



A Powerful Vision

Digital Imaging – Annotation and Measurement Data – Part 3

By Rob Kimura

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A picture is worth a thousand words, but in the world of photomicrography, sometimes including a word, symbol or measurement with a picture can help get the point across quickly and easily.

An annotation is a note or marker explaining or pointing out specific areas of interest. The type of annotations used depends on the message the user is trying to convey. Annotations highlight a specific region on an image to explain why the picture was taken, to present brief numerical data, or to communicate information such as magnification, date/time, file name, and other data relevant to the image (See **Figure 1**).

Most imaging software allows users to quickly and easily add annotations and measurements to an image. In most cases, the image is acquired by a camera and then post-annotated. Then, the annotation can be

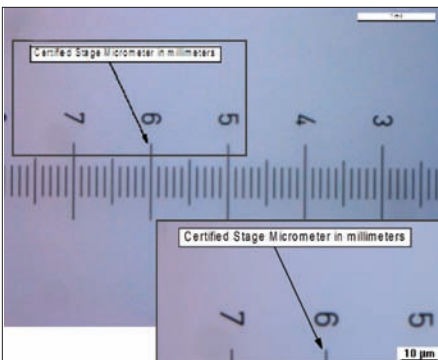


Figure 1

burned to the image and saved to the file. This is where care is needed.

To Burn or Not To Burn?

When adding annotations and measurements, the user has to decide if they want to burn the data into the image.

- Burning merges annotations into an image permanently.
- Burning can allow an image to be emailed, archived or published with annotations and measurements intact.
- Burning prevents image data or messages from being altered or deleted.

Retaining the integrity of an original image is important for later review of the image data. Proceed with caution when burning an annotation or measurement data.

- Burning will permanently alter raw data.
- Burning can increase file sizes, making emailing more difficult.
- Burning is final; corrections or changes are not possible.

It is crucial that the user be aware of the implications of saving burned information on an original captured file. Most software offers saving options (See **Figure 2**).

- Create a new image; your original image remains intact.
- Overwrite an original image with measurements and annotation.
- Discard or cancel the burn process

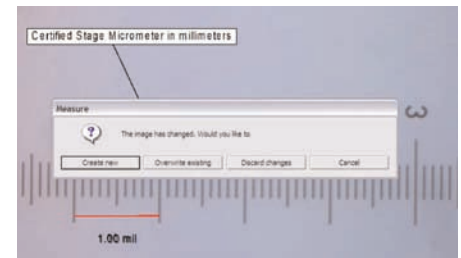


Figure 2

The ideal choice is “Create New”, which preserves the original image and creates a new image file that includes the burned annotation and measurement data.

Take care to preserve the integrity of your image when using annotations.

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How Clean is Clean Enough?

A Primer on Keeping your Microscope Clean – Part 2

Inspect and Clean

by Wayne Buttermore

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In the last issue, we learned where to look for dust, oil, and other contaminants in a microscope system. Now, we will prepare to clean the contaminated surface.

First, carefully inspect the surface to be cleaned. This is not always easy; sometimes a lens surface reveals contamination only when viewed at an angle where light strikes it just right.

Inspection tips:

- Top lens of an eyepiece needs to be cleaned: This tends to be a large flat surface, and inspection can be done without the aid of magnification.
- Front lens of an objective: This is one of the most difficult surfaces to inspect; it is often very small and is not flat. You may need the help of an optical loupe, or you can use a microscope eyepiece to inspect (*please see photo below*).



While holding the objective at an angle to the eyepiece, position the front lens at the eyepoint of the eyepiece. Slightly change the angle of the front lens presentation to the eyepiece as you are viewing in order to see changes in the lens surface.

Once you have identified and inspected the contamination, you are ready to clean it.

Gather the following supplies:

1. Ear syringe or lens brush bulb (rubber bellows)
2. Camel hair brush or camera lens brush
3. Lint-free cotton-tip applicator sticks (usually with wooden sticks)
4. Lens tissue or chamois
5. Non-ammonia based glass cleaner, ethyl alcohol or naphtha (lighter fluid)
6. Rubber surgical gloves (non-powdered)

Take extreme care when handling the optics. A minimalist approach should be used; use the least invasive method first, and then, only if necessary, progressively work up to a more aggressive method of cleaning. An objective lens should never be disassembled. Keep in mind that the risk of scratching or etching the lens surface is increased with more aggressive techniques.

Blowing lightly compressed air from an ear syringe or using a camera lens brush usually removes surface dust that accumulates from exposure. Hold the syringe at a slight angle and squeeze repeatedly until the surface is clean. If dust remains, lightly loosen surface dust with the brush and blow again with the syringe. This works effectively on surfaces such as the light exit point on the bottom of the microscope or the top of the condenser lens. (*Note: compressed air in an aerosol can is not recommended. The propellants can etch the surface of glass.*)

If this process does not remove the contamination, a more aggressive technique can be used. Take care whenever you make physical contact with a lens surface and avoid dry wiping the lens surface. The cleaning fluid selected depends on the type of contamination that is present. Lens tissue or a chamois can be used on large lens surfaces such as the top of an eyepiece or the light exit pupil of the microscope. It is best to use the tip of a lint-free cotton tipped applicator stick for the front element of an objective lens.

Cleaning with a contact method:

1. Wear gloves to prevent fingerprints or skin oil from touching the lens surface.
2. Moisten a lens tissue, chamois, or cotton tipped applicator with the solvent of choice.
3. Lightly rub the surface from the center outward to the edge in a circular motion to remove contaminants, and dry the surface without residue.
4. Repeat until the lens surface is clean.
5. Inspect the cleaned area with a loupe or magnifying glass.

Immersion oil that clings to an objective's front lens can be difficult to clean. A light swabbing with a cotton-tipped applicator moistened with lighter fluid works well to clean off immersion oil, as it evaporates quickly and does not leave a film behind. If residual fluid is left on the objective front, a dry swab may be used to remove the excess.

Next issue: When do I need to obtain professional microscope service to inspect my microscope?

Tips and Tricks

Easy Mount for the IBIS Bullet Holder

Bullets can now be moved directly from the IBIS system to the comparison microscope without dismantling the mount assembly. The universal specimen mount for the Leica DMC and FS C comparison microscopes accepts a push-in cartridge case mount for 10mm/40Cal that is the perfect diameter for supporting the three-lobbed bullet mount from the IBIS system. The bullet can easily be oriented horizontally or vertically. If you are using the Leica UFM 4 with brush mounting system, the medium sized brush will also support the IBIS bullet mount.



10mm/40 cal cartridge case push-in mount (cat. #11581085) positioned in universal specimen mount.



IBIS bullet mount, positioned on the push-in cartridge case mount (cat. #11581085)

Industry News

AAFS, Florida Gulf Coast University (FGCU), and Court TV® will present the 9th Forensic Science Educational Conference on the FGCU campus on May 5-7, 2006. The three-day conference provides instruction to middle and high school science educators on the scientific method in crime investigation.

More information: www.aafs.org

AAFS President-Elect James G. Young, MD, and Eileen Young will lead a delegation of AAFS members on a ten-day tour of northern Europe, June 9-18, 2006. The tour will coincide with the 4th European Academy of Forensic Science Meeting in Helsinki, June 13-16, 2006.

More information: www.aafs.org

The 4th European Academy of Forensic Science Conference will be held at Finlandia Hall in Helsinki, Finland on June 13-16, 2006. The EAFS 2006 program will serve two groups. Presentations on recent developments in forensic science will assist senior scientists and managers. Workshops will target scientists at an earlier stage in their career and staff who are new to the field.

More information: www.enfsi.org

AAFS, Indiana University-Purdue, and Court TV® will present the 10th Forensic Science Educational Conference on the university's Indianapolis campus on June 22-24, 2006. The three-day conference provides instruction to secondary school science educators on the scientific method in crime investigation.

More information: www.aafs.org

The 37th Annual AFTE Training Seminar will take place at the Springfield Convention Center, Springfield, MA, June 26-30, 2006. The host committee invites you to participate in this seminar and encourages early registration. More information: www.afte.org

The ASQDE (American Society of Questioned Document Examiners) Conference, "Complex Examinations: Meeting the Challenges," will be held August 19-24, 2006 at the Portland, Oregon DoubleTree Hotel. Workshops on Signatures (A. Frank Hicks and Howard C. Rile, Jr.), and Difficult Handwriting Problems (Lloyd Cunningham) are under development. Workshops on Motor Control and Complexity Theory (Dr. Bryan Found), and Photocopiers (Dr. Reiner Eschbach, Xerox) are currently planned. Abstracts are due May 1, 2006 (papers due July 1, 2006). More information: www.asqde.org

Glossary

Burning: Burning is the function of taking measurements and/or annotations and merging them into an image permanently.

Annotation: An annotation can be an explanatory note or marker pointing out specific areas of interest or explanation. This can be rendered as arrows, text, measurements, circles or boxes to highlight specific items within an image.

Objective Front Element: Glass lens surface that is closest to the specimen.

Optical Loupe: Light microscope consisting of a single convex lens that is used to produce an enlarged image; also, a small magnifying glass (usually set in an eyepiece) used by jewelers; Also called a Jeweler's Loupe.



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Note: We are interested in your comments and thoughts about the newsletter. Please feel free to email your comments to molly.lundberg@leica-microsystems.com.