

[21:13] <BrianQ> So, we've all read over the last chat, eh... so we know what a lens does, eh?

[21:13] <doos> yes

[21:13] <DragonStek> i have my notes

[21:13] <GemGuest74> er...i'm reading it now

[21:14] <BrianQ> takes light rays from an "object" and produces an "image."

03[21:14] * Keirkof`b`late is now known as Keirkof

[21:14] <BrianQ> for example, the lens in our eyes takes the scene in front of us and converts it to a "real image" behind the lens.

[21:15] <@Keirkof> evening all (lets let brianQ continue ^^)

[21:15] <BrianQ> The back of our eye serves as a screen for this image.

03[21:16] * GemGuest74 is now known as \frank

[21:16] <BrianQ> In contrast, when we use a magnifying glass, that lens produces a "virtual image" of the object that is on the same side of the lens as the object.

[21:16] <BrianQ> Then... drum roll please....

06[21:16] * @Keirkof rolls the drum

06[21:17] * @Keirkof rolls and rolls

[21:17] <BrianQ> the lens in our eye treats that "virtual image" as an object, and projects the "real image" on the back of our eye.

[21:18] <BrianQ> So... a lens takes light coming from an object and creates an image... but an image produced by one lens can become the object for another.

[21:18] <BrianQ> ... which then uses that light to produce another image.

[21:19] <BrianQ> To recap our example... the magnifying glass produced a "magnified" virtual image, and then the lens in our eye used this image to create a small real image on the screen at the back of our eye.

[21:20] <BrianQ> All good so far?

[21:20] <\frank> yes

[21:20] <DragonStek> yup

[21:20] <BrianQ> Also recall that a real image can be displayed on a screen, whereas a virtual image cannot....

[21:21] <BrianQ> But we don't HAVE to display the real image... as we've seen by exploring the loupe... we can see a virtual image produced by the loupe and we can see a real image produced by a loupe.

[21:22] <BrianQ> At one time there was a conventional standard that (almost) all microscopes followed

[21:23] <BrianQ> In this standard, a microscope is composed of two lenses, the objective and the eyepiece.

[21:23] <BrianQ> These two lenses are separated by some distance... a dozen or more cm.

[21:24] <BrianQ> DIN, by the way, the first word is for German (Deutsch)....

—————01[21:24] <@Spauwe> +s

[21:24] <BrianQ> Something like German Industrial Standard, which makes sense, since they were the first makers of high quality microscopes

[21:25] <BrianQ> yep, I can't spell German, that's for sure.

—————01[21:25] <@Spauwe> :)

[21:26] <BrianQ> Now when I say there was a standard, that means that the cases that hold lenses and the tubes that connect them had to be certain sizes.

[21:26] <BrianQ> Back at this time, then, one could use an objective from one maker, and eyepiece from another and a tubular housing from another, and everything worked.

[21:27] <BrianQ> Nowadays it is a bit different, and you can't mix Zeiss pieces with Nikon pieces.

[21:27] <BrianQ> But anyways, one can still get these DIN standard microscopes and their parts.

[21:28] <BrianQ> So...

[21:28] <BrianQ> We start with the objective of such a microscope.

[21:28] <BrianQ> The "object" looked at by the objective is very very small, and also very very close to the objective lens

[21:28] <BrianQ> yep, you agree?

[21:29] <doos> yes

—————01[21:29] <@Spauwe> ja

[21:29] <BrianQ> si :)

[21:29] <\frank> oui

[21:30] <@Keirkof> hai

[21:30] <doos> was waiting for that

[21:30] <BrianQ> ok then, the object is well within the focal length of this type lens...

[21:30] <BrianQ> and the lens creates an image of the object on the other side of the lens... so, what kind of image is it creating?

[21:31] <doos> real pne

[21:31] <\frank> real

[21:31] <doos> one*

[21:31] <BrianQ> good job!

[21:31] <BrianQ> *shock*

[21:32] <BrianQ> The DIN standard says that the real image is created 16 cm away from the exit aperture of the lens.

[21:32] <BrianQ> which is a distance larger than the focal length of the lens... so...

[21:32] <\frank> it's bigger

[21:32] <BrianQ> is the real image bigger or smaller than the object?

[21:33] <BrianQ> beat me to it!!!

[21:33] <BrianQ> *shock*

[21:33] <\frank> sorry I thought the so constituted a question

[21:34] <BrianQ> Now the first time I wanted to build a microscope, I needed just an objective lens and a CCD camera.

[21:34] <BrianQ> The camera itself didn't even have a lens in front of it, it just had the bare CCD open to the air.

[21:35] <BrianQ> I put that CCD exactly 16 cm from the rear of the objective lens, and I got a perfectly respectable picture transmitted to my computer.

[21:35] <\frank> question

[21:35] <BrianQ> Yes Frank?

[21:36] <\frank> would this be classed as a microscope and not a single compound lens...Thought there had to be 2 lenses to make it a microscope?

[21:37] <BrianQ> Well... that is an interesting question... because it seems that these days there are even more than two lenses in common microscopes

[21:37] <BrianQ> So I don't know what exactly classifies a microscope.

[21:38] <\frank> ok granted but at least two is a minimum according to last weeks lesson

01[21:38] <@Spauwe> nag

[21:38] <BrianQ> What I can say is that I had this DIN standard microscope objective and a camera, and the two together produced a nice picture of things I couldn't see with the naked eye

[21:38] <\frank> sowwy

[21:39] <\frank> ok then it's a microscope :)

[21:39] <BrianQ> We'll get to the two-lens bit in just a moment. ;)

[21:39] <BrianQ> Now... what if I put my eye right exactly where I put the CCD camera... would I see an image with my eye?

[21:40] <doos> yes

01[21:40] <@Spauwe> an unsharp strongly vignetted image maybe

[21:40] <BrianQ> actually... no, I would not...

[21:41] <BrianQ> In the first case... there is no other lens between the objective and the "screen" (the CCD)

[21:41] <\frank> you'd have to position the back of your eye on the spot

[21:41] <BrianQ> In the case of my eye, there is the eye's lens between the objective and the "screen" (the back of my eye)

[21:42] <BrianQ> I'd have to move my head some distance away from the position of the CCD image to get an image in my eye.

[21:43] <BrianQ> That is, the lens in my eye would have to take the real image produced by the objective, and then transform it into another real image on the back of my eye....

[21:43] <BrianQ> But it is a bit of a drag to do that with your head... because your eye has to be positioned at exactly the right spot to see the image clear and in focus

[21:44] <BrianQ> So.... to make things a bit more controlled, they introduce the eyepiece lens.

[21:44] <@Keirkof> question

[21:44] <BrianQ> yes Keirkof?

[21:45] <@Keirkof> wouldn't you need something like a matte glass plate to project the image onto so your eye can see it?

[21:46] <BrianQ> No... you can see a real image with the eye, just like you can see a virtual image... recall the experimentation with the loupe

[21:47] <BrianQ> To see it with the eye (and its additional lens) you have to put your head in a place different (further back) than where you'd put the screen to see the image.

[21:47] <@Keirkof> yes idd - just tried it - it seemed odd, but it's coming back

[21:49] <BrianQ> Ok... now the eyepiece treats the real image produced by the objective as an object and makes a virtual image. The objective makes a magnified real image, and the eyepiece transforms that into an even further magnified virtual image.

[21:50] <BrianQ> Now think about the arrangement of a microscope... a tube with objective at the bottom and eyepiece at the top.

[21:51] <BrianQ> The object is below the objective. The image produced by the objective is somewhere in the space between the objective and eyepiece.

[21:51] <BrianQ> Where is the image produced by the eyepiece?

[21:51] <doos> at the botoom of the eyepiece lens

—————01[21:51] <@Spauwe> inside the tube

[21:51] <BrianQ> Spauwe is correct

[21:52] <doos> darned

[21:52] <BrianQ> it is also somewhere between the objective and eyepiece.

[21:52] <doos> yes

[21:52] <BrianQ> Then this image is what our eye is meant to look at.

[21:53] <BrianQ> And of course, you can move the eyepiece back and forth, and your head back and forth, to make for comfortable viewing.

[21:54] <BrianQ> So the benefits of adding the eyepiece include further magnification and making for a more ergonomic viewing... the position of the image produced by the eyepiece can be shifted a bit by moving the eyepiece

[21:54] <BrianQ> so that it isn't static like the objective's image.

[21:55] <BrianQ> IF there wasn't this little factor of ergonomics, then the eyepiece would mostly be unnecessary.

—————01[21:56] <@Spauwe> I kinda like that extra mag...

[21:56] <BrianQ> And... in my microscope, it IS unnecessary, since I only use cameras to view images....

[21:57] <BrianQ> Interestingly, my CCD surface is too small to see the complete image produced by the objective

—————01[21:57] <@Spauwe> yep

—————01[21:57] <@Spauwe> I have that same proble

[21:57] <\frank> so if you remove the human eye from the equation then the eyepiece becomes redundant?

[21:57] <BrianQ> increased magnification means the camera would be looking at an even smaller field of view.

[21:57] <BrianQ> So I'd actually need a DE-magnifier to see the entire image produced by the objective

[21:58] <BrianQ> Yes, I think so, Frank.

—————01[21:58] <@Spauwe> DE magn?

—————01[21:58] <@Spauwe> ow

—————01[21:58] <@Spauwe> demagnifyer

[21:58] <BrianQ> reduce size, rather than increase size

—————01[21:58] <@Spauwe> yep gotya

[21:58] <doos> douwe egberts

—————01[21:58] <@Spauwe> ghehe

[21:58] <BrianQ> heh

—————01[21:58] <@Spauwe> I worked for them

[21:59] <\frank> coffee taster?

—————01[21:59] <@Spauwe> yep

[21:59] <doos> heh, worldwide brand from the sound of it

[21:59] <BrianQ> But then, a great deal of effort must go into ergonomics because really people like seeing things with their eye, not with the camera.

—————01[21:59] <@Spauwe> it's sara lee actually

[22:00] <\frank> yes another successful dutch capitalistic phenomenon

[22:00] <BrianQ> I'll be right back.. potty break.

[22:00] <doos> k

[22:00] <doos> pigs frank, all of us

—————01[22:00] <@Spauwe> except for the ones in the very south

[22:01] <doos> of course

[22:01] <@Keirkof> *big grin*

[22:01] <doos> flanders is going to be our next provence

[22:02] <doos> just a matter of days until civil war breaks out there

[22:02] <@Keirkof> i wouldn't count on it

[22:02] <@Keirkof> belgians dont do wars

—————01[22:02] <@Spauwe> I'm already trafficking AK47 to the wallons

[22:03] <@Keirkof> makes people miss supper and all, not worth it

[22:03] <doos> lol

[22:03] <@Keirkof> we're the hobbits of the real world ;)

—————01[22:03] <@Spauwe> is that government you had gone again then?

[22:03] <@Keirkof> i dunno, but who cares

[22:04] <doos> nobody knows what it is about right?

—————01[22:04] <@Spauwe> I think we got to the bottem to it there

[22:04] <@Keirkof> politicians who actually get it in their head they actually need to DO something only cause disasters

—————01[22:04] <@Spauwe> you belgians just don't give a rats ass

[22:04] <@Keirkof> personally i think that is the bottom line indeed ;)

[22:04] <\frank> Like keirkof say's...even if some folks know whats going on...who cares

[22:05] <\frank> good philosophy

[22:05] <doos> I think it has to do with if people should speak french and/or dutch at the voting booths

[22:05] <doos> something like that

[22:05] <@Keirkof> it's best to give them some kind of 'virtual environment' where they can act out their fantasies on each other

[22:05] <BrianQ> ok back... I see a lot of politics is going to have to be edited out ;)

—————01[22:06] <@Spauwe> but you notice nothing of not having a government

—————01[22:06] <@Spauwe> bart?

[22:06] <@Keirkof> it turns out our state organisation is just the perfect test tube for that ;)

[22:06] <@Keirkof> yuh?

[22:06] <@Keirkof> personal message timmeh...

[22:06] <BrianQ> back to the microscope....

01[22:06] <@Spauwe> sowwy

[22:07] <BrianQ> Now most people don't just use an objective lens like I do... most have the whole microscope kit.

[22:07] <BrianQ> So they can't exactly put a camera in the middle of the tube between the eyepiece and objective to capture that real image

[22:08] <BrianQ> Moreover, most cameras people use aren't like mine... a bare CCD.

[22:08] <BrianQ> Most people have cameras that work more like the eye, with a lens in front of the CCD

[22:08] <BrianQ> So... what to do to photograph an image?

[22:09] <doos> convert it to areal image again

[22:09] <doos> real-virtual-real

[22:09] <BrianQ> One uses an "eyepiece" for the camera... this "eyepiece" sets a virtual image at the right place for the camera lens to transform it into a real image for the CCD

[22:10] <BrianQ> Basically the eyepiece for the eye puts the image in the wrong place for viewing with a camera.

[22:11] <BrianQ> So there are two ways to make the camera adapter lens... one we can call a "through-lens" and the other we can call "something else, I forgot its name".

[22:12] <BrianQ> If you have a trinocular microscope, you can put a "through-lens" on the third tube (that has no lens to begin with) and mount the camera

[22:13] <BrianQ> Or you can mount a second lens on an eyepiece that corrects the image position from where your eye sees it to where the camera sees it... this is the other type lens

[22:13] <BrianQ> OOPS, Now I recall the names.....

[22:14] <BrianQ> The first lens I described is actually called a "replacement lens" not a "through lens"

[22:14] <BrianQ> The second lens I described is called the "through lens"

[22:14] <doos> question

[22:15] <BrianQ> Yes Doos

[22:15] <doos> so for the replacement lens .. you remove the eyepiece lens?

[22:15] <BrianQ> yes, exactly!

[22:15] <doos> thanks

[22:15] <BrianQ> remove the eyepiece, and the "replacement lens" creates the virtual image suitable for the camera.

—————01[22:16] <@Spauwe> (if you're lucky)

[22:16] <BrianQ> If you don't remove the eyepiece, you put a second lens upon it.. so the camera looks "through" the eyepiece and the "through lens" positions the image correctly for the camera

[22:17] <BrianQ> So that is the basics of how a microscope works, for the eye and for adding a camera.

[22:18] <doos> thanks

[22:18] <doos> interesting

[22:18] <doos> makes me even more confused on what to buy for a camera setup :)

—————01[22:18] <@Spauwe> I'm having trouble with all this

[22:18] <doos> as there is a price to pay for both I'm sure

—————01[22:19] <@Spauwe> I have a trinoc with replacement lens

—————01[22:19] <@Spauwe> on that I place a tube, a spacer so to speak

—————01[22:19] <@Spauwe> I can get the image of the eyepices to reach focus at the same spot as the camera buit the vignetting occurs

[22:20] <\frank> thanks

—————01[22:20] <@Spauwe> but then

—————01[22:20] <@Spauwe> I meant

[22:20] <BrianQ> mm, describe vignetting, what is meant by that

—————01[22:20] <@Spauwe> the only getting part of the image thingymagiggy

[22:20] <BrianQ> You see a smaller region than with the eyepiece?

—————01[22:20] <@Spauwe> yep

[22:20] <BrianQ> oh yes, this is pretty common, for sure.

—————01[22:21] <@Spauwe> but a pain in the ass

—————01[22:21] <@Spauwe> must be fixable, no?

[22:21] <doos> does that not occur with a trough lens?

[22:21] <doos> through*

[22:21] <BrianQ> Yes, to a degree it is fixable.

[22:21] <BrianQ> I think it does there too, Doos, but I've not worked with through lenses

[22:21] <BrianQ> so I can't say for sure.

—————01[22:22] <@Spauwe> so a certain de-mag lens should fix that...?

[22:22] <BrianQ> Probably not Spauwe, because you can't just throw any old lens in...

[22:22] <BrianQ> These are all made very specifically to remove certain aberrations.

—————01[22:23] <@Spauwe> No I understand, must have the exact right magnification

—————01[22:23] <@Spauwe> or de magnification in this case

[22:23] <BrianQ> But what you can do is move the replacement lens further back, or further forward, I can't remember which.

[22:23] <BrianQ> And doing that will increase the field of view.

—————01[22:24] <@Spauwe> further forward should be it then

[22:24] <BrianQ> But there is only a certain range you can move the lens and still get a nice image.

—————01[22:24] <@Spauwe> ok

[22:24] <doos> BrianQ, I recall Gene (or you) mention that you are better off getting a 2x auxiliary lens than using a 20x eyepiece lens (insted of a 10x)

[22:24] <BrianQ> So... to some degree it is fixable, but you may not be able to get the complete image that you see through the eyepiece

—————01[22:24] <@Spauwe> bugger

[22:24] <BrianQ> Yes, Gene mentioned that....

[22:25] <BrianQ> I think we will address why next time...

[22:25] <doos> yes please

[22:25] <@Keirkof> on a meiji scope with my digital reflex camera, apparently i will need to remove the camera lens to mount the camera, but there still needs to be a 3x lens in place - that would be a 'though lens' setup, or did i get that wrong?

[22:25] <BrianQ> That is, we can start looking at what makes images better or worse.

[22:26] <@Keirkof> real image directly on the camera ccd?

[22:26] <BrianQ> Keirkof, I think that is still a replacement lens....

—————01[22:26] <@Spauwe> it is

_____03[22:26] * GemGuest51 (n=fn-javac@84.4.69.240) has joined
#gemology

_____02[22:26] * GemGuest51 (n=fn-javac@84.4.69.240) Quit (Client Quit)

_____01[22:26] <@Spauwe> here was gene

[22:26] <@Keirkof> hmm

[22:26] <BrianQ> heh

[22:27] <doos> frank I think

_____03[22:27] * GemGuest07 (n=fn-javac@84.4.69.240) has joined
#gemology

_____01[22:27] <@Spauwe> Hi Gene

[22:27] <doos> wb frank

[22:27] <@Keirkof> or Frank :)

[22:27] <BrianQ> heh

[22:27] <GemGuest07> yes ir's me

[22:27] <GemGuest07> ;)

[22:27] <GemGuest07> Frank I mean

[22:27] <doos> heh

_____03[22:27] * GemGuest07 is now known as \Frankee

[22:27] <@Keirkof> i'm still reluctant to order the bits i need because i don't understand what'll be happening

_____01[22:27] <@Spauwe> ow

[22:28] <doos> you should remove your spectacles frank, otherwise we think it's Gene

[22:28] <BrianQ> To address Keirkof a bit more... I have a replacement lens that I can attach directly to my (lensless) CCD camera

[22:28] <\Frankee> I've already removed my shirt in case you think I'm Bart

[22:28] <doos> me too Keirkof

_____01[22:28] <@Spauwe> Gene is on a second line here trying to get in here

[22:28] <doos> heh

[22:29] <BrianQ> This does some things useful for me sometimes, but most the time not.

[22:29] <@Keirkof> i'm actually not wearing a tee but a proper shirt :)

[22:29] <\Frankeee> posh

[22:29] <doos> he had a gig

[22:29] <\Frankeee> ah

[22:29] <BrianQ> So I can see that for your Meiji, you could easily work with a replacement lens and no lens on the camera.

[22:29] <@Keirkof> naah, that's next week

[22:30] <@Keirkof> yes i think i'll write them and ask how certain they are as to if it will work

[22:30] <BrianQ> It should work fine.

[22:30] <@Keirkof> i can take a picture through an eyepiece with the lens on the camera, but not so through the third tube - any idea how come?

[22:30] <doos> maybe they'll let you testdrive first Keirkof

—————03[22:31] * Gene (n=fn-javac@adsl-69-148-181-29.dsl.stlsmo.swbell.net) has joined #gemology

[22:31] <BrianQ> yes, yes... I mentioned above why not....

[22:31] <doos> hi Gene

[22:31] <BrianQ> hi Gene

[22:31] <@Keirkof> ok, i'll check

[22:31] <@Keirkof> evening Gene :)

[22:31] <DragonStek> hi gene

—————01[22:31] <@Spauwe> you should be fine if you get that replacement lens, a nikon camera adapter and a T-mount that fits your D40

[22:31] <Gene> Hello Everybody!!!

—————01[22:31] <@Spauwe> Hello St Louis!

—————01[22:31] <@Spauwe> ghehe

—————01[22:32] <@Spauwe> made it in ey?

[22:32] <\Frankeee> Hi Gene

[22:32] <Gene> I have logged on many times to the old address at yey.be and found nobody home

[22:32] <BrianQ> Now I mentioned in the old days microscopes followed a DIN standard, and so everything was cozy...

[22:32] <doos> uhm .. but how do you "get" a replacement lens .. isn't that the absense of a lens?

[22:33] <BrianQ> um, you buy a replacement lens :)

[22:33] <Gene> The OLD DAYS??? In my reckining the DIN std era is the NEW days.

[22:33] <BrianQ> that at one end presumably mounts onto your trinoc and at the other end mounts onto your camera.

[22:34] <doos> but the "rep;acement lens" setup requires a raw screen .. no?

_____01[22:34] <@Spauwe> yes

_____01[22:34] <@Spauwe> but with dslr's that's just about the only way

[22:34] <BrianQ> No... The replacement lens is making a new virtual image for the camera (rather than the eyepiece making a virtual image for the eye)

_____01[22:34] <@Spauwe> ow

[22:35] <BrianQ> or... (and remember the example of the loupe)...

[22:35] <Gene> Isn't it a real image thrown onto the sensor?

[22:35] <\Frankeee> cant you just use the camera lens as the replacement lens?

[22:35] <BrianQ> it can make a real image for projection directly onto the screen of the camera (with no camera lens)

[22:35] <Gene> Direct Projection Method

[22:36] <doos> so there is no lens involved .. then how do you buy no lens?

[22:36] <\Frankeee> you go to the shop and say "can I have a no lens lease"

[22:36] <BrianQ> no.... no lens on the camera itself until you mount the camera on the "replacement lens"

[22:37] <Gene> No lens= the mechanical coupling between the scope and the camera

[22:37] <doos> ah

[22:38] <BrianQ> Most point-and-shoot have a lens in front of their CCD and that lens isn't going to be optimized for looking through a microscope.

[22:38] <BrianQ> A nice SLR, you can just remove that lens to expose the bare CCD.

_____01[22:39] <@Spauwe> and then the trouble starts... :)

_____01[22:39] <@Spauwe> ghehe

[22:39] <BrianQ> a cheap webcam... you can just get out your screwdriver and pry the lens off.

[22:39] <\Frankeee> I was given and still have a thing called an ASAMI PENTAX microscope adapter....It's just a coupling with no lens inside...camera screw on one end and a sliding tube at the other

[22:39] <Gene> Not to be difficil but point and shoots may be better than DSLRs for exactly that reasond

[22:39] <\Frankeee> pity I don't have a pentax

[22:40] <BrianQ> No Gene, we are just discussing the various options for mounting a camera.

[22:40] <Gene> Smaller chips. And the lens which can be locked at infinity focus and set to a focal lengt between vignetting

[22:40] <doos> would probably work with a canon orso aswell \frank

[22:40] <BrianQ> to take a picture. And then you know, things become a mess... whether to use the existing camera lens or not...

[22:41] <Gene> But it may be cheaper to by a good point and shoot than to couple a DSLR which always takes some doing

[22:41] <BrianQ> whether to use a replacement lens or a through lens that looks through the eyepiece.

[22:41] <Gene> Because before you can couple the DSLR you need to know and consider the chip size AND the pixel

[22:41] <Gene> siz

[22:41] <Gene> size

[22:41] <BrianQ> True enough, that is for sure!

—————01[22:42] <@Spauwe> which, I am experiencing is a pain in the but

[22:42] <Gene> And essentially there is no terribly good way to predict what will happen except to try it.

[22:43] <BrianQ> Yes, as Spauwe is saying, you can easily come up with an image that is bigger than your CCD chip

[22:43] <Gene> I have a camera with a fairly large chip and large pixels and it gives a pixelated image at the mags

[22:43] <doos> how do we find out the chipsize of a camera?

[22:43] <Gene> projected by my Wild scope with a proper coupler. But it needs less mag in the coupler

[22:43] <doos> and what to look for?

[22:44] <BrianQ> usually it is specified in the camera literature...

[22:44] <@Keirkof> the magnification factor of the replacement lens influences the size of the image, does it not?

[22:44] <BrianQ> 1/3 in chip, or 1/2 in chip

[22:44] <BrianQ> it does indeed Keirkof

—————01[22:44] <@Spauwe> yes exactly, is there Tmounts with demagnifiers in 'm?

[22:44] <Gene> I haven't seen one

—————02[22:44] * \frank (n=fn-javac@84.4.72.134) Quit (No route to host)

[22:45] <BrianQ> where the length is the "diagonal" length of the chip...

[22:45] <@Keirkof> so that explains the 2x, 3x and 5x instead of 10x... hmmm...

[22:46] <Gene> The zoom lens on a point and shoot acts as a variable relay lens that is optimized to cover the chip size

—————01[22:46] <@Spauwe> yeah I guess you're better off with an image thats slightly smaller then your chip then one thats larger

[22:46] <Gene> That wastes potential digital resolution

—————01[22:46] <@Spauwe> true but that way you do get the whole thing

[22:46] <BrianQ> I dunno Tim, because I can move my camera side to side and see that space...

[22:46] <@Keirkof> it's odd then they don't say which magnification you need for which camera

—————03[22:47] * GemGuest69 (n=fn-javac@84.4.71.231) has joined #gemology

—————03[22:47] * GemGuest69 is now known as \Frunk

[22:47] <doos> going well frank?

—————01[22:47] <@Spauwe> ghehe

[22:47] <\Frunk> yes I'll have to read the log since I've missed so much of this

—————03[22:47] * \Frankee was kicked by Keirkof (replaced by a properly dressed model ;))

—————01[22:48] <@Spauwe> ghehe

[22:48] <DragonStek> lol

[22:48] <\Frunk> lol....I've changed into a proper shirt

[22:48] <doos> posh

[22:48] <BrianQ> It is odd that no microscope manufacturer provides explicit instructions how to mount a certain camera.

[22:48] <@Keirkof> idd

[22:48] <@Keirkof> i'll mail them and see what they can tell about my setup

[22:48] <Gene> They all provide directions on how to mount THEIR camera systems.

[22:49] <@Keirkof> heh yes that they do :)

01[22:49] <@Spauwe> that figures

[22:49] <BrianQ> ok then... that's what I was wondering Gene

[22:49] <\Frunk> The microscope industry is huge....funny this problem hasn't been addressed

[22:49] <Gene> But say , a Nikon MICROSCOPE camera system is not a Nikon camera

[22:49] <Gene> Most of the majors have C mounts

[22:49] <\Frunk> what about the manufacturers who make scopes but not cameras?

[22:50] <Gene> But one always has to remember. FIRST optical coupling THEN mechanical

[22:50] <Gene> Like who???

[22:50] <doos> Leica .. well they make them cheap cameras

[22:50] <\Frunk> you mean they ALL makes cameras and scopes?

06[22:50] * doos ducks

[22:50] <Gene> Can't think of any can you

[22:50] <BrianQ> heh

[22:50] <BrianQ> cheap Leicas

[22:51] <Gene> Even China Inc sells microscope cameras

[22:51] <Gene> Eyepiece and C mount

[22:51] <Gene> If you go on Leica Microsystems site you will see the sell C mount micro cams

[22:52] <Gene> Some with high resolution and some with high sensitivity for fluorescence.

[22:52] <\Frunk> So Keirkof you should have bought a Meiji camera instead of a Nikon....and Tim you need to look for a Wild camera???

[22:52] <doos> there are wilde cameras on ebay once in a while

[22:52] <Gene> Wild is no more. Part of Leica Microsystems

[22:52] <BrianQ> well guys, sorry, but I have to go...

[22:52] <Gene> Only film cameras

[22:52] <doos> ok Brian, thanks again

[22:52] <\Frunk> Thanks Brian

[22:52] <DragonStek> night brian thanks

[22:53] <BrianQ> seeyas next week, hopefully!

02[22:53] * BrianQ (n=fn-javac@72.146.4.16) Quit ("Java user signed off")