[16:56] Jolyon joined #go.
[16:56] <Alain> Hi Jolyon
[16:56] <Jolyon> hi
[16:56] <Alain> people are still logging in it seems Jolyon
[16:56] <Alain> but welcome
[16:56] gemma joined #go.
[16:56] <Alain> hi gemma
[16:57] <Jolyon> thanks! and hi to everyone
[16:57] <gemma> hi you think i'd miss this one? :)
[16:57] <Alain> of course not
[16:58] <Alain> are you using your own IRC client Jolyon?
[16:58] <Jolyon> yes, mIRC
[16:58] Frank joined #go.
[16:58] <Alain> that usually works much better than the java scripts
[16:58] <Alain> hi Frank
[16:58] <Frank> Hi Alain...everyone
[16:59] #go: mode change '+o Jolyon' by Alain
[16:59] <Jolyon> Thank you Alain, and welcome everyone
[16:59] <Sara> I'm back
[16:59] <Frank> Hi Jolyon ...Thanks for coming to speak to us today
[16:59] <Jolyon> thanks for inviting me!
[17:00] <Sara> :)
[17:00] <Frank> it's our pleasure
[17:00] <Sara> Hi J
[17:00] <Sara> Hi Gemma, Frank
[17:00] <Frank> hey Gemma...long time
[17:00] <gemma> hi all
[17:00] <Frank> hi Sara
[17:00] <Jolyon> so, just out of curiosity, where is everyone from?
[17:01] Riniel joined #go.
[17:01] <Alain> sorry about all the late commers Jolyon, I always tell them to come early .. but they don't listen to me
[17:01] <Alain> hi Riniel
[17:01] <Frank> I'm Scottish but live in France
[17:01] <Riniel> hi!
[17:01] <gemma> i am from michigan usa
[17:01] <Alain> I'm from Holland
[17:01] <Sara> Hi Riniel
[17:01] <Sara> How are your studies going?
[17:01] <Frank> Riniel is studying in Thailand
[17:02] <Riniel> i'm doing ok
[17:02] <Riniel> i have my notes here in front of me...buuuUUUUuuuuTTTT.....i'm lazy
[17:02] <Riniel> i need to kick myself to study harder
[17:02] <Alain> Jolyon, are there alot of gemmologists on your forum/chats?
[17:03] <Sara> Oh, thanks for reminding me
[17:03] <Jolyon> i think we have a lot of people who have wide interests spanning gemmology, lapidary, mineralogy and more. they are all interconnected, so I try to encourage more cross-over discussions
[17:04] <Alain> yes, usually the bounderies can be very thin
[17:04] Crystal joined #go.
[17:04] <Alain> hi Crystal
[17:04] <Riniel> hello crystal!
[17:04] <Crystal> Hi y'all!
[17:04] <Frank> I think more crossing over is a great idea..I get frustrated when my gemmology notes don't go deep enough
[17:05] <Frank> hey crystal

[17:05] <Riniel> i agree with Frank!
[17:05] <Frank> I guess most of the Americans at at work at the moment
[17:06] <Crystal> Only the ones who work on Saturday
[17:06] <Alain> Jolyon, do you use retardation plates often?
[17:06] <Jolyon> I built mindat.org from the basis of my interests, which are primarily mineral collecting. But what I've found is that people are using the site for a huge variety of things, from gemmologists to mineralogists to people who are researching their family tree and are looking up old mines
[17:07] <Alain> I use it atleast once a week
[17:07] <Alain> mindat that is
[17:07] <Riniel> i use your website very often while i was doing my homework...it's the best website i've ever some across!!
[17:08] <gemma> your site is one of the things that got me interested in gemology
[17:08] <Jolyon> right now I do very little practical work with minerals/gems because I simply don't have the time. And I don't have a microscope either :) But I am trying to improve the data on all optical properties of minerals and gems on the site.
[17:08] <Jolyon> thank you gemma, that's great to know!
[17:08] <gemma> it brought to my attention it was way more than looking at pretty stones, but that it is a science :)
[17:09] <Jolyon> It's one of the few sciences that, as an amateur, you can still make important discoveries and contributions to the science. thats what I like about it
[17:10] <Alain> Jolyon, I heared you were plotting on several other features for mindat, would you like to reveal some of it?
[17:11] <Sara> <--- has a big mouth
[17:11] <Jolyon> :)
[17:12] <Jolyon> well.... there are lots of things I'm working on for the site. I've just launched Mindat Books, which is a place you can download free books on mineralogy (and some more related to gemology too!)
[17:12] <Jolyon> http://www.mindat.org/mindat_books.php
[17:12] <Alain> now that is good news
[17:12] <Frank> oh yes...splendid
[17:13] <Jolyon> I think you'd especially be interested in the booklet on Tourmaline from the Pala Mine - that's very pretty little booklet with pics of crystals and jewelery dating back to 1914 or so
[17:13] <Alain> posting that link was dangerous
[17:14] <Alain> stay here people, the books will be there later still
[17:14] <Sara> heh
[17:14] <gemma> lol how did you guess? all those original sources!
[17:14] <Frank> lol....I was just thinking of nipping of for five minutes
[17:14] <Jolyon> Yes, stay here! one of the reasons I was keen to come here today is that I want to learn more about how the site can be more useful for gemologists. I already have plans for a library of inclusion photographs, for example.
[17:15] <Alain> yes inclusions and spectra would be very helpful
[17:15] <Sara> I have Jean-Marie's email address. He's the webmaster of geminterest
[17:15] <Sara> Nice man ... he sent me an article on prasiolite once
[17:15] <Frank> and chrysallography is always nice too
[17:16] <Riniel> a library of inclusion sounds awesome!
[17:16] <Alain> Jolyon, inclusions with good data about lightning, magnification etc is something that is very scattered around the internet
[17:16] <gemma> jolyon, where did you initially come up with the mineralogical details for mindat?

[17:17] <Jolyon> I started typing it in from books into a database I wrote on my PC late in 1993
[17:17] <Jolyon> but I didn't start putting it onto the web until 2000
[17:18] <Jolyon> the key part of the system was allowing other people to join in and add data. So we have the collective knowledge of (at the moment) 4000 registered users contributing their experience to the site
[17:18] <Alain> in a wiki environment?
[17:19] <Jolyon> well, this was started before wikis were created. It's similar, but in a more structured framework
[17:19] <gemma> with a site such as yours, where people come for this kind of info, is there ever a problem with this being a general repository without siting references? this question comes up quite a bit in our discussions as to how one decides what is "general knowledge" and what needs permission.
[17:21] <Jolyon> well, this has been a problem. When I started my data input in 1993, I didn't put any references in with the data because it was only for my personal use. That was a big mistake. Nowdays any data entered onto the site needs a reference, and new entries tend to get checked over by quite a few experts. Anything that looks unusual gets researched, queried and (if suspicious) removed quite quickly
[17:21] <Alain> so every entry is moderated?
[17:21] <Jolyon> yes
[17:22] <Alain> good idea
[17:22] <Jolyon> and the same with photo uploads. They are all reviewed
[17:23] <Alain> Jolyon, when you are handed a crystal .. how do you go about identifying it .. in the field for instance
[17:24] <Jolyon> The most important factor is location - and prior information. If you know what kind of things to expect where you're going, it makes life a LOT easier.
[17:24] <Jolyon> usually, a large percentage of crystals can be visually identified once you have a list of what is found there.
[17:25] <Alain> I ask because in the upcomming Gem-A exams, students are given crystals to identify
[17:26] <Jolyon> You have the same situation - you know you'll only be given crystals from a small subset of valid minerals. Are these complete crystals that are given for identification, or fragments ?
[17:27] <Alain> mostly damaged crystals as I understand it
[17:27] <Frank> ususally complete enough to be recognised though with simple equipmentI think
[17:28] <Frank> or at least with pocket tools like dichroscope
[17:28] <Jolyon> the most important physical test I do, as a mineralogist, is hardness.
[17:28] <Sara> aggregates, or in matrix, Frank?
[17:29] <Frank> usually parts of single crystals as far as I'm aware
[17:29] <Alain> Jolyon, hardness tests are rarely carried out by gemmologists .. we know how to do them, but no one does them
[17:29] <Sara> lol
[17:29] <Jolyon> Well, they are quite destructive :)
[17:30] <Frank> hardness is good with rough stones Jolyon but as alain says the gemmo schools all print DESTRUCTIVE every time they mention it
[17:30] <Jolyon> My other test is to hit it with a hammer and see how it fractures or cleaves :)
[17:30] <Alain> Jolyon, is there a structural method you use when you need to do a visual assesment?
[17:30] <Alain> heh
[17:30] Guest joined #go.
[17:31] <Jolyon> Nothing beats experience. Given enough ruby and spinel crystal fragments to look at, you can be pretty sure after a while which

one is which. But you're not going to be 100% right all of the time, that's why optical tests are so important
[17:31] Nick change: Guest -> cityfire
[17:31] <Sara> Hi City
[17:31] <cityfire> hey all
[17:32] <Frank> what testing equipment do you take with you on firld trips?
[17:32] <Frank> sorry field trips
[17:33] <Jolyon> I tend to do very little identification in the field. I would take a hand lens, and that's probably about it. Identification gets done when I'm back home.
[17:34] <Frank> Do you ever polish a face to get an RI reading or is there some way to get by without it?
[17:36] <Jolyon> This is an interesting question - I don't think I have tried to measure refractive index on a specimen *ever* - except perhaps when at univeristy. Gemologists and mineralogists seem to have developed different methodologies for identification, and I think we can all learn from each other - I am sure there are times when measuring RI would be of great benefit to me.
[17:37] <Alain> And specific gravity?
[17:37] <Jolyon> oh, i built my own specific gravity scales from a beaker, a 30cm ruler, bits of wood and string when I was 10 :)
[17:38] <Jolyon> but the problem is that most things you are trying to identify are pretty close in SG
[17:38] <Sara> For the most part mineral specimens carry with them a lot of information and using a refractometer isn't really necessary as I understand it ... it's only after maybe an acid bath and cutting from the lapidary that so much of that information is stripped away that tools like a refractomete become necessary
[17:38] <Frank> true Sara....crystals all tell there own tale
[17:39] <Jolyon> Well, I am sure that most mineral collectors, myself included, have faced questions like I have from my Mum recently who bought cheap gemstone rings on ebay and asked me "what are those?"
[17:39] <Frank> but rolled pebbles are hard
[17:39] <Frank> lol
[17:39] <Frank> yes 2 second look should be enough
[17:39] <Jolyon> the box probably cost more than the ring
[17:40] <Alain> Yes
[17:40] <Sara> lol
[17:40] <gemma> Jolyon, when you say you test SG on a specimen, are you saying you chip off a piece of crystal for the test?
[17:40] <Jolyon> well, if the crystal is whole without matrix, you test the whole crystal
[17:41] <Jolyon> the more mass you have to test, the more accurate it is
[17:41] <gemma> that was my wonder, how one deals with the properties of matrix altering the assessment
[17:41] <Jolyon> well... if you have a crystal in matrix, you can learn a lot more about it from the crystal form. You look at angles, you look at striations on crystal faces, you look at a lot of photos on mindat and find something similar!
[17:42] <Jolyon> even if you don't get an exact match, you can rule certain things out from the crystallography
[17:42] <Alain> Jolyon, when minerals get burried under sediments and start to take part of the metamorphic process, do all the elements get rearanged .. reshuffled so to say?
[17:43] <Jolyon> Yes, over time. elements become mobile and certain things move around. Because it's impossible to dig that deep and watch

what happens a lot is guesswork, but the three big culprits for mineral change and growth underground are heat, pressure and water
[17:44] <Alain> I know that zircon can resist alot of the acid attacks in the metamorphic process, but I take it that that is a rare thing
[17:48] Guest joined #go.
[17:48] Guest left #go.
[17:48] <Alain> Has the connection dropped?
[17:48] <Jolyon> i'm sitll here i think
[17:48] <Frank> I can read you
[17:49] <Alain> oh ok
[17:49] <gemma> how often does matrix itself help identify a mineral? how do you deal with agates?!?!
[17:49] <Alain> Jolyon, so if a ruby goes in the metamorphic process, changes are it will not come out as corundum?
[17:49] <Jolyon> ok. gemma's question(s) first
[17:50] <gemma> (sorry)
[17:51] <Jolyon> matrix can be key to identifying a mineral. When identifying a mineral you really want to know how it formed, what environment it was formed in. So, if your matrix shows (for example) a granite - then there are only certain classes of minerals, those that form in high-temperature granite environments - that it can be. It's not going to be a diamond!
[17:52] <gemma> so then one first decides on whether ingenous, meta, or sedi and then narrow it down from there by grain etc?
[17:52] <Jolyon> alain: I'm not an expert on corundum, but I would imagine that it might well survive through some of the metamorphic processes. Though if it is heated in the presence of anything containing large amounts of silicate, it may end up converting to aluminosilicate minerals, such as Kyanite.
[17:53] <Jolyon> gemma: that's right. What did you mean by your agate question?
[17:53] <Jolyon> i meant "large amounts of silica" in my answer above
[17:53] <gemma> i meant how do you decide what variety of agate something is when they often look so much alike? what is a good source book for differentiation?
[17:54] <Alain> Yes, thanks
[17:55] <Jolyon> well.. agate is agate. The "varietal" names for different types of agates are, to a great extent matters of opinion more than anything else. What is a "fortification agate" and what is a "eye agate" - you could have an agate that is both at the same time.
[17:56] <Alain> I'm sure all the fancy names gemmologists/jewellers use for minerals must be pretty amuzing for a mineralogist
[17:56] <Sara> They're fancy?
[17:58] <Jolyon> I try to keep up with them. The problem is people keep creating new names. In the mineral world, there is one central authority that approves names. But with gemstone/lapidary names no such restriction. If I wanted to start calling a new variety of agate I'd found "golden sun ray agate" and start selling it, there's no one to stop me. I find the lack of control a bit frustrating, but that's the free market for you
[17:59] <Alain> Yes, hard to keep up for us aswell
[17:59] <Jolyon> Names also evolve. What I see sold as "moss agate" these days isn't anything like what I saw as "moss agate" 25 years ago
[17:59] <Sara> I was wondering if there was a method for distinguishing mineral specimens for display? i.e. miniatures, cabinet, etc.
[17:59] <gemma> i found that when i made agate jewelry and i agree on the moss agate transformation LOL. it is very confusing. some seem to be fairly easy to categorize as variety but as you say there can be such a

blending. Michigan is a huge agate state and such a great place for collecting.
[18:00] <gemma> sorry sara
[18:00] <Sara> Sorry,
[18:00] <gemma> :)
[18:00] <Frank> how big a part of a geology course is taken up with crystallography?
[18:00] <Sara> That was off topic
[18:00] <gemma> sara, i don't think so at all. i think that interesting.
[18:01] <Jolyon> sara: there are some arbitrary size rules that are introduced for example by US mineral club competitions to define the categories. Can't remember what they are at the moment though
[18:01] <Jolyon> frank: in my experience, mineralogy is a small part of a geology course - maybe 1/5 or 1/6 - and crystallography is maybe 25% of that
[18:02] <Frank> thanks
[18:02] <Alain> Jolyon, I was wondering where mineralogists stand on the difference between the terms "colour-change" and "colour-shift"
[18:03] <Alain> or is that not on a mineralogists mind?
[18:03] <gemma> [laughing] thanks alain
[18:04] <Jolyon> well, let me make sure I understand what kind of colour change you're talking about. A permanent one (eg heat treatment) or as an optical effect (eg with Alexandrite)
[18:04] <Alain> the latter
[18:05] Frank left irc: Frank
[18:05] Frank joined #go.
[18:05] <Jolyon> well, i would call it a colour change myself - but I don't know whether it is a true colour shift or not.
[18:06] <Jolyon> a shift to my mind would be where the light spectrum would look similar to before, but shifted either up or down the spectrum
[18:06] <Jolyon> maybe that's how it works, I don't know :)
[18:06] <Jolyon> I have a fascinating fluorite here that has an extreme colour change effect
[18:07] <Jolyon> and I had it two years before I even noticed
[18:07] <Jolyon> in artificial light it is deep purple
[18:07] <Jolyon> in daylight it is pale sky blue
[18:07] <Alain> There are two schools at that, some find it colour-shift when the colour changes in transmitted light and the other follows your thought
[18:07] <Sara> I haven't explored the mindat book collection yet, but as it grows do you plan on making a system to search within the text for keywords, or will that only be through the title of an article?
[18:08] <Jolyon> sara: hopefully, yes
[18:08] <Alain> I never knew fluorite could have that
[18:08] <Jolyon> neither did I
[18:08] <Alain> heh
[18:08] <gemma> nor i. i have both colors but never paid attention if it changed/shifted. will watch for it now!
[18:09] <Jolyon> do you use fluorescence in UV light as an identification aid/
[18:09] <Alain> Jolyon, do you scan the books with special sorftware .. or regular picture scans?
[18:09] <Jolyon> regular scans, combined in Adobe Acrobat
[18:09] <Alain> Yes we do Jolyon
[18:09] <Jolyon> I'm going to be adding in a specific UV section for the galleries
[18:10] <Frank> split into LWUV at 365nm and SWUV at 254 (both approx) is this the same wavelengths used by minerologists?

[18:10] <Alain> Do you know the exact influence of iron on fluorescence .. from what I understand now it grabs energy at the lowest excited stage and transforms it into non-radiative energy
[18:11] <Jolyon> frank: yes, same, but we are also starting to use a medium wave inbetween those now more as well.
[18:12] <Sara> When I asked Colin Winter if one could use the OPL sprectroscope in the field he said you could, but the stone needed to be transparent
[18:12] <Sara> I still wonder if there could be any way to get around that.... but light is light and ya kinda need it.
[18:13] <Jolyon> alain: the exact cause of fluorescence in different minerals is an area of big research at the moment. In some cases certain impurities such as Iron, Europium etc are suspected, in others, it is lattice holes - in both cases it's distorted lattice structures that seem to be related to the effect
[18:14] <Alain> Thanks, hard subject
[18:15] <Alain> singlet/triplet spin are nice terms to use in the explanations
[18:15] <Frank> I read that article alain and I still dont relly understand it
[18:16] <Alain> Jolyon, would you like to have a go at explaining phosporescence?
[18:17] <Jolyon> well... that is even more complicated. Essentially the energey is stored and released slowly rather than immediately, as with non-phosphorescent UV response
[18:18] <Alain> the transformation from singlet to triplet state is still an area of research for me, what causes that to happen
[18:19] <Alain> or is that more a question for a chemist?
[18:20] <Jolyon> Anything involving the quantum effect is far too scary to think about on a saturday :)
[18:20] <Alain> yes agreed
[18:20] <gemma> jolyon, going back to the color change fluorite: how is chlorophane related to fluorite? i read that McHone Mine chlorophane is color change as you described your specimen . . . just wondering
[18:21] reds joined #go.
[18:21] <Jolyon> well, Chlorophane is an old name for a fluorite variety that is thermoluminescent, originally from Siberia
[18:22] <Frank> Since you don't use a refractometer I guess you use a polariscope to seperate isotropic from anisotropic materials...do you use a retadation plate to find optic sign?
[18:23] <Sara> What is a retardation plate?
[18:23] <Sara> Sorry
[18:23] <Frank> It another of Alain research fields
[18:24] <Alain> A thin slice of gypsum, mica or a quartz wedge
[18:24] <Sara> How does it find optin sign?
[18:24] <Sara> *optic
[18:25] <Frank> it can figure if a material is positive or negative by changing the colour of the quadrants
[18:25] <Frank> at least it can if Alain is using it
[18:25] <Sara> I see
[18:25] <gemma> is chlorophane radioactive, then?
[18:26] <Sara> I was under the impression that mineralogist tools and gemmo tools varied widely
[18:26] <Frank> Do you use this technique Jolyon?
[18:26] <Alain> Something I think Jolyon can explain better than I can, I'm sure
[18:26] <gemma> (we just use more toys, sara, i think)
[18:27] <Sara> Different toys

[18:28] <gemma> (concede :))
[18:28] <Jolyon> We tend not to have too many large clear crystals to identify. There are plenty of cases where ientifying the optical properties of a mineral are very useful indeed - but you can pretty much guess whether something is isotropic or not by the crystal shape - and as Sara says, we have different toys :) Actually, I'm planning on adding some new sections on mindat optical properties to give examples of what to look for with different crystals using different optica
[18:28] Crystal left irc: Read error: Connection reset by peer
[18:29] <Sara> I think it's a matter of what is need based. I'm not expert .... in anything really... But mineralogists use a Scanning electron microscope in lieu of say your sprectroscope
[18:29] <Sara> Bigger toys
[18:29] <Frank> more expensive
[18:29] <Alain> Jolyon, the birefingence chart (Levy) .. is that something that mineralogists tend to use?
[18:29] <Jolyon> yes
[18:29] <Jolyon> and petrologists
[18:30] <Alain> also without the petrographical microscope?
[18:30] <Jolyon> the colour ranges shown in the diagram are only valid for standard thickness petrological mounted thin sections
[18:30] <Frank> how do you measure birefringence without a refractometer?
[18:30] <Alain> I was afraid of that
[18:31] <gemma> just what i was going to ask :)
[18:31] <Frank> :)
[18:31] <Jolyon> there are some simple calculations that can be used to calculate colour ranges in birefriengence for any thickness
[18:31] <Jolyon> so I could extend it so you type in your specimen thickness and it generates you a graph
[18:31] Crystal joined #go.
[18:31] <Jolyon> though at the moment it only goes up to 5th or 6th order colours, and would probably need to go further
[18:32] <Alain> I would be interested in learning more about that Jolyon, as it could provide an extra tool for gemmologists who don't cut 40micron slices
[18:33] <Jolyon> I'm going to see how well that would work
[18:33] <Alain> thanks
[18:33] <Frank> Do you use ellipsoids often in calculations?
[18:33] <Jolyon> for this?
[18:34] <Frank> we had a class going on concerning ellipsoid but our teacher left before it was finished and it's bugged me ever since
[18:34] <gemma> (you are right sara, that was a very different toy)
[18:34] <Frank> he said he could apply them for hardness, RI, pretty much anything
[18:34] <Jolyon> ah, then no :)
[18:34] <Alain> heh
[18:35] <gemma> we keep trying, don't we frank?
[18:35] <reds> is the teacher has gone?
[18:35] <Alain> no reds, he's still here
[18:35] <Frank> I hate a half explained concept Gemma...guess I'll learn to live with it
[18:35] <reds> on witch i con he is
[18:35] <gemma> (nah, we'll find the answer eventually frank)
[18:35] <reds> i mean his nic i just start
[18:36] <Frank> he is Jolyon reds
[18:36] <reds> thank u frank
[18:36] <Jolyon> now, what about crystal angles? that's something I woudl regard as very important for identification

[18:36] <Frank> I know gemma ... it's what makes this all so much fun :)
[18:36] <gemma> :
[18:36] <Alain> Please go on Jolyon
[18:36] <Jolyon> what do you use for measuring crystal angles
[18:37] <Alain> we don't
[18:37] <gemma> yeah, nothing
[18:37] <Frank> we learn form and usual habit but thats about it
[18:38] <Frank> though we recognise 70 / 110 degrees on garnet inclusions etc
[18:38] <Alain> yes when we do measure, it is related to internal structures/inclusions .. for the rest that is neglected
[18:38] <Jolyon> well. you need to be able to measure crystal faces to be able to correctly identify the crystal system of a mineral specimen
[18:39] <Alain> would a swiveling device from the hardware store work?
[18:39] <Frank> is there some sort of digital protractor to do this with>
[18:39] <Jolyon> yes, pretty much
[18:39] <reds> how we can masure jolyon?
[18:40] <Jolyon> but... and this is important... you need to understand what you are measuring
[18:40] <Jolyon> for example, a garnet is in the "Cubic" crystal system, but you'll never measure 90 degrees on a garnet
[18:41] <Jolyon> there are many minerals that are visually misleading. For example I picked up a group of what I thought were fluorite crystals, looked like almost perfect little cubes. They weren't. I checked the angles more closely, they were not 90 degrees. It was calcite
[18:41] <Jolyon> confirmed it with a drop of acid
[18:42] <Frank> what do you use to measure angles with?
[18:43] <Jolyon> what I tend to do is use a tool that is two small strips of metal joined together like a pair of scissors
[18:43] <Jolyon> i can then fit those around a crystal face, then take them off and measure the angle with a normal protractor
[18:43] <Alain> like a carpenter would use?
[18:43] <Jolyon> pretty much, but this was home made
[18:43] <Frank> is it only the angles between faces you measure or are the angles between faces and termination s important too?
[18:44] <Jolyon> all angles are important, but you have to understand from the crystal morphology how those relate to the internal structure
[18:44] <Jolyon> calcite, for example, has something like 700 known crystal morphologies
[18:45] <Frank> are any of your online books on this subject?
[18:47] <Jolyon> not in the ones we have on mindat books. We have scanned in a much bigger work, Goldschmidt's Crystal Atlas (1923) which contains something like 40000 different crystal forms of all known minerals at the time. Including dozens of pages on Calcite alone. Because of the size of this we're only making it avalable on DVD-ROM, not for download
[18:49] <Frank> In my own experience books on crystalography are either too simple or delve too deep...can you recommend a book which takes a more middle range approach
[18:49] <Alain> Jolyon, could you give an example of the measurments with corundum for instance .. and how one could deduct it to be trigonal and not hexagonal?
[18:51] <Jolyon> Well, you can't separate trigonal and hexagonal with measurements alone. The measurements for both will be 120 degrees for across the prism. you need to look at the terminations. its a matter of symetry - quartz is usually a clearer example because you can see on standard quartz crystal terminations it has three way symmetry when viewed from above, not six-way. Some corundum crystals show this, others dont. You'll never see this three-way symetry in a (hexagonal)

[18:52] <Alain> DO you have any idea why the Americans would put corundum under hexagonal?
[18:52] <Jolyon> frank: Introduction to Crystallography - Donald E. Sands ISBN 0 486 67839-3
[18:52] <Alain> Do*
[18:52] <Frank> thanks
[18:53] <gemma> yes, thanks for the resource
[18:53] <Sara> I am making a template for a ruby crystal... it's a tabular form .... as I first worked my template for the top and bottom I used a hexagon then broke it down
[18:53] <Jolyon> It's simply a matter of terminology. The americans regard Trigonal as a "sub-class" of Hexagonal - in europe we tend to think of trigonal as standing on its own.
[18:53] <Jolyon> it depends if you think of angles as more important than symmetry or vice versa
[18:53] <Alain> thanks for the book source .. costs less than $10.00
[18:54] <gemma> a class on it's own because of the different termination?
[18:54] <Jolyon> it's a nice, short, simple, and cheap book
[18:54] <Jolyon> it goes into quite a lot of detail as well
[18:55] <Alain> Jolyon, you said you used acid as a testing device, what kind of acids do you use and what would a typical test look like?
[18:56] <Alain> The only test we usually use is for coral
[18:56] <Jolyon> any weak mineral or organic acid can be used. I tend to use vinegar - it's probably the safest!
[18:57] <Jolyon> if you suspect something might be calcite, a small drop of vinegar onit will tell you for sure, if it releases bubbles of gas, it's calcite.
[18:57] <Alain> Nice, any other of those tricks that we can use?
[19:00] <Jolyon> most gemstones you will encounter will have no reaction to most acids or chemicals. The majority of gemstones are formed at high pressure and temprature, and tend to be pretty tough things, which is why you want to use them as gems. There are lots of chemical tests that can be used on minerals, but in general they only work if you can react the mineral with something. And unless you start using nasty stuff like Hydrofluoric Acid (HF), most gems won't react.
[19:01] <Alain> Best not to use that
[19:01] <Frank> lol
[19:01] <Jolyon> on the other hand, it does mean that even strong acids can be useful to clean gemstones
[19:02] <Alain> Just a small warning, don't go using HF people .. dangerous stuff
[19:03] <Jolyon> although not everything can be cleaned that way. I've been asked countless times for a chemical that will dissolve mica from garnets. There isn't anyhting that will do it. And yes, don't go anywhere near HF, it's deadly/ very very very nasty
[19:04] <Alain> Jolyon, another thing that would be very useful for us gemmologists on mindat would be the colouring agents/elements in gemstones
[19:04] <Riniel> will sulfuric acid do? it's very strong though...
[19:05] <Frank> I have several mineral samples which remain unidentified. I've tried to look for pics but without a region or a mineral name it's hard to get the search to upload anything at all...is there a way to just browse all the pics on your site?
[19:06] <Jolyon> sulfuric is a veyr strong oxidizer. think about what you need to clean from something. you need to understand the chemistry. So, for example, if you have a spinel embedded in marble, and you want to dissolve it out, what acid woudl you use? (and frank, no there's not yet

a way to do that, there are 50000 so it'll take a while! upload a pic of it to our identity help section and we can help you out).
[19:07] <Jolyon> if you use sulfuric acid, you generate calcium sulfate from the calcium carbonate in the marble
[19:07] <Jolyon> if you use (weaker) hydrochloric acid, you generate calcium chloride
[19:07] <Jolyon> as Calcium chloride is MUCh more soluble than calcium sulfate, the hydrocholoric is a much better agent to use to dissolve the marble
[19:08] <Jolyon> otherwise you're dissolving hte calcite and depositing more mostly-insoluble material back on top of it
[19:08] <Riniel> i see...so generally...acid is used to separate the crystal from its mother rock?
[19:08] cityfire left irc: cityfire
[19:09] <Jolyon> this is a poor example, you'd usually use a hammer and chisel to separare these. but if you have something more delicate, for example, I had some nice diopside crystals embedded in marble I collected in canada. Then using acid to get them out is a good way
[19:09] <Riniel> ok...thanks for telling me that!
[19:10] <Jolyon> ok guys, I have about 10 minutes before I have to head out. Is there anything else you think would be a good addition to mindat?
[19:10] <Alain> the colouring elements, or did you get that?
[19:10] <Jolyon> yes i did
[19:10] <Alain> Jolyon, what kind of wine do you prefer?
[19:11] <Jolyon> oh, any!
[19:11] Riniel left irc: Read error: Connection reset by peer
[19:11] <Alain> A specific colour?
[19:12] <Jolyon> ok, red then!
[19:12] <Alain> deal
[19:12] <Sara> lol
[19:12] <Frank> Jolyon...Thanks for coming, It's been a very informative and pleasant way to spend the afternoon.
[19:12] <Alain> thanks so very much for doing this with us Jolyon, I really enjoyed it]
[19:12] <gemma> i have a question. when did you decide to become a mineralogist? what led you to that decision?
[19:12] <Sara> Yes, thank you for joining us today
[19:12] <Frank> me too
[19:12] <Jolyon> as for colouring agents in minerals, rather than wine, lots of research on this too. I have some interesting papers on the colouring of emeralds for example
[19:13] <Jolyon> gemma: i never decided to, I kind of fell into it :)
[19:13] <Alain> oh that brings me to a very last quick question Jolyon .. what is the colouring agent in green beryl?
[19:13] <Jolyon> emerald is a very interesting stone, because it is defined by a specific colour range rather than by any chemical or physical properties
[19:13] <Jolyon> so - the same colour can be produced by different colouring agents
[19:14] <Jolyon> in some emeralds it is vanadium, in others it is chromium
[19:14] <Jolyon> and some green beryl that is NOT emerald may be coloured by vanadium and/or chromium also.
[19:14] Riniel joined #go.
[19:14] <gemma> oh great, another gemological black hole LOL this has been a GREAT discussion!
[19:15] <Sara> I read somewhere if it wasn't a strong enough green then it wasn't considered emerald, instead it was categorized as green beryl

[19:15] <Jolyon> if you're interested in emerald there's a great book "Emeralds of hte World" published by ExtraLapis
[19:15] <Sara> But that's a pretty big grey area
[19:15] <Jolyon> you're absolutely right Sara
[19:15] <Frank> always something new to learn....fab isn't it :)
[19:16] <Sara> op67
[19:16] <reds> is the extra lapiss is person name
[19:16] <Alain> no a series of books
[19:16] <Sara> That was the cat
[19:16] <Frank> book publisher reds
[19:17] <Jolyon> http://www.amazon.com/gp/product/0971537119/103-5732230-3166255?v=glance&n=283155
[19:18] <Jolyon> actually, that's expensive there.
[19:18] <Jolyon> http://www.lithographie.org/bookshop/no_emeralds_world.htm
[19:18] <Jolyon> that's the publisher's site
[19:18] <Jolyon> this book has a LOT of information gemologists will love
[19:18] <Alain> thanks Jolyon, on the wanted list
[19:19] <Jolyon> I have it here, it's a super book. actually, so are the rest of the series - you'll want their Tourmaline one too
[19:19] <Frank> lol...so many good books...only two eyes
[19:19] <gemma> got get another book shelf now :)
[19:19] <Jolyon> for those who speak german, the original ExtraLapis series was published by Lapis in Germany
[19:19] <Jolyon> www.lapis.de for that
[19:19] <Alain> thanks, luckely I do
[19:20] <Frank> I've seen several good gemmo books recently which are only in German sigh
[19:20] <Jolyon> I don't understand german but I still subscribe to them! the pictures are great. Must learn how to read them
[19:21] <Frank> do you take your own inclusion pics or do members do them for you?
[19:21] <Jolyon> members do them
[19:22] <Jolyon> at the moment we need three bits of informaiton - we need the identification of the mineral(s), we need the location the specimen came from, and the size of the features shown in the photo.
[19:22] <Frank> www.gemintertest,com There are some great pics on this site on inclusions...but it's in French. who cares with pics
[19:23] <gemma> by stating location, how can one guarantee a provenance/location with a specimen one buys?
[19:24] <Jolyon> you can't - it's always uncertain. luckily we have a lot of things posted by people hwo have collected themselves, so we can be more certain of those. and then we can compare with the things that people have bought and see if it looks valid or not
[19:24] <gemma> thanks
[19:25] <Frank> I definately think it's possible with a big enough database. Richard hughs has pretty much done just this for corundum
[19:25] <Jolyon> well, hopefully over time this will build up
[19:25] <Frank> yes it's something everyone can contribute towards
[19:26] <Jolyon> ok. time for me to say goodnight!
[19:26] <Alain> ok Jolyon, once again thank you for donating your valuable time to us on a weekend, it was a great chat
[19:26] <Frank> Thanks for coming
[19:26] <Sara> If anyone wants to talk with Jolyon further he is sometimes available to speak with in the mindat.org chat room, and of course there are always their forums as well
[19:26] <Jolyon> thank you for inviting me!
[19:26] <Frank> hope your future is rosy and happy

[19:26] <Sara> Thanks for coming
[19:26] <Jolyon> thank you!
[19:26] <reds> thank u jolyon
[19:26] <reds> thank u so mutch
[19:26] <gemma> yes, thank you so very much
[19:27] <Crystal> thank you so much
[19:27] <reds> can we tak to u som time on phone
[19:27] <Jolyon> pop in to mindat chat if you need to catch up with me, or have any more mineral specific questions. Yes red, that shouldn't be problem drop me an email. jolyon@mindat.org
[19:27] <Riniel> thanks Jolyon
[19:28] <Jolyon> bye!
[19:28] Jolyon left irc