knickers"

[22:40] <Crystal2> they're all fractured and look crackly inside; quite pretty

[22:40] <@Spauwe> I know what marbles are but never heated them

[22:41] <@Spauwe> like sunspangles in amber

[22:41] <@Spauwe> ok

[22:41] <doos> you know the "knickers" with the veils in them right?

[22:41] <Crystal2> try frying them in a dry skillet and then dump them into ice water

[22:41] <@Spauwe> ok :)

[22:41] <Crystal2> clear marbles, of course

[22:41] <@Spauwe> ghehe

[22:41] <@Spauwe> never done it

[22:41] <@Spauwe> but back to corundum

22:41] <DragonStek> new to me too

[22:42] <Crystal2> tell your gal you're making her a new dish

[22:42] <doos> Crystal2, marbles is a confusing term to use as we usually associate it with the marble tiles and such

[22:42] <@Spauwe> we just hit the differentiation of natural vs synthetic

[22:42] <Crystal2> that's what we call the glass spheres kids play with here

[22:42] <doos> yes "knickers" here

[22:43] <Crystal2> they're short pants here :)

[22:43] <@Spauwe> basically it comes down to one instrument since all other won't give us diagnostic clues

[22:43] <doos> Knicker bockers :)

[22:43] <Crystal2> New York Knicks!

[22:43] <@Spauwe> you two wanna go private with that marble thing?

[22:43] <Crystal2> sorry Tim...

[22:43] <@Spauwe> ghehe

[22:43] <doos> all good now

[22:43] <doos> just some re-bonding

[22:44] <Crystal2> lol yeah

[22:44] <@Spauwe> what instrument is gonna tell us how and what

[22:44] <@Spauwe> ?

[22:44] <Crystal2> how and what what?

[22:44] <doos> a raman

[22:44] <DragonStek> microscope inclusions

[22:44] <@Spauwe> not the raman ghehehe

[22:44] <@Spauwe> yep dragon

[22:44] <@Spauwe> your microscope

[22:45] <@Spauwe> now there is different ways of creating synthetic sapphire

[22:45] <@Spauwe> with different diagnostic inclusions

[22:45] <@Spauwe> flame fusion ones might display what?

[22:46] <Crystal2> veils of bubbles

[22:46] <@Spauwe> (me gets another beer in awaitance)

[22:46] <doos> high peaks on the raman?

[22:46] * Crystal2 giggles

22:46] <doos> come on Crystal2

[22:46] <doos> you know the answer

[22:46] <Crystal2> ok, ROFLMAO

[22:47] <doos> no one?

[22:47] <doos> ales I'll snitch

[22:47] <@Spauwe> keirkof?

[22:47] <doos> else*

[22:47] <@Keirkof> not really an idea no

[22:47] <doos> come on guys

[22:48] <doos> classical

[22:48] <DragonStek> bubbles angular zoning

[22:48] * @Keirkof comes on

[22:48] <doos> flame fusion = verneuil

[22:48] <@Keirkof> weird rectangular reed-like things like mine has? ^^

[22:48] <@Spauwe> aiaiai

[22:48] <DragonStek> small gas bubbles

[22:48] <doos> also

[22:49] <doos> sometimes .. but!

[22:49] <DragonStek> curved lines

[22:49] <@Spauwe> verneuil/flame fusion corundum displays two classical inclusions (if you're lucky)

[22:49] <@Spauwe> yes!

[22:49] <Crystal2> I said veils of bubbles, and they have the striations

[22:49] <doos> yihaaa

[22:49] <@Spauwe> dragon & Crystal won the main prize

[22:49] <@Spauwe> cool

[22:49] <DragonStek> tehehe

[22:49] <@Spauwe> and then the next: flux melt ones

[22:50] <@Spauwe> more inclusions here

[22:50] <doos> the pee's?

[22:50] <@Spauwe> some of which can be seen in natural ones as well so beware...

[22:50] <DragonStek> curved growth lines, sometimes gas bubbles minute foreign matter

[22:50] <@Spauwe> pee's?

[22:51] -doos- pee's as in platina en phenakite

[22:51] <DragonStek> pleochroism?

[22:52] <DragonStek> absent of blue green pleochroism

[22:52] <@Spauwe> doos the pee's?

[22:52] <doos> darned

[22:53] <doos> platinum and phenakite inclusions

[22:53] <doos> the two p's

[22:53] <@Spauwe> care to elaborate?

[22:53] <DragonStek> i didnt know that either

[22:53] <Crystal2> phenakite?

[22:53] <doos> those are two typical inclusions for flux corundum

[22:54] <@Keirkof> coming from the crucible no?

[22:54] <Crystal2> I have a phenakite crystal; do they grind them up into the flux?

[22:54] <doos> yes

[22:54] <doos> I think they form from the crucible as impurities .. need to look into it if you need a good answer

[22:55] <doos> top of hat here

[22:55] <Crystal2> I can understand the platinum but would like to know where the phenakite comes from

[22:55] <@Spauwe> girlfriend comes in

[22:55] <@Spauwe> need a minute here

[22:55] <@Spauwe> doos

[22:55] <@Spauwe> take over please

22:55] <Crystal2> I bet others would enjoy hearing about it on the forum, if you wouldn't mind, Doos

[22:56] <@Keirkof> tim needs to hide the beers in a hurry ^^

[22:56] <DragonStek> i never read it anywhere

[22:56] <Crystal2> I had no idea phenakite was even in them

[22:57] <@Keirkof> anyway i think my mum has a ring with a ruby that might have that platinum thing

[22:57] <Crystal2> need a brew - brb

[22:57] <@Keirkof> it looks like a tiny spec of metal but it does break the surface of the cap cut stone

[22:57] <DragonStek> i would love to see a pic of the inclusion

[22:57] <doos> phenakite was more for synth emerald

[22:58] <@Keirkof> i'll see if i can borrow it when parents return next week

[22:58] <DragonStek> ok

[22:59] <@Keirkof> all i have at the moment is this:

<http://picasaweb.google.be/Keirkof/GemstoneInclusions/photo#5227229196865485154> (should be natural)

[23:00] <@Spauwe> ok

[23:00] <@Spauwe> back

[23:00] <@Spauwe> sorry bout that

[23:00] <@Spauwe> but she talk fast and a lot

3:00] <DragonStek> lol but you love her anyways

[23:00] <Crystal2> back

[23:01] <@Spauwe> and gets angry when I don't listen

[23:01] <@Spauwe> but anyways

[23:01] <@Spauwe> where were we?

[23:01] <@Spauwe> flux melt sunthetics

[23:01] <doos> the pees were for emerald, my bad

[23:02] <Crystal2> oh, ok

[23:02] <DragonStek> ok so not in corundum

[23:02] <@Spauwe> phenakite didn't sound all that familiar

[23:02] <doos> platinum is

[23:02] <@Spauwe> yep

[23:02] <Crystal2> yes

[23:02] <@Spauwe> the stuff is made in platinum crucibles and sometimes parts of that crucible end up in the stone

[23:03] <@Spauwe> as triangular 3D crystals

[23:03] <Crystal2> yes, very cool looking

[23:03] <@Spauwe> that's a dead giveaway\

[23:03] <@Spauwe> but usually we aren't that lucky

[23:04] <@Spauwe> apart from that crucible what else is involved (the name says it all)

[23:04] <@Spauwe> ?

[23:04] <@Spauwe> FLUX melt sapphires

[23:04] <doos> a melt?

[23:04] <DragonStek> flux

[23:04] <Crystal2> flux

[23:04] <@Spauwe> yep

[23:04] <doos> a sapphire?

[23:04] <DragonStek> lol

[23:04] <doos> lol

[23:04] <@Spauwe> very right there

[23:04] <@Spauwe> not even a joke when you think about it\

[23:05] <doos> heh, sorry

[23:05] <@Spauwe> both the flux and the seed crystal may be seen

[23:05] <@Spauwe> flux as liquid inclusions / fingerprints

[23:05] <@Spauwe> the seed crystal as a ghost crystal

[23:06] <@Spauwe> that last one I have never seen in person but gubelin describes it in his photoatlas

[23:06] <@Spauwe> now, there is more ways to create corundum synthetically...

[23:06] <@Spauwe> what other ways do you know?

[23:07] <doos> crosjkkiiuee pulling technique

[23:07] <@Spauwe> ghehe

[23:07] <DragonStek> yeah that one

[23:07] <doos> ;)

[23:07] <@Spauwe> yep something like that

[23:07] <@Spauwe> we'll go by 'pulling method'

[23:07] <DragonStek> czochralsky

[23:07] <@Spauwe> very good dragon

[23:07] <doos> I can never remember that name

[23:07] <@Spauwe> I wonder if you can pronounce it

[23:08] <DragonStek> my pronounce was doos

[23:08] <doos> heh

[23:08] <@Spauwe> tsjokralski

[23:08] <Crystal2> I forget, did we do hydrothermal yet?

[23:08] <doos> semi

[23:09] <@Spauwe> hydrothermal corundum?

[23:09] <Crystal2> Czochralski

[23:09] <doos> remember that it is almost midnight for tim Crystal2

[23:09] <Crystal2> oh, that's right, we're covering corundum

[23:10] <Crystal2> sawwy

[23:10] <@Spauwe> no actually you are right

[23:10] <@Spauwe> it is done hydrothermally

[23:10] <@Spauwe> as well

[23:10] <Crystal2> I know emeralds are, but don't remember corundum in there, but that doesn't surprise me lately

[23:11] <@Spauwe> it's listed as a possibility

[23:11] <Crystal2> logical

[23:11] <@Spauwe> but franly I know nothing about it

[23:11] <@Spauwe> not all that logical cause in nature it doesn't really occur hydrothermally

[23:12] <doos> makes gemmology even more interesting, dont you think?

[23:12] <@Spauwe> but when at the right pressure and temp water can be used as a flux apperently

[23:12] <Crystal2> it's the autoclave lined with gold that has the seed hanging at the top, and the heat produces a convection that sends the mixture up to attach to the seed

[23:12] <@Spauwe> ok,

[23:12] <doos> heh

[23:13] <@Spauwe> let's get back to what I know

[23:13] <Crystal2> so it will only work if corundum's melting point is lower than the gold in the autoclave

[23:13] <@Spauwe> it never is

23:13] <Crystal2> exactly

[23:13] <DragonStek> u go girl

[23:13] <Crystal2> heh, thanks :)

[23:13] <@Spauwe> gold's melting point is far below that of corundum

[23:13] <doos> lol Crystal2, what if platinum is used?

[23:14] <doos> or something else?

[23:14] <Crystal2> then I don't know why it wouldn't work since the gold melting before the corundum is the only problem

[23:14] <@Spauwe> never heard of a crucible plated with gold...

[23:14] <doos> so you don't know?

[23:14] <Crystal2> an autoclave, as I understand it

[23:15] <@Spauwe> back to the pulling method

[23:15] <@Spauwe> it produces very nice and clean crystals though it is not encountered as frequently as gems

[23:15] <@Spauwe> why?

[23:16] <doos> production costs?

23:16] <@Spauwe> cause it's very expensive

[23:16] <doos> heh

[23:16] <@Spauwe> yep

[23:16] <@Spauwe> but

3:16] <DragonStek> expensive to do

[23:16] <DragonStek> opps sorry

[23:16] <@Spauwe> we have to be very aware of the possibility

[23:16] <@Spauwe> basically

23:16] <Crystal2> but it produces flawless gems usually

[23:16] <@Spauwe> (and I hate to say this)

[23:17] <Crystal2> they do have striation lines like in flame fusion, but they're parallel instead of curved

[23:17] <@Spauwe> if we try to ID a flawless gem, we cannot guarantee it's natural offspring

[23:18] <@Spauwe> you are teaching me now crystal...

[23:18] <Crystal2> LOL

[23:19] <Crystal2> wow, that's a first!

[23:19] <@Spauwe> doos you ever heard of that?

23:19] <doos> nope, but then again I'm not good on inclusions

[23:19] <doos> could find out though

[23:19] <Crystal2> me neither, but I just studied and passed this so I'm glad some of it stuck with me :)

[23:20] <@Spauwe> I want to be but that's where Gubelin passed away too soon I guess

[23:20] <doos> that I'm good at

[23:20] <Crystal2> heh

[23:20] <@Spauwe> ok...

[23:20] <@Spauwe> that one is noted and will be looked into

[23:20] <Crystal2> I need to get his second inclusions book

[23:20] <@Spauwe> everybody should

[23:21] <@Spauwe> let's return to natural ones

[23:21] <@Spauwe> both ruby and sapphire have a locality each that sets the standard for all others

[23:22] <@Spauwe> basically cause these localities produce the best colour and crystal of both

[23:22] <@Spauwe> for ruby that is: ?

[23:22] <@Spauwe> and for sapphire that is: ?

3:22] <Crystal2> Thailand and Burma?...I was naming both

[23:22] <DragonStek> burma

[23:22] <@Keirkof> ceylon & mogok

[23:22] <Crystal2> oh yeah, Ceylon for sapphires

[23:22] <DragonStek> i was thinking ceylon

[23:22] <@Spauwe> Mogok, Myanmar to be politically correct and more specific

[23:23] <@Spauwe> and ceylon?

[23:23] <@Spauwe> really?

[23:23] <@Keirkof> isn't that sri lanka nowadays?

[23:23] <Crystal2> I get confused :p

[23:23] <@Spauwe> what is the most expensive blue that we can get?

[23:23] <Crystal2> cornflower?

[23:23] <@Spauwe> ceylon blue or....

[23:23] <Crystal2> I think they're the same...aren't they?

[23:24] <@Spauwe> (disputed area on the pakistan-afghanistan border)

[23:24] <@Spauwe> kashmir blue

[23:24] <@Spauwe> the hazy nicely saturated blues

[23:25] <@Spauwe> rare as...

[23:25] <@Spauwe> but ow so pretty

[23:25] <@Spauwe> and hard to get by nowadays with all the fighting going on

[23:25] <doos> may I make a comment on the czorlskieuee's?

[23:26] <Crystal2> lol

[23:26] <@Spauwe> have you been googling?

[23:27] <@Spauwe> ?

23:27] <doos> they are not straight, they are curved growth lines as the verneuls .. with some distinction .. not straight

[23:27] <doos> googling? you have seen my library right?

[23:27] <@Spauwe> bring us more (and disclose the source) while I take a Pee

[23:27] <@Spauwe> a real one not platinum and phenakite

[23:27] <doos> Hughes

[23:28] <Crystal2> the finished pulled shape preally precludes them being very curved; they're more parallel, as I said

[23:28] <Crystal2> although they might not be exactly straight, the whole finished crystal is long and narrow

[23:29] <Crystal2> taller than a person

[23:29] <Crystal2> and maybe a foot wide

[23:29] <doos> that was not what you said, but sounds good

[23:29] <DragonStek> i need to get hughes book

[23:29] <@Spauwe> again: we all do

[23:30] <doos> I buy a new book a day lately

[23:30] <doos> can get bankrupt on it

[23:30] <DragonStek> oh yeah

[23:30] <Crystal2> yeppers

[23:30] <@Spauwe> I've seen pulled crystal that where a few inches long, I think you read somewhere that they may be up to a few foot long, crystal

[23:31] <@Spauwe> it would be unhandy

[23:31] <Crystal2> I've seen pics of them made for industrial use and they're taller than the person standing next to them

[23:31] <@Spauwe> and a costly and long enterprise to pull one a few feet long

[23:31] <DragonStek> tryto steal that sucker

[23:31] <Crystal2> no kidding, Dragon!

[23:32] <Crystal2> they make them in silicon, too

[23:32] <@Spauwe> but techniques are improving

[23:32] <@Spauwe> who knows...

[23:32] <Crystal2> every day

[23:32] <@Spauwe> would be cool ey?

[23:32] <Crystal2> no doubt

[23:32] <DragonStek> and will get harder to find them

[23:32] <@Spauwe> and heavy

[23:32] <Crystal2> sadly, yes

[23:33] <Crystal2> but if it looks flawless all the flags should go up

[23:33] <@Spauwe> that was my point before

[23:33] <Crystal2> yes

[23:33] <DragonStek> anything over 1ct though right

[23:33] <Crystal2> I was reiterating

[23:33] <@Spauwe> if it's flawless we as 'normal' gemmologists are helpless

[23:34] <doos> we need a raman

[23:34] <DragonStek> lol

[23:34] <Crystal2> lol

[23:34] <doos> really, sponsor us

[23:34] <@Spauwe> and actually the more advanced laboratories are heaving a really hard one as well

[23:34] <DragonStek> ok you got it doos im sendin my dollar

[23:34] <doos> lol

[23:34] <@Spauwe> so the era of flawless gems being the bomb is over

[23:34] <Crystal2> because the treaters experiment and come up with new stuff every day

[23:34] <@Spauwe> we need that diagnostic inclusion

[23:34] <@Spauwe> or:

[23:34] <Crystal2> a raman

[23:34] <@Spauwe> dig it up ourselves!

[23:35] <@Spauwe> not a raman

[23:35] <doos> makes our job a whole lot more interesting dont you think?

[23:35] <DragonStek> lol

[23:35] <Crystal2> c'mon, Doos, laugh! :p

[23:35] <doos> lol

[23:35] <@Spauwe> seriously, a raman is not the holy grail when it comes to gem ID-ing

[23:35] <DragonStek> where would the raman go

[23:36] <doos> I really feel that way, all those new treatments make it much more challenging and thus interesting

[23:36] <Crystal2> nobody said it was, Tim; but it sure can help make some distinctions

[23:36] <doos> of course it is not

[23:36] <@Spauwe> sure it does

[23:36] <@Spauwe> you can compare spectra with known spectra

[23:36] <Crystal2> it can separate merelani mint grossular from tsavorite

[23:36] <doos> Crystal2, only in capable hands though

[23:36] <@Spauwe> ok let's continue with what we can do

[23:36] <Crystal2> you mean somebody with the instruction book? :)

[23:36] <doos> RJ not having them, I'm sure you would agree with that

[23:37] <@Spauwe> cause it's not like all ID-ing is to be left to gemlabs

[23:37] <doos> come on

[23:37] <Crystal2> I would?

[23:37] <@Spauwe> we CAN do stuff!

[23:37] <@Spauwe> let's focus on that

[23:37] <@Spauwe> 80 % or more can be ID-ed

[23:37] <doos> true

[23:38] <@Spauwe> just by us looking through our microscopes and using simple things like a refractometer

[23:38] <@Spauwe> fortunately if I may ad

[23:38] <@Spauwe> now

[23:39] <@Spauwe> natural corundum

[23:39] <@Spauwe> comes in all varieties and often can be ID-ed as such

[23:39] <@Spauwe> can anybody name an inclusion that will lead us to a natural sapphire ID?

[23:40] <doos> healed fractures

[23:40] <doos> -q

[23:40] <Crystal2> silk?

[23:40] <DragonStek> color zoning , silk ,

[23:40] <doos> silk can be mimicked

[23:40] <@Spauwe> do they really occur only in natural ones then healed fractures?

[23:40] <@Spauwe> one at a time

[23:41] <DragonStek> silk can be mimicked ?

[23:41] <@Spauwe> healed fractures...

[23:41] <@Spauwe> silk will be next

[23:41] <DragonStek> ok

[23:41] <@Spauwe> doos,

[23:41] <doos> annie's recipe: in reflected light the natural fractures are transparent, in flux they are opaque

[23:41] <@Spauwe> healed fractures

[23:41] <@Spauwe> ok

[23:41] <@Spauwe> that's usefull

[23:41] <Crystal2> thanks

[23:41] <doos> good old Annie

[23:42] <@Spauwe> ghehe

[23:43] <doos> geez, reminds me and makes me miss her .. she would have taught us a few tricks

[23:43] <@Spauwe> I'll start that australasian chat anyways so she can have her fun as well, people will join in sooner or later

[23:43] <@Spauwe> in the awaitance of others she can teach me

[23:43] <@Spauwe> :)

[23:44] <DragonStek> lol when is it

[23:44] <@Spauwe> same day but earlier

[23:44] <DragonStek> oh

[23:44] <Crystal2> ok

[23:44] <@Spauwe> but let's go on, heaps of info here today, I'm liking it

[23:44] <@Spauwe> silk

[23:45] <@Spauwe> usually rutile needles

[23:45] <@Spauwe> but can be boehmite as well

[23:45] <@Spauwe> hard to tell and unless you are trying to determine origin it doesn't matter much

[23:46] <doos> 1st and 2nd order prism orientations

[23:46] <@Spauwe> cause inclusions can tell us a lot more than just whether a stone is natural or synthetic

[23:46] <@Spauwe> it can give away it's growing environment

[23:46] <@Spauwe> and since these differ from locality to locality

[23:47] <Crystal2> true, like those healed fractures doos mentioned

[23:47] <@Spauwe> they might tell us more

[23:47] <doos> rutile exsolves on the 2nd prism and boehmite on the 1st (or the other way around)

[23:47] <@Spauwe> yep but in a cut stone how do you differentiate between the two when peering through you're > microscope?

[23:48] <doos> yes

[23:48] <@Spauwe> yes?

[23:48] <@Spauwe> that's no answer to a how to question

[23:48] <doos> yes sir (sorry)

[23:48] <@Spauwe> ghehehe

3:48] <DragonStek> lol

[23:48] <doos> ;)

[23:48] <Crystal2> tee hee

[23:49] <@Spauwe> imagine you have a very clean sapphire under your lens but it has a small patch of needles in some corner somewhere

[23:49] <doos> a hurdle of milk?

[23:50] <@Spauwe> are we able to differentiate between rutile and boehmite then?

[23:50] <@Spauwe> (honestly I have no idea)

[23:50] <Crystal2> ...so he asks us.... :)

[23:50] <@Spauwe> yep:)

[23:50] <DragonStek> lol

[23:50] <DragonStek> speak doos

[23:51] <Crystal2> he'll bark if you tell him that

[23:51] <doos> boehmite would look like a hurdle of milk .. white

[23:51] <@Spauwe> he's looking it up

[23:51] <doos> heh

[23:51] <Crystal2> you mean a curd?

[23:51] <doos> I should

[23:51] <Crystal2> like curdled milk?

[23:51] <doos> no, a hurdle .. like a hurdle of cows

[23:51] <Crystal2> as in chunky style?

[23:51] <@Spauwe> ghehe

[23:51] <doos> old joke an fellow student once made

[23:51] <DragonStek> lol

[23:51] <Crystal2> LOL, now I'm really confused since cows are in herds

[23:52] <doos> "kudde melk" you translate it Spauwe

[23:52] <Crystal2> ...and milk turns to curds

[23:52] <DragonStek> yes

[23:52] <@Spauwe> ghehe

[23:52] <@Spauwe> curdles

[23:52] <@Spauwe> ghehehehe

[23:52] <Crystal2> that's a cross between curds and hurdles

[23:53] <@Spauwe> like these all inclusions don't have funny enough names yet

[23:53] <Crystal2> lol

[23:53] <@Spauwe> fried eggs

[23:53] <@Spauwe> feathers

23:53] <Crystal2> lily pads

[23:53] <@Spauwe> and so on

[23:53] <DragonStek> write that down on a test , i saw curdles of milk

[23:54] <@Spauwe> ghehehe

[23:54] <Crystal2> horsetails

23:54] <doos> his boss looked at him strange when he uttered it .. works at a major auction house now though

[23:54] <@Spauwe> I can imagine

[23:54] <Crystal2> too funny

[23:54] <doos> we were from a great breed

[23:54] <@Spauwe> but let's keep the speed to it

[23:55] <doos> best teachers in the world we had back then

[23:55] <Crystal2> yeah, but breed of what...? p)

[23:55] <@Spauwe> so needle inclusions are a fair indication to a natural offspring

[23:55] <Crystal2> :p

[23:55] <doos> breed of isg assholes

[23:55] <@Spauwe> again: are they really?

[23:55] <DragonStek> lol

[23:55] <Crystal2> you wish you were

[23:56] <@Spauwe> is this ever gonna stop?

[23:56] <@Spauwe> good

[23:57] <Crystal2> please continue, Tim

[23:57] <@Spauwe> any needles possible in synthetics?

[23:57] <doos> yes

[23:57] <@Spauwe> yep

[23:57] <@Spauwe> so darn us

[23:57] <Crystal2> sure

[23:57] <@Spauwe> no positive ID yet

[23:58] <@Spauwe> what do we need?

[23:58] <doos> a raman!

[23:58] <DragonStek> microscope

[23:58] <@Spauwe> I thought you stopped

[23:58] <doos> hey, you asked

[23:58] <Crystal2> broken record

[23:58] <doos> true

[23:58] <@Spauwe> I was thinking more of solid crystal inclusions

[23:58] <@Spauwe> as in apatite

3:59] <DragonStek> loupe

[23:59] <@Spauwe> elbaite

[23:59] <@Spauwe> zircon

[23:59] <DragonStek> oh sorry getting slow on my end

[00:00] <@Spauwe> calcite

[00:00] <@Spauwe> dolomite

[00:00] <@Spauwe> etc

[00:00] <@Spauwe> these do provide us with a positive natural id

[00:00] <@Spauwe> am I right there?\

0:00] <doos> yes, natural inclusions

[00:01] <Crystal2> yes

[00:01] <@Spauwe> nice]

[00:01] <@Spauwe> now what happens to these inclusions when the cookers and diffusers start doing there thing?

00:01] <Crystal2> some explode

[00:01] <DragonStek> melts them

[00:01] <doos> they distort

[00:02] <@Spauwe> all right

[00:02] <@Spauwe> as in you are all right

[00:02] <Crystal2> you are too, Tim :)

[00:02] <@Spauwe> so these natural inclusions can give away treatments as well

[00:02] <doos> teach is always right

[00:02] <doos> and always wrong

[00:02] <@Spauwe> ghehe

[00:02] <Crystal2> he's alright, too :p

[00:04] <@Spauwe> so all of a sudden we have found the most usefull inclusions in corundum:
natural inclusions that are telling us that the stone is natural

[00:04] <@Spauwe> and that give away whether or not they have been tampered with

[00:04] <@Spauwe> and if they have been tampered with

00:05] <@Spauwe> what do we 'normal' gemmo's have to do to provide our customers with the
truth?

[00:05] <@Spauwe> (nowadays)

[00:05] <doos> buy a raman!

[00:05] <Crystal2> :p

[00:05] <@Spauwe> YEOP

[00:05] <DragonStek> how is silk or rutile put into synthetics? and not other crystals to fake looking
real

[00:05] <@Spauwe> ghehehe

[00:06] <@Spauwe> doos?

[00:06] <doos> old dogs ..

[00:06] <@Spauwe> dragons question

[00:06] <Crystal2> they can make synthetic stars so they can manipulate rutile into them somehow

[00:06] <@Spauwe> (me pee)

[00:06] <doos> well we document the inclusions carefully

[00:06] <Crystal2> he must be drinking beer!

[00:06] <DragonStek> so just in stars they put them

[00:07] <DragonStek> not in the faceted forms

[00:07] <Crystal2> not necessarily, but if they can do that they can add a bit to confuse us, which is what they aim to do

[00:07] <doos> the answer to your question is exsolution DragonStek

[00:08] <DragonStek> ok thanks , ill look it up and read more about it

[00:08] <@Spauwe> They can induce titanium into a synthetic sapphire dragon

[00:08] <doos> Crystal2, I try to explain everything I say when needed .. as you know

[00:08] <doos> no DragonStek, I'll be more than happy to explain

[00:08] <@Spauwe> and when they pull it out it won't have the needles yet

[00:08] <DragonStek> thats not what i ment

[00:09] <DragonStek> doos i just want to learn more about it

[00:09] <@Spauwe> further heating, followed by slow cooling allows that titanium to bond with oxygen forming TiO (=rutile)

[00:10] <Crystal2> question

[00:10] <@Spauwe> does that make sense, dragon?

[00:10] <DragonStek> ok

[00:10] <@Spauwe> yep, shoot

[00:10] <Crystal2> what's the difference between rutile and silk besides the size?

[00:10] <@Spauwe> nothing

[00:10] <Crystal2> oh, good

[00:10] <doos> may I give it a shot?

[00:11] <DragonStek> please do

[00:11] <@Spauwe> the fine needles cause us to see a haze that can be called silk

[00:11] <doos> ok here goes .. exsolution

[00:11] <@Spauwe> just anyoher way to make an inclusion sound like something we know

[00:11] <@Spauwe> as in horsetail, fired egg etc

[00:11] <@Spauwe> doos' explanation:

00:11] <doos> in the mix that finally creates the ruby or sapphire there are many elements present

[00:12] <doos> corundum (aluminium oxide) does not grow in a protected environment

[00:12] <doos> other elements are present, like tim said

[00:13] <doos> one of those elements might be titanium

[00:13] <doos> when growth of the corundum is rapid (high temps), the titanium (Ti) mixes in with the corundum

[00:14] <doos> all in a homogeneous mass and a ruby, sapphire is born

[00:14] <doos> but

[00:14] <doos> before the crystal fully developes

[00:14] <doos> there is a cooling down period

[00:15] <doos> during that period the Ti bonds with oxides into rutile

[00:15] <doos> as the crystal is partially formed, this rutile can only form along certain directions

[00:16] <doos> the trigonal directions of "weak bonding" in the ruby

[00:16] <doos> or sapphire

[00:17] <doos> so they form elongated crystals in those "weak" directions

[00:17] <doos> thus needles

[00:17] <doos> did that help?

[00:17] <DragonStek> ok yes helped alot

[00:17] <Crystal2> very nice explanation, doos

[00:17] <DragonStek> thanks

[00:17] <@Spauwe> it occurs that way in nature and it can be repeated in labs

[00:17] <doos> yes

[00:17] <@Spauwe> just mix in titanium

[00:18] <DragonStek> i always thought the ruby or sapphire was created around the rutile

[00:18] <@Spauwe> then allow to cool slowly so the titanium has time to bond with the oxygen and voila

[00:18] <@Spauwe> rutile

[00:18] <DragonStek> but thats just in the quartz

[00:19] <@Spauwe> in nature it is possible for the rutile to be there prior to the sapphire

[00:19] <@Spauwe> but that would be a freak event

[00:19] <DragonStek> ok

[00:19] <@Spauwe> but nature does that: freak events

[00:19] <doos> DragonStek, it is the process of "exsolvation" the "unmixing" of titanium oxide in the solution .. the opposite of disolvation

[00:20] <DragonStek> oh ok

[00:20] <doos> weird concept, but logical once it sinks in

[00:20] <DragonStek> i thought it sounded familiar but wasnt sure

[00:20] <DragonStek> yeah it does now

[00:20] <DragonStek> thanks

[00:21] <doos> sure? would happily explain more

[00:21] <DragonStek> no that was great

[00:21] <doos> ;)

[00:21] <@Spauwe> it may be interesting to note that when crystallization occurs in some occurances spinel is first to crystallize and when the magnesium is all used up corundum starts to form

[00:22] <@Spauwe> spinel: magnesium aluminum oxide

[00:22] <DragonStek> so thats why they are found together another blonde moment

[00:22] <@Spauwe> corundum next (no more magnesium present) aluminum oxide

[00:23] <@Spauwe> that's exactly why they are found together

[00:23] <doos> what if all the Al is used up?

[00:23] <@Spauwe> you get oxygen

[00:23] <@Spauwe> ghehehe

[00:23] <doos> ;)

[00:23] <DragonStek> no gems

[00:23] <doos> maybe we should tell them mountains that

[00:24] <@Spauwe> but this brings me to ask you

[00:24] <@Spauwe> do you know where corundum is formed?

[00:24] <@Spauwe> magmatic rocks?

[00:24] <@Spauwe> metamorphic rocks?

[00:24] <@Spauwe> sedimentary rocks?

[00:25] <doos> not 2

[00:25] <@Spauwe> D) in all the above but in combination of two of the above?

[00:25] <doos> another weak point of mine

[00:25] <doos> weak*

[00:26] <@Spauwe> you are not a digger

[00:26] <@Spauwe> so you don't need to know]

[00:26] <@Spauwe> although inclusions give away the origin

[00:26] <doos> must have something to do with temps, so 1 and 3 are options

[00:26] <@Spauwe> well

[00:27] <@Spauwe> it's all three

[00:27] <DragonStek> metamorphic , volcanic, secondary alluvial

[00:27] <@Spauwe> they occur in basaltic rocks

[00:27] <@Spauwe> (which are magmatic/igneous

[00:27] <doos> oops switched meta and sedi in my list

[00:27] <@Spauwe> they occur in local contact zone metamorphic limestones and dolomite

[00:28] <Crystal2> hmmm, we have that here....

[00:28] <@Spauwe> and since limestone is a sedimentary in my books

[00:28] <@Spauwe> technically they occur in them as well

[00:28] <@Spauwe> but not really

[00:28] <doos> sediment usually do not generate high temps

[00:28] <Crystal2> no but erosion could land some there

[00:29] <doos> nor create new gems

[00:29] <@Spauwe> no, you need that to sink into the earth and become a metamorphic one

[00:29] <Crystal2> already formed

[00:31] <doos> so volcanic is the only correct answer

[00:32] <@Spauwe> and metamorphic occurrences are a very good source of corundum

[00:32] <@Spauwe> BUT

[00:32] <@Spauwe> all in all, most corundum is mined from placers

[00:32] <@Spauwe> why would one mine a placer, instead of going uphill into the hard rock?

[00:33] <doos> what is a placer?

[00:33] <@Spauwe> a placer is a modern sedimentary deposit

[00:33] <@Spauwe> that contains shitloads of minereals

[00:34] <@Spauwe> dips, curves in creeks etc

[00:34] <doos> intrusive volcanic rocks?

[00:34] <@Spauwe> no gravel pockets

[00:34] <@Spauwe> modern sediments

[00:34] <doos> less wear and tear (sic)

[00:35] <@Spauwe> the igneous and metamorphic rocks have been eroded and the lighter materials have washed away

[00:35] <@Spauwe> leaving the heavy bits in certain spots

[00:35] <@Spauwe> nicely concentrated by mother earth

[00:35] <DragonStek> poof corundum

[00:36] <DragonStek> lol

[00:36] <@Spauwe> (hereby answering the question)

[00:37] <doos> there was an interesting about jadeite in Burma in one of the latest journals, about "modern sedimentary deposits"

[00:38] <@Spauwe> yep, basically when you start calling shit water-worn

[00:38] <doos> the modern rocks were less affected by wear and tear, but their outcome was also less guaranteed .. while the old deposits showed clearer yet smaller specimens

[00:38] <@Spauwe> you can call it modern sedimentary deposits

[00:38] <doos> yes

[00:38] <@Spauwe> and when they occur concentrated it's a placer

[00:39] <@Spauwe> and that's what I'm after in Australia

[00:39] <@Spauwe> good 'pockets'

[00:39] <DragonStek> when you going back

[00:39] <doos> in my days we called it alluvial deposits

[00:40] <DragonStek> whats what i thought it was called

[00:40] <@Spauwe> that's exactly what it is

[00:40] <doos> ah nice

[00:40] <@Spauwe> concentrated alluvial deposits

[00:40] <@Spauwe> placers

[00:41] <doos> funny that trade language

[00:41] <@Spauwe> mother nature is kind enough to tumble, concentrate and provide water to mine the lot in those places

[00:41] <@Spauwe> (when you are lucky)

[00:43]<@Spauwe> ok next week more

[01:49] <Crystal2> g'night y'all, and thanks for a great chat Tim

—————02[01:49] * Crystal2 (n=fn-javac@205.234.124.140) Quit ("Java user signed off")

—————01[01:52] <@Spauwe> goodnight

Session Close: Sun Aug 24 19:55:49 2008