



The Osage Orange as a Possible Counterstain

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ABSTRACT

The Osage Orange, which is a large, yellow-green lumpy fruit that resembles an orange, and the tree, which grows from five to fifty feet tall, are two very useful resources. They grow throughout the southern states and in some surrounding states. One of the most useful items of the tree is the dye that can be extracted from the heartwood.

The roots of the tree were used by the Osage Indians—hence the name Osage Orange—to make dyes for dyeing their clothes. If the dye would stain cloth, why not tissue?

The heartwood was extracted from the tree and made into a dye that had a golden-yellow color. After many long hours of experimenting with the dye and different ways to use it, a fairly suitable dye was made. The dye did stain tissue, some tissues better than others, and upon standing for a period of time, the dye in the bottle would turn golden-brown. Perhaps with age the dye would stain the tissue better.

Provided more research and experimentation be done, a most useful dye for staining tissue could be perfected.

INTRODUCTION

The Osage Orange fruit and tree are two of the most valuable North American fruits and trees. Its botanical name is *Maclura pomifera* and it is locally known by several common names such as: Bois d'arc, hedge apple, horse apple, boxwood, bodeock, mock orange, bowwood and wild orange. It is also a member of the mulberry family. The Osage Orange was originally con-

finied to the rich bottomlands of the Arkansas and Red River Valleys in the region inhabited by the Osage Indians. The name refers to its original home and to its fruit, which resembles an orange.

The Osage Indians used the young trunks of this tree to make bows because of its unusual toughness. They also used the sticky resins of the fruit as an adhesive for warpaint, hence the name Bois d'arc and Osage Orange. Although it is a native of Arkansas it is now found in almost every state and especially in the southern, mid-western, and eastern states.

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The tree grows rapidly and under a wide range of soil and climatic conditions and will reproduce from both seeds and sprouts. It bears long, tapering leaves of shiny green that are arranged alternately on the twigs. The leaves have smooth margins that are three to six inches wide, generally egg-shaped but terminating in a slender point. The slender leaf stem is one and one half to two inches long. When either the stem or leaf is broken, a thick juice runs out. The stout, tough branches are centered with a thick, orange-colored pith, and the pale bark is marked with pale orange tentacles. Greenish clusters of tiny flowers develop on separate trees in June. By late summer the blooms are noticeable as yellowish-green balls and mature in the autumn.

The orange-brown, shreddy, outer bark is barely an inch thick. It is irregularly divided by deep furrows. The orange inner bark and the lemon-colored sapwood were used by the Indians to dye their blankets. The heartwood as well as the sapwood is a bright yellow, but both turn brown when exposed. It weighs about forty-eight pounds to the cubic foot when air dried and is stronger than the white oak, but not as stiff and as hard. The tree also has a milky, bitter sap and thick, fleshy roots. Its most valuable part is the exceedingly hard, very durable wood, similar to that of the black locust.

The fruit has a rather unique physical appearance. At maturity the fruit has a yellow-green color and averages three and five-tenths inches in diameter and one to three pounds in weight. The fruit also consists of a dense, pea-shaped core at the center, from which radiates long, irregularly sized cells that terminate in an enlarged or club form, making an irregular surface. The cells are made up of two parts: the milk sacs and the seed sacs, and contain a rather large amount of oval-shaped seeds.

The kernels are about three-eighths of an inch long and one-eighth of an inch thick. It is well known because of its white sticky sap, which runs very freely when the fruit is bruised or cut. The seed kernels, which represent twenty percent of the dry weight of the fruit, are very tasty, especially after roasting and salting. The yield of fruit per tree may vary from nothing to as much as one thousand pounds.

The female tree of the species starts bearing fruit at four to six years. Thereafter the yield increases to a maximum and gradually decreases. Although the fruit is

unpalatable to humans, there have been no known cases of poisoning from feeding Osage Orange fruit to cattle. Because of its thorny twigs the trees may be used for ornaments, shade, and for hedges.

MATERIALS AND METHODS

All types of tissue specimens were taken and placed in several different fixatives, such as Bouin's, Zenker's, formalin ammonium bromide, and 10% neutral buffered formalin. The tissues consisted of kidney, brain, spinal cord, liver, skin, colon, uterus, lung, pancreas, and appendix. The tissues were placed into cassettes and processed overnight in an enclosed tissue processor with no heat and no vacuum. The processing reagents consisted of 80%, 95%, two changes of 100% alcohol, two changes of clearing reagent, and three changes of paraffin. The paraffins were regulated at 58°C. The processing schedule was (after proper fixation) one hour per station.

MICROTOMY AND STAINING

The tissues were properly embedded and sectioned on a rotary microtome at 5 μ m. The slides were dried in a slide dryer at 60°C for fifteen minutes. Then a representative section was stained with the hematoxylin and eosin stain.

PREPARING THE OSAGE ORANGE STAIN

The method for extracting the heartwood from the Osage Orange wood was crude but effective. A hammer, wood chisel, gloves, and several branches of Osage Orange wood were used. The branches were split open to expose the bright yellow heartwood. Using the wood chisel, the heartwood was carefully removed. Small pieces were chopped and placed in a mortar and pestle to crush them. Because the mortar and pestle method is slow and time consuming, another method was instituted.

The heartwood was ground in a Wiley mill at both a 40 and 60 mil sieve. By using the Wiley mill and different sieves, a fine powder was produced for better solubility purposes. Then the following formula was used to make up the Osage Orange stain:

Osage Orange stain	1.0 gm
Distilled water	100.0 ml
Glacial acetic acid	0.25 ml

A magnetic stirrer was used to mix the stain well. Then it was filtered.

OSAGE ORANGE STAINING PROCEDURE

1. Xylene 2 minutes
2. Xylene 2 minutes
3. 100% alcohol 2 minutes
4. 100% alcohol 2 minutes
5. 95% alcohol 2 minutes
6. Tap water rinse well
7. Distilled water rinse well
8. Osage Orange stain 2 minutes
9. Tap water rinse well
10. 95% alcohol quickly
11. 100% alcohol quickly
12. 100% alcohol quickly
13. Xylene 2 minutes
14. Xylene 2 minutes
15. Mount coverglass with resinous media

Results: All tissue elements—yellow and shades of yellow
(See Fig. 1)

HEMATOXYLIN AND OSAGE ORANGE

In order to provide some contrast and differentiation, the Osage Orange stain was tried with Harris' hematoxylin.

1. Xylene 2 minutes
2. Xylene 2 minutes
3. 100% alcohol 2 minutes
4. 100% alcohol 2 minutes
5. 95% alcohol 2 minutes
6. Tap water rinse well
7. Distilled water rinse well
8. Harris' hematoxylin 5 minutes
9. Tap water running wash well
10. 1% acid alcohol 1 dip
11. Tap water rinse well
12. Saturate lithium carbonate until section
turns blue
13. Tap water rinse well
14. Osage Orange stain 3 minutes
15. 95% alcohol several dips
16. 100% alcohol several dips
17. 100% alcohol several dips
18. Xylene 2 minutes
19. Xylene 2 minutes
20. Mount coverglass with resinous media

Results: Nuclei—blue
Cytoplasm and other tissue elements—yellow
(See Figs. 2 and 3)

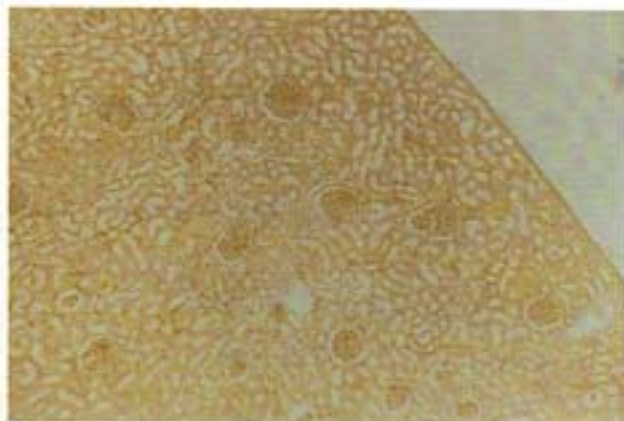


Figure 1: A section of kidney fixed in 10% neutral buffered formalin and stained with the Osage Orange stain. X40.

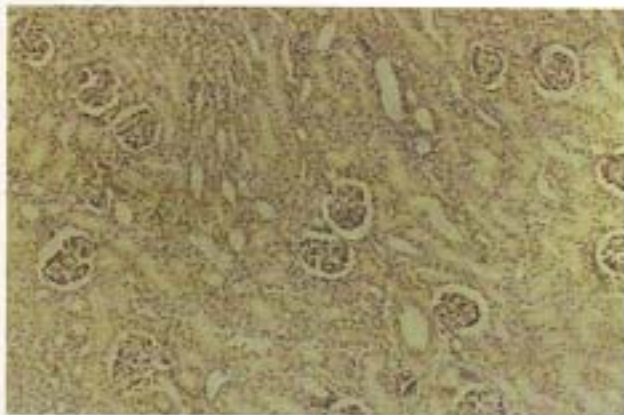


Figure 2: A section of kidney fixed in 10% neutral buffered formalin and stained with Harris' hematoxylin and Osage Orange counterstain. X100.

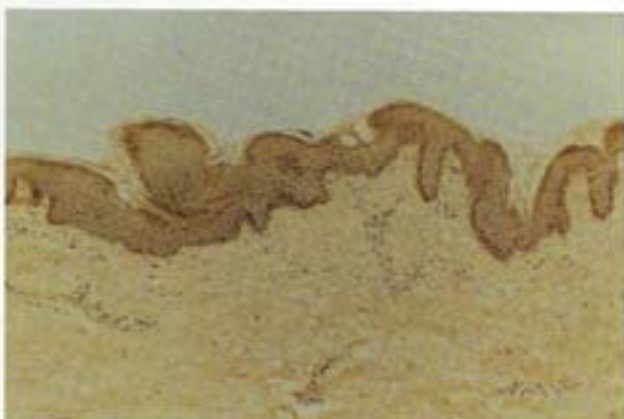


Figure 3: A section of skin fixed in Bouin's, stained with Harris' hematoxylin and Osage Orange counterstain. X100.

The Osage Orange stain was tried as a counterstain for other stains such as methenamine silver and Mayer's mucicarmine. The Osage Orange provided a light counterstain for the methenamine silver but provided a good counterstain for the mucicarmine (Fig. 4). The following stain technique was incorporated for the substitution of the Osage Orange stain for metanil yellow in the Mayer's mucicarmine.

MAYER'S MUCICARMINE AND OSAGE ORANGE

1. Xylene 2 minutes
2. Xylene 2 minutes
3. 100% alcohol 2 minutes
4. 100% alcohol 2 minutes
5. 95% alcohol 2 minutes
6. Tap water rinse well
7. Weigert's hematoxylin 10 minutes
8. Running water 10 minutes
9. Working mucicarmine stain 1 minute
(This step was carried out in a microwave oven.)
Use a disposable pipet to agitate stain solution.
10. Allow mucicarmine stain to cool 1 minute
11. Distilled water 2-3 changes
12. Osage Orange stain 1 minute
13. Distilled water rinse well
14. 95% alcohol quickly
15. 100% alcohol quickly
16. 100% alcohol 1 minute
17. Xylene 2 minutes
18. Xylene 2 minutes
19. Mount coverglass with resinous media

Results: Nuclei—black
Mucin—deep rose
Other stain elements—yellow

RESULTS

The Osage Orange stain that was used initially as a general stain did stain the tissue. It was not selective for any specific entities or structures. It also proved to be a counterstain when used alone with hematoxylin, although somewhat pale. When used as a counterstain for several special stains such as the Mayer's mucicarmine, the results were very good. No real effect was noticed by using different fixatives to preserve the tissue specimens. No appreciable fading of the stain was noticed.

DISCUSSION

Counterstains or secondary stains can be very helpful in the contrast of special stains. It can enhance the particular entity or structure that is being stained. There are many stains available for almost any general or selective stain technique to be performed. But that does not mean that other stains are not available. There is a vast world of stains waiting to be adapted to our staining techniques. There are also many natural resources available to be put to use in the field of Histotechnology.

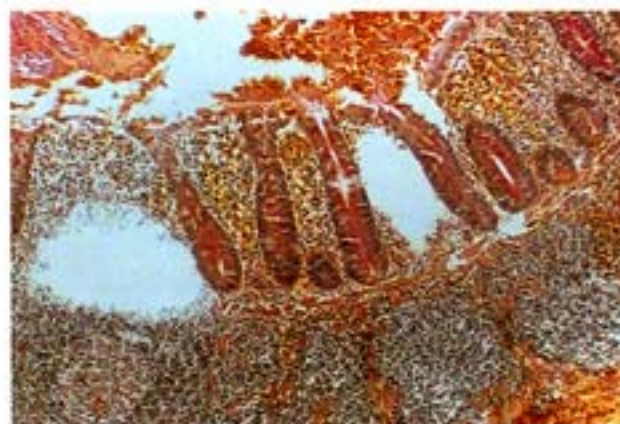


Figure 4: A section of appendix fixed in 10% neutral buffered formalin and stained with Mayer's mucicarmine and Osage Orange counterstain. X100.

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1. Wolfrom ML, Komitsky F, Jr., Locker JH: Osage Orange Pigments. *Journal of Organic Chemistry* 1965;30:144.
2. Schall ED, Quackenbush FW: The Anticoidants of the Osage Orange. *The Journal of the American Oil Chemists Society*. XXXIII, No. 2, pp 80-82, 1956.
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4. Betts HS: *Osage Orange*. American Woods Forest Service, U.S. Department of Agriculture, Rev., pp 1-4, 1953.
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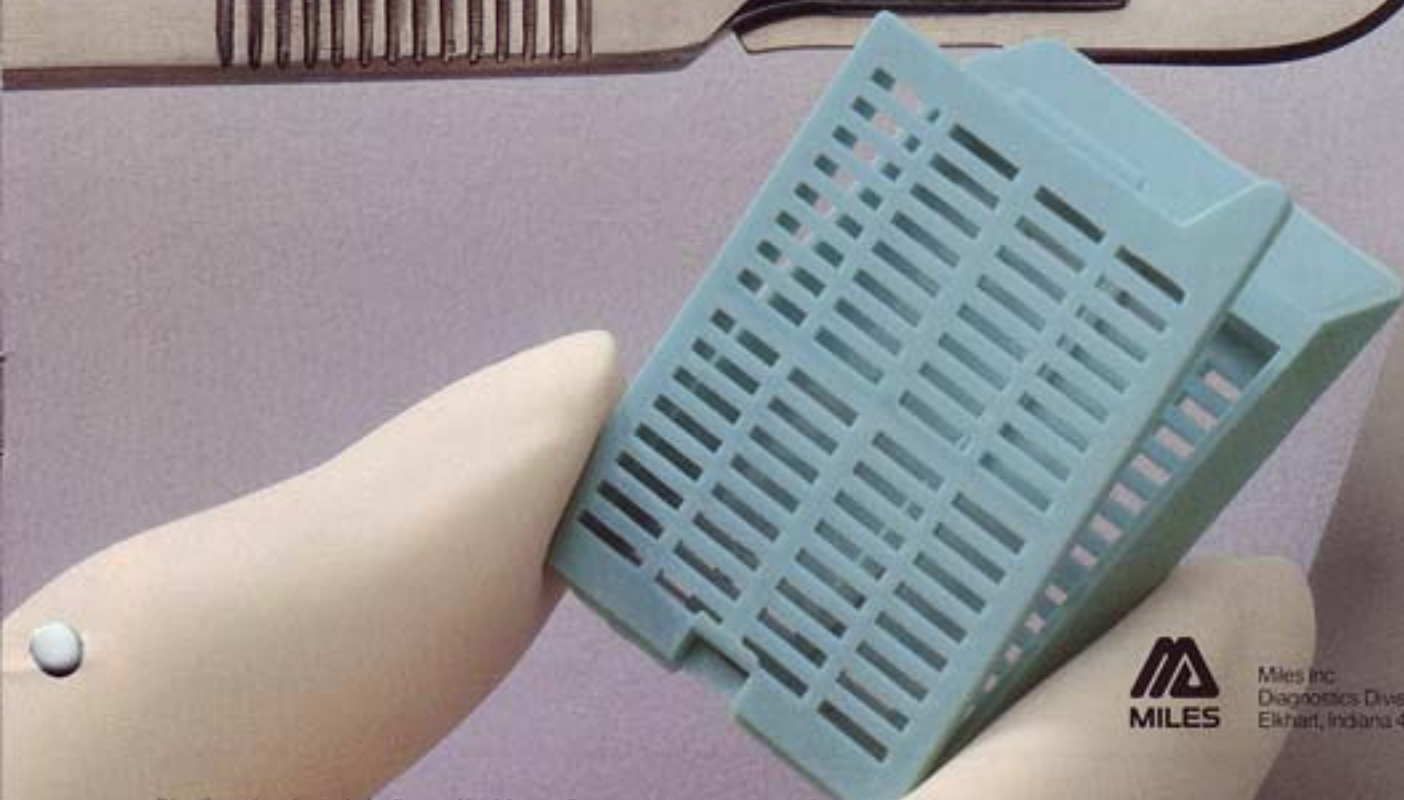
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A Method for Producing Gram-Negative and Gram-Positive Controls

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The following procedure for producing gram-positive and gram-negative controls has been used successfully by the authors for many years. It provides tissue specimens that have been exposed to the animals' immune system and, therefore, the staining reaction should resemble bacteria from a pathologic condition.

PROCEDURE

Staphylococcus aureus and *Pseudomonas aeruginosa* were streaked on separate plates of 5% sheep's blood agar and incubated at 35°C for 24 hours. A small amount of each culture was retrieved with a cotton swab and suspended in 4 ml normal saline solution. A plate count was performed on each bacterial suspension. One ml of each suspension was injected subcutaneously in the right flank of 3 mature Sprague Dawley rats. The rats were serially sacrificed at 24, 48, and 72 hours with an anesthetic overdose, and from each rat, a 2 cm round piece of skin at the injection sites was excised along with underlying muscle. The tissue was fixed in 10% neutral buffered formalin, processed for routine histologic examination, and embedded in paraffin so that each block contained gram-positive and gram-negative bacteria. Following microtomy, the slides were stained using the Brown-Hopps method for gram-positive and gram-negative bacteria.¹

RESULTS

The plate counts indicated a bacterial population of approximately 3.8×10^8 per ml in each culture. Following injection of each bacterial suspension, all rats developed subcutaneous induration at the site after 24 hours,

which progressively enlarged to 3-4 cm diameter by 72 hours. The animals were reluctant to use the right hindleg after one day and became increasingly less mobile with time, especially those receiving the *Pseudomonas* suspension.

The tissue harvested at 72 hours appeared the most suitable for the intended purposes. Microscopically, the tissues from both bacterial treatment groups exhibited edema and variable amounts of necrotic debris. Inflammatory infiltrates composed of neutrophils and lesser numbers of macrophages were present in the sample treated with staphylococci; the organisms being mostly intracellular. The *Pseudomonas* organisms were not within phagocytes; in fact, an inflammatory cellular infiltrate was conspicuously absent in spite of an abundance of bacteria. The gram-positive organisms stained intensely dark blue-black (Fig. 1). The gram-negative bacteria were distinctly red-purple and contrasted well with the gram-positive group (Fig. 2).

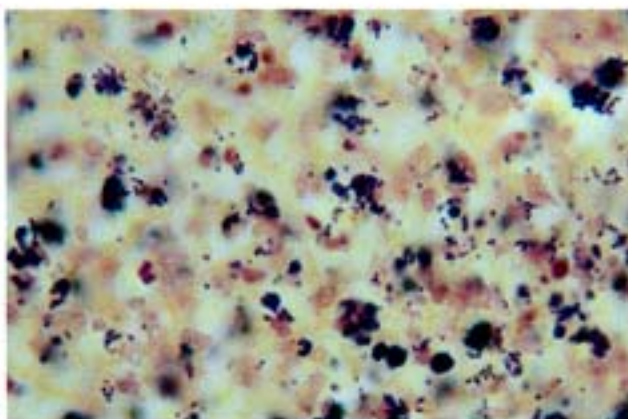


Figure 1: This is a section of skin that contains gram-positive cocci. The cocci are stained blue-black and can be seen throughout the photograph. Brown-Hopps X1000.

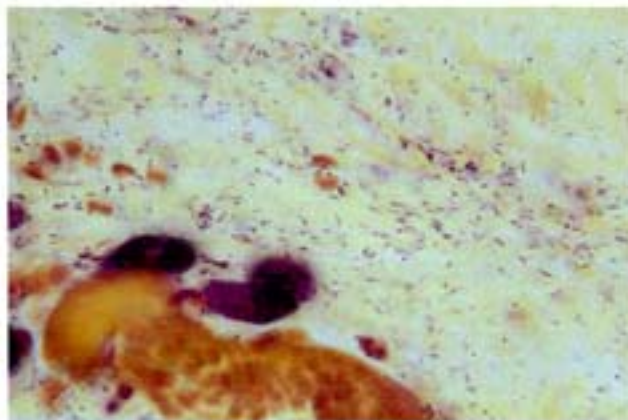


Figure 2: Section of skin that contains gram-negative bacilli. Note the extent of gram-negative bacilli seen in the upper third of the photograph. The staining reaction is reddish-purple. Brown-Hopps X1000.

Note:

It is possible to mix and inject a suspension from both *Staphylococcus aureus* and *Pseudomonas aeruginosa* and thereby produce a specimen with both gram-positive and gram-negative bacteria.

Reference

1. Brown RC and Hopps HC: A staining procedure for Gram negative and Gram positive bacteria. *Amer J of Clin Path.* 1973; 60:No. 2, 234-240.

Shelf Life of Solutions, Dyes, and Chemicals, a Possible Solution

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Histology laboratories are frequently faced with the dilemma of shelf life, for staining solutions, dyes, and chemicals. To my knowledge, no satisfactory system exists for determining the shelf life of these items, yet each laboratory is expected to have a verification program, indicating the shelf life of solutions, dyes, and chemicals (expiration date). These requirements are expected from various agencies or professional societies; i.e., CAP laboratory inspections, quality assurance programs related to animal toxicity studies, FDA and EPA requirements related to drug or chemical studies. A search of the literature indicates that there are no written programs or information dealing with the shelf life of solutions, dyes, and chemicals. The one exception is a stability study of certified biological stains, performed by Drs. Victor M. Emmel and Elmer H. Stotz for the Biological Stain Commission in 1974.¹ That report concluded with the following statement: "These results affirm and support the widely held view that under ordinary conditions of laboratory storage, biological stains in dry powder form have a useful shelf-life of many years." Laboratories are familiar with expiration dates provided by the manufacturer date, but this information does not indicate the actual shelf life of dyes, solutions, and chemicals. Because of these problems I would like to propose a method for quality controlling dyes, solutions, and chemicals and therefore provide an excellent system for determining the shelf life of these diversified items in the laboratory.

STEPS FOR QUALITY CONTROLLING STAINING SOLUTIONS, DYES, AND CHEMICALS

Upon receipt of dyes, chemicals, or solutions in the laboratory, document the following:

Date of receipt:

Date opened:

The following information is applied to a staining solution or chemical solution made in the laboratory:

Date made:

Date first used:

Once the above system is initiated, one establishes a starting point to quality control these items.

The second part of this program is dating the staining solution every time the solution is used and provides good staining results. The same applies to the chemicals, dyes, or compounded chemicals used in the laboratory. These items are dated every time they are used and provide satisfactory results. This process should continue until one notices that the staining solution no longer works or the chemical solution prepared with certain chemicals was not good. Continue to date a solution each time it is used, as long as it works well. When a combination of chemicals is used to make up a dye and the staining results are not satisfactory, all chemicals and dyes used are discarded. The same applies to making up a solution; i.e., discard the chemical if the solution made up with it does not work. This same process is performed on the dyes, chemical solutions, staining solutions, and chemicals. The ideal method of dating is for one to apply an extra small label to the container when the item is received or prepared in the laboratory. Labels can be 1 × 3-inch self adhesive, or those used as slide foot labels.

Reference

1. Biological Stain Commission Laboratories; University of Rochester Medical Center, Rochester, NY 14642, 1974.

NSH Convention Committee: The Never-Ending Task

Brent Riley
Managing Editor

Those who attend the NSH Symposium/Convention may see it as an annual, six-day event. But those who help plan and coordinate the convention know it better as an ongoing and never-ending task. If you've never been involved in putting together a national meeting, you would probably be surprised at the amount of time and effort it requires—at both the national and local levels.

But it's a very rewarding task, according to Phyllis Boris, chairman of the NSH convention committee. She, along with vice chairman Kerry Crabb, spend many hours every week working on the national meeting. In fact, on just about any given day, they're working on the next five annual symposium/conventions.

The national committee is responsible for putting on the symposium/convention, from site inspection and selection to planning and executing the final event. But without the help of local NSH members at each convention location, the tasks that confront the national committee would be impossible to perform.

Nationally, the committee is made up of two people, a chairman and a vice chairman. But the size of the committee increases significantly at each host city. A local committee is formed at each upcoming convention site to help plan and execute that particular convention. The local committee members coordinate a tremendous number of details involved with the event.

The national committee stays about five years ahead of each convention. That is, a site is selected for a particular year's convention about five years in advance. (The committee is already working on the 1994 convention.) Because of this advanced planning, there is always more than one local committee working at any given time. For example, a local committee in San Antonio is already

working on the 1990 convention while the Las Vegas committee works on the 1989 convention.

Once a site is selected, the national committee looks for a volunteer from the local area to "get the ball rolling." That person is often a local or state society president or a region director. That volunteer may decide to become the local coordinator or may recommend another local histotechnologist.

About 18 months prior to a convention, intense planning and implementation begin at both the national and local levels. The two committees meet to discuss specific plans and responsibilities. They, along with the NSH office, are then in constant communication right up to the week of the convention.

The local committee appoints a coordinator for every aspect of the convention—registration, workshops, scientific sessions, banquet, printing, etc. These people, who may have a number of people assisting them, do all the necessary tasks for their area of responsibility, including making recommendations and submitting plans to the NSH.

With two people working from the national level and many people working at the local level, there seems to be a good balance of the qualities necessary to take on such a challenge. "We all complement each other very well," Boris explained. "And we all enjoy challenges."

Challenge is a way of life when it comes to coordinating such a large event. Problems can crop up from every direction. "The committees look at problems with the idea that nothing is unsolvable," Boris said. "We always manage to work things out."

Boris also credits the NSH office for helping to administer the convention. All of the communication between the national committee, the local committees and the NSH officers goes through the home office. The NSH office also helps coordinate mailings, pre-registration, CEU credits, and many other aspects of the convention.

Boris is in her second term as chairman of the convention committee. But even before accepting her current position, she was no stranger to convention planning. Prior to becoming chairman, she served as vice chairman of the committee. Both she and Crabb have also served

as local coordinators—Boris for the Disneyland convention in 1983 and Crabb for the 1984 Kansas City convention. This experience at the local level has given both an appreciation for the efforts and accomplishments of local committees.

Overall, the committee is very pleased with the cooperation it gets from all those involved in the symposium/convention. The committee would, however, like to get more input from those who attend the meetings, as well as those who do not attend. "The more feedback we get, the better we can tune the convention/symposium to the needs of the registrants," Boris said.

Questions in Search of an Answer

1. I recently had an interesting problem that I thought might be appropriate for the "Questions in Search of an Answer" section of *Histo-Logic*:

Rat epididymis was fixed overnight in calcium formalin maintained at 4°C and the pH was 7.0-7.2. The next morning, the tissue was rinsed in deionized water and 10 µm frozen sections were cut using a Sartorius-Werke sliding microtome. Sections were placed into deionized water and mounted on subbed slides. After drying for 1 hour, sections were stained using a modified Gomori acid phosphatase procedure with a nuclear fast red counterstain. Sections were dehydrated through graded ethanols, cleared in Histo-clear, and mounted with Histomount. It was found that a 10- to 15-minute substrate incubation, a rinse in distilled water, a 1-minute rinse in 2% acetic acid, a 1-minute rinse in distilled water, and a 5-minute counterstain resulted in beautiful lead sulfide deposition at enzyme activity sites.

The problem occurred when slides were placed in a 60°C oven to dry. At this point, all lead sulfide reaction product disappeared or was greatly reduced.

The steps for solving the problem included the following:

1. Using air-drying alone. This greatly reduced lead sulfide loss, although some staining reduction occurred.

2. Using xylene as a clearing agent and Permount as a mountant. This resulted in slides of good staining quality with no apparent sulfide loss.
3. Eliminate the acetic acid wash prior to ammonium sulfide reduction to prevent any possible acid carry-over (washing steps were adequate). This resulted in good staining quality; however, some nonspecific background lead staining was evident.

I recommend using xylene and Permount for clearing and mounting respectively and air-drying without the use of heat.

Has anyone seen this or any similar enzyme activity site loss following the use of Histo-clear as a clearing agent and Histomount as a mountant with or without the use of heat during slide drying?

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2. For the past three months, I have not been getting the orange stain on the fat cells of amniocentesis fluid, stained with Nile blue sulfate. Does anyone know or have any information on this procedure? Would appreciate your help.

The following fat cell stain from amniocentesis fluid is the method used:

- 1 drop amniocentesis fluid.
- 1 drop Nile blue sulfate.
- Coverslip specimen.
- Gently pass slide 6 times 3 inches above flame.

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3. The peculiar heavy hematoxylin staining seen in Figures 1 and 2 has been a troublesome problem for some time in our laboratory. The slides were stained in an automatic slide stainer. The hematoxylin used was purchased from a commercial source.

As can be seen in Figures 1 and 2, the overstaining reaction is nonspecific in the sense that no specific structure or cell group is stained more prominently

(continued on page 94)

than another. This leads one to believe that this overstaining is due to artifactual deposition of hematoxylin on the peripheral margins of the tissue specimen.

I would be most interested in knowing if anyone has information about the cause of this problem and a solution.

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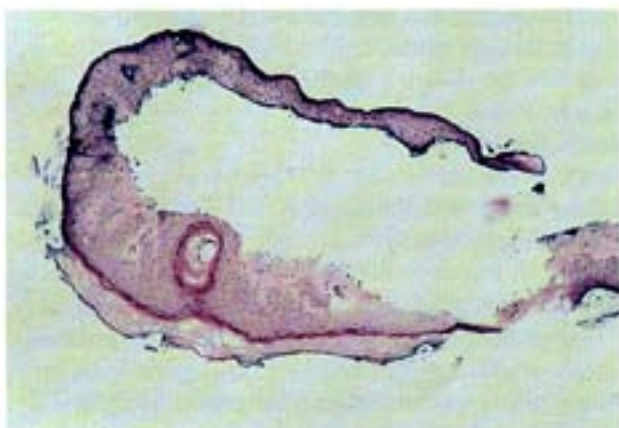


Figure 1: Skin section demonstrating the excessive hematoxylin staining in the upper portion of the section. Also note that fragment of specimen on the right contained similar overstaining of the peripheral margins. H&E, X400.

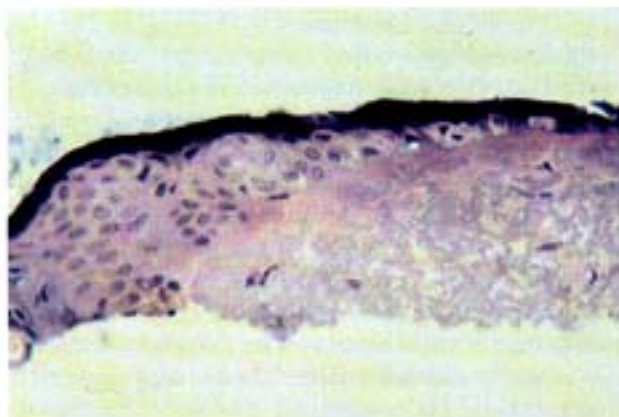


Figure 2: This section of skin clearly demonstrates the excessive hematoxylin staining of the stratum corneum and lacunae. Note lack of staining on the cut surface (bottom) of the blocks. H&E, X400.

Management Corner: How to Interview a Job Applicant

Editor's Note:

From time to time, *Histo-Logic* will publish articles that provide management tips to those in supervisory positions and to those who have chosen management as a career goal. If you supervise a lab and have questions or suggestions about the best way to perform responsibilities, please let us know.

As a lab supervisor or department manager, it is inevitable you will eventually have to hire new people to fill vacant positions. With the current shortage of laboratory and health care professionals, it is unlikely you will have a large number of applicants for any position. But you want to be sure you make the best possible choice of those who do apply.

One of the most important skills in hiring people is interviewing. No matter how well you can communicate or establish a rapport with people, you should be aware of some basic interview guidelines and techniques that will help you make the best choice.

Decide ahead of time exactly what kind of person you are looking for. Training and experience should be clearly listed on a resume. But you will also be looking for particular personality traits, philosophies, attitudes, etc.

For example, you should try to determine just how interested applicants are in your company or institution. Ask them why they are interested in the job or what they know about your lab. The better applicants will already know something about the job for which they are applying.

You should also ask them to assess their strengths and weaknesses. Confident, well-rounded applicants will feel very comfortable discussing both. Better yet, ask them about their accomplishments in previous jobs.

The way you ask questions is very important to an effective interview. Your time is valuable. You must try to get as much information as you can about the applicant, without wasting time.

The best interviewing technique is to use open-ended questions that will lead the applicant into providing the information you need. Open-ended questions cannot be answered with a "yes" or "no." After all, you can't judge applicants unless you can get them to talk. For example, "How was your attendance record in your last position?" is a better question than "Did you have a good attendance record in your last position?"

Remember it is also your responsibility to "sell" the applicant on *your* company or organization. The best candidates may have other opportunities as well. Therefore, you have to make them want to work for you. Here is where *your* attitude is important. You must remain friendly, positive, and interested throughout the interview. If you can make the applicant feel comfortable during the interview, he or she will probably feel comfortable accepting a position if and when it is offered.

You Can Help Make *Histo-Logic* Better

Brent Riley
Managing Editor

The questionnaire wrapped around this issue of *Histo-Logic* is very important to us...and to you. We have always tried to maintain a complete and up-to-date mailing list so you will receive *every* issue of *Histo-Logic* without delay. But it has been a long time since we've completely "overhauled" our mailing list—the main purpose of this questionnaire. If you want to be sure you will continue to receive *Histo-Logic*, please complete the questionnaire and return it as soon as possible.

The questionnaire also has another purpose. We realize the better we know our readers, the more useful we can make *Histo-Logic* to them. Therefore, we also ask you to answer some questions that will enable us to provide more appropriate information in the articles we publish.

As we enter our eighteenth year of publication, we are both pleased and surprised at the success of *Histo-Logic*. This publication has had a tremendous impact on the histotechnology profession and we thank all of those

who have contributed to its success. Actually, we all share the credit for this success. Those of you who read and learn from *Histo-Logic* are no less important to its success than those who submit articles for publication. And because many of you pass along your copies to friends and colleagues, *Histo-Logic* has gained readership that, frankly, we never expected.

We have always strived to provide readable articles containing information that is useful in your day-to-day activities. Lee G. Luna, who has been editor of *Histo-Logic* since its inception in 1971, has done an outstanding job of choosing technical articles of genuine interest and value to our readers.

In the first issue of *Histo-Logic*, Charles J. Kalt, who was president of Lab-Tek Products, wrote, "We are fortunate indeed that Lee G. Luna has agreed to edit this new publication. His background, experience, and deep dedication to the profession—and its problems—will bring to the reader a great deal of useful, relevant material." In retrospect, it has done exactly that.

Our mix of technical, news, and feature articles has provided the variety that keeps this publication fresh and interesting. The technical knowledge gained from reading *Histo-Logic* is what gives it its real value. But the news and feature articles provide you with insights into your profession you can't get anywhere else. Our readers often comment that it's nice to read about their peers at other labs, and in other parts of the country.

While the purpose of *Histo-Logic* has not really changed over the years, the publication does represent an evolutionary process to a certain degree. As histotechnology and histotechnologists change, we make every effort to keep up. This questionnaire is an important part of that effort. Please take a minute of your time to help us serve you better and to ensure that you will continue to receive *Histo-Logic*.

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1986 Histotechnologist of the Year Billie Swisher and Histotechnology: A Perfect Match

Brent Riley
Managing Editor



Billie Swisher believes she had a "natural inclination toward anatomy" and, therefore, histotechnology. A little more than 31 years ago, she was taking prerequisite courses for a medical technology degree at Georgia State University. At the time, she wasn't even aware histotechnology existed as an area of specialty. It wasn't until she read a notice on a bulletin board which mentioned histotechnology that Swisher knew exactly what she wanted to do.

Swisher was fascinated by anatomic pathology and micro-anatomy. But she didn't know how to turn that interest into a career. As soon as she became aware of the possibility, Swisher immediately began to investigate.

She first talked with her physician for recommendations on where to obtain training in the field of histotechnology. He put Swisher in contact with a pathologist at St. Joseph's Hospital in Atlanta, where training was available. But the hospital did not offer a stipend during training, and Swisher, who had given up a good job at Delta Airlines, was not in a position to work and train without an income.

So she contacted Georgia Baptist Hospital (now Georgia Baptist Medical Center) in Atlanta. They had never trained a histotechnologist before, but a young pathologist there agreed to train her on the job. Within six months, and while still in training, Swisher was made supervisor of the histology laboratory.

She continued training for another six months and, in 1960, passed the HT exam. She immediately began to organize a more formal histotechnology training program at the hospital, developing a complete curriculum and initially accepting two students. For the next 20 years, Swisher served as the education coordinator and assistant to the director for anatomic pathology at Georgia Baptist.

Each year she trained two students. As soon as an approval program was developed for histotechnology training, Swisher applied and her program was approved. Eventually, she began to accept four students each year, although the program was approved for up to eight students.

Swisher has always been very involved with traveling, lecturing, and teaching. She is often invited to speak or conduct workshops at state, regional, and national meetings. And she is on the NSH Speaker Registry.

In 1978, Swisher left Georgia Baptist to work in the human histopathology laboratory at the Center for Disease Control in Atlanta. "It's a research and development and diagnostics lab," she explained. "We lend diagnostic aid to pathologists who do not have the resources we have here. We work with specimens from all over the world."

"In the past," she continued, "our forte has been infectious diseases, but it is now changing to oncology and preventive medicine."

Education has always been a priority with Swisher. In 1980, she passed the HTL exam. She also completed the NSH-sponsored histotechnology training program through T. A. Edison College in 1981. Even today, she never misses an opportunity to learn more about her profession and is always willing to share her own knowledge and experience with others. In 1984, she became chairman of the ASCP Board of Registry committee, which prepares the HT and HTL exams and analyzes

(continued on page 99)

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their results. In that capacity, she helped develop a study outline for those taking the exams.

Swisher has also been very active in the NSH over the years. She is a charter member and has served as chairman of the awards committee. She has also served on the legislative committee and still serves on the awards committee. Swisher has contributed equally to the Georgia Society for Histotechnology. She has been president of the state society and has also served as chairman of the education committee. She has twice earned the state's Histotechnologist of the Year Award.

Swisher has also written numerous articles published in the *Journal of Histotechnology*, *Histo-Logic*, *Laboratory Management*, and the Georgia state society newsletter, the *Microtime*.

Of course, Billie Swisher felt honored to have been chosen Histotechnologist of the Year at the 1986 NSH Symposium/Convention. But the honor goes both ways. Adding her name to the list of winners has certainly contributed to the increasing prestige associated with the award.



"Great embedding technique, but it will never fit in a microtome."

Application for NSH Membership

Editor's Note: The National Society for Histotechnology is a professional society representing all of those involved in histology. We at Miles Inc. encourage all histotechnologists to consider joining this highly respected and worthwhile organization.

If you are interested in becoming a member of the NSH, please fill out this application and return it to:

National Society for Histotechnology
5900 Princess Garden Parkway
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Tissue-Tek® Technical Tips

Brent Riley
Managing Editor

Dull blades, inappropriate knife angles, and poor sectioning techniques are all obvious causes of chattering, striations, and venetian blind effects of sectioning.

However, one common cause is frequently overlooked—paraffin buildup on the microtome. Paraffin debris, which collects between the clamping jaw and body, prevents uniform movement of the jaw and results in loose clamping of the cassette. This problem becomes worse over time, as the action of the clamp compresses the paraffin. If the problem is left unattended, soaking the clamp in xylene will not even help.

Routine cleaning and inspection of the clamp may prevent this excessive buildup and the consequential sectioning problems. Techniques for cleaning the clamp include:

- disassembly and scraping
- heating above the melting point of paraffin
- placing the clamp in the VIP retort and initiating the automatic clean cycle

Be sure this becomes part of your routine!



"I see your staining technique is improving."

To receive your own copy of *Histo-Logic*® or to have someone added to the mailing list, submit home address to: Miles Inc., Diagnostics Division, P.O. Box 70, Elkhart, Indiana 46515.

The editor wishes to solicit information, questions, and articles relating to histotechnology. Submit these to: Lee G. Luna, *Histo-Logic* Editor, 7605-F, Airpark Rd., Gaithersburg, MD 20879. Articles, photographs, etc., will not be returned unless requested in writing when they are submitted.



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