MILES

Histo-Logic

Technical Bulletin for Histotechnology • Scientific Editor, Lee G. Luna, D. Lit. (Hon.) H.T. (ASCP) • Managing Editor, Brent Riley
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IN MEMORY...

Lee G. Luna
1931-1992

We are sad to report the death of Lee G. Luna. Lee passed away in his home on Thursday, February 27, 1992, after a long, hard battle with cancer. Lee is survived by his family, as well as countless friends and colleagues throughout the world.

Lee's contributions to the discipline of histotechnology and anatomical pathology have, no doubt, influenced techniques and procedures in all modern-day histology laboratories. As a dedicated and innovative Histotechnologist, he developed many procedures that simplified techniques or improved the diagnostic quality of a tissue slide. Lee shared his technical experience in over 150 published papers and 3 textbooks. These written works will continue to provide Histotechnologists with technical and resource information for decades to come.

While Lee was devoted to the art of histotechnology, he was perhaps more devoted to the artist. His concern for the success and well-being of other Histotechnologists led to his involvement with the formation of national histotechnology societies in the United States and other countries. Lee constantly encouraged Histotechnologists to share and disseminate information. He also believed that Histotechnologists needed a strong, organized voice to represent their interests and concerns to the profession.

This year marked Lee's 21st year of involvement with *Histo-Logic*. As reported in the 20th Anniversary Issue (July/August 1991), Lee was not only the founder and editor of *Histo-Logic*, he provided the motivation, support, encouragement, and enthusiasm to maintain and improve the publication for the past 21 years. The loss of Lee will leave a void in *Histo-Logic* that will never be replaced. However, it is good to know many people have caught Lee's enthusiasm and motivation and have offered their support to keep *Histo-Logic* going to the histotechnology community. These individuals include Roberta Mosedale and the immediate members of Lee's family, as well as Leonard Noble. With their help and the continued support of our readers who contribute technical information, inquiries, and comments, *Histo-Logic* will continue. I am certain that if Lee were with us today, he would ask you to turn the page.

Tissue Artifacts: Identification, Cause, Solution, and/or Prevention

Lee G. Luna
American HistoLabs
Gaithersburg, MD 20879

Editor's Note
Identification, cause, and solution of tissue artifacts can be time-consuming and frustrating. Due to the frustration levels, multiple variables are often changed at the same time, creating secondary artifacts or causing changes to established laboratory routines.

It is hoped that through the publication of the following case studies involving artifacts and the resulting problems, those who are experiencing some difficulties might find a solution or gather valuable insight.

Readers should be advised that the following case studies were submitted by attendees of the 1991 "Practical Stain Technology 'Wet' Workshop and Seminar." We thank those contributors who have given us permission to present the information.

IN THIS ISSUE

Readers should also be aware that, in some cases, multiple solutions may be present. We encourage the sharing of these solutions, as well as comments through *Histo-Logic*.

Case #1

Joanne Moulton
Wallace Laboratories
Cranbury, NJ

Problems
Enclosed are representative paraffin blocks of dog eyes and bone (femur) for your consideration during the problem-solving session. The tissue specimens were fixed in 10% formalin and the bone was subsequently decalcified in Perenyi's solution (10% nitric acid, 0.5% chromic acid and absolute alcohol) for 10 to 14+ days.

During microtomy, the lens of the dog eye shattered (Fig 1), and a folding artifact was observed in the bone section (Fig 3).

What can be done to produce better quality sections from these paraffin blocks?

Solution to Problems for Case #1
When too much moisture is removed from tissue sections during the paraffin process, the kinds of problems that are mentioned above can often result.

To produce improved sections from nonoptimally processed paraffin blocks, the microtomist must first introduce moisture into the cut surface of the paraffin block. A piece of cotton that has been saturated with lukewarm water is applied to the surface of the paraffin block (surfactants may also be used to facilitate the absorption of water into the block face) for 5 to 10 seconds. This will allow moisture to penetrate to a depth of 15 to 20 microns into the tissue surface. Excess moisture is wiped from the block face, and the cut surface is cooled with ice and wiped dry with a towel. The block is then slightly retracted from the knife blade before resuming microtomy. Resulting sectioning should demonstrate increased quality.

The improved quality of the lens in a recut section from one of the dog eye blocks (Fig 2) and a recut section from the bone (femur) (Fig 4) demonstrate the effect of the reintroduction of moisture.

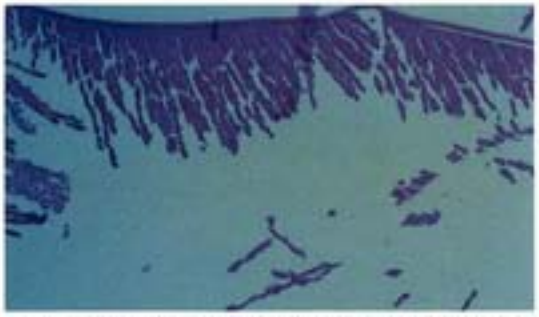

Figure 1: This photograph shows the shattering effect of the lens that was submitted with the question previously stated. Notice the enormous amount of cracking or shattering and missing center portion of the lens.

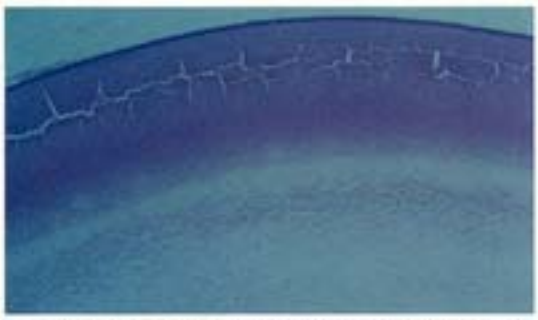

Figure 2: This section was cut after additional moisture was reintroduced into the block. Notice that unlike Figure 1, this section contained the entire lens. There is some cracking, which can be seen in the outer edges of the lens.

Figure 3: This is a section of the bone specimen that was received. Notice the folding over of the peripheral margins of the bone specimen. This is due to insufficient moisture during microtomy.

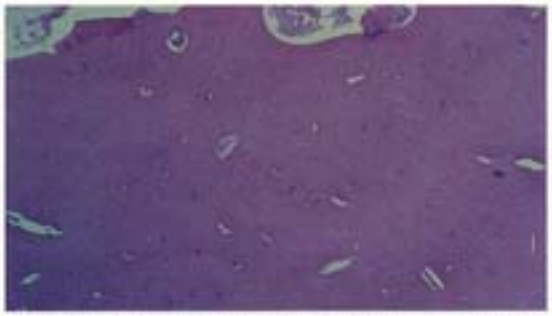

Figure 4: This is a section cut from the same specimen as seen in Figure 3. However, in this instance, additional moisture was introduced into the specimen before it was sectioned. Notice that the specimen is considerably better than that seen in Figure 3.

Case # 2

Lisa Stanbach
Burdette Tomlin Memorial Hospital
Cape May Court House, NJ

Problems

Please review the enclosed processing schedule, paraffin blocks, and slides. We would like for you to determine the cause of the cracking and microvibration artifacts found in the stained slides. Are these artifacts caused by overdehydration?

Is there an advantage to vacuum and pressure during the paraffin impregnation step? Will gentle heat in the fixation step cause any damage to the specimens?

Ten percent NBF was used as the primary fixative followed by a distilled water rinse and secondary fixation in zinc chloride formalin (Anatech). We use this fixation procedure because we have found that in our lab setting, bloody tissues (ie, placentas and curettings) will not fix well in zinc chloride formalin alone. Why does zinc chloride formalin not fix bloody tissue?

Solution to Problems for Case #2

The enclosed processing schedule appears to be adequate for most routine tissue specimens. However, it should be remembered that there is no such thing as a perfect processing schedule when different types of specimens are processed together. Therefore, all processing schedules must be set up to accommodate the most difficult tissue specimens being processed (ie, fatty specimens). Obviously, smaller specimens will be

slightly overprocessed and consequently overdehydrated if included in the same processing run. Figs 1 and 2 show GI biopsies with cracking and microvibration artifacts. These artifacts can definitely be caused by overdehydration. However, these types of artifacts can always be lessened by the reintroduction of water into the paraffin block during microtomy, as was mentioned in Case # 1.

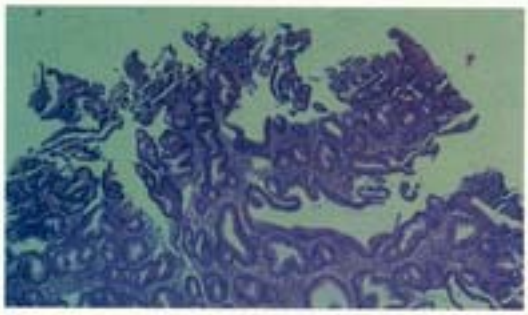

Figure 1: Notice this section contains a fair amount of cracking, which can be seen throughout the peripheral margins of the specimen. As in Case #1, this section also lacked sufficient moisture during microtomy.

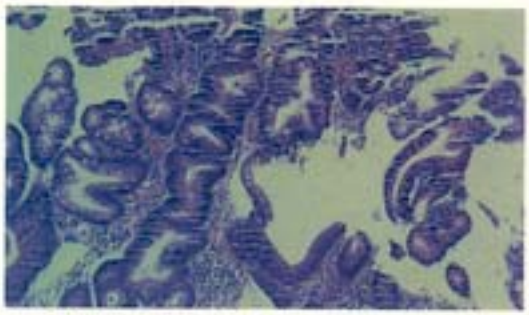

Figure 2: Notice the microvibration throughout the section, again entirely due to the lack of moisture in the specimen during microtomy.

There is no doubt that the use of vacuum and pressure during impregnation of paraffin aids in forming a proper paraffin matrix. Vacuum removes air from tissue interstices while pressure forces paraffin molecules into the spaces that remain as a result of the action of the vacuum.

As for the question of gentle heat applied during fixation, studies conducted by myself and Darryl Luna several years ago suggest that gentle heat (37°C) aids in the rate of fixation and does not cause any damaging effects. Demonstration of most antigens with immunohistochemical procedures should not be adversely affected by the increased temperature during fixation.

I am not sure why bloody tissue does not fix well in zinc chloride formalin but it may be due to the fact that the blood is coagulating on the surface of the specimen and not allowing the fixative to penetrate. For proteins to cross link (or fix) with formalin, the amino groups (NH_2) must be able to come in contact with the fixative. Rinsing bloody specimens with 0.85% saline prior to fixation should help to alleviate the fixative penetration problems.

Processing Schedule

Station	Time	Average Temperature
1	2 hr Buffered neutral formalin	28°C
2	10 min Distilled water	28°C
3	1 hr 30 min Zinc formalin	27°C
4	30 min Ethanol, 70%	27°C
5	45 min Ethanol, 95%	27°C
6	45 min Ethanol, 95%	27°C
7	45 min Ethanol, 100%	27°C
8	45 min Ethanol, 100%	27°C
9	1 hr 30 min Clear-Rite 3	28°C
10	1 hr 30 min Clear-Rite 3	30°C
11	40 min Infiltrating medium	58°C
12	40 min Infiltrating medium	59°C
13	40 min Infiltrating medium	59°C
14	15 min Paraplast X-tra	59°C

(continued on page 306)

Case #3

Martha Strachan
ZymoGenetics
Seattle, Wash

Problems
Enclosed please find three paraffin blocks, their corresponding H&E stained slides, and questions about problems with the blocks and slides.

Block and Slide A
1. Is processed rat skin usually difficult to cut?
2. What can be done to facilitate easier cutting of rat skin on the microtome?
3. What should be changed to prevent or lessen the appearance of empty spaces between the epidermal and dermal layers and throughout the dermis (Fig 1)?

Block and Slide B
1. What is causing the "dry earth" effect (Figs 2 and 3) on the stained slide, and what should be changed to reduce or eliminate this effect?
2. What are the general guidelines for processing mouse lymph tissue, particularly liver, spleen, and kidney?

Block and Slide C
1. What is causing the wrinkles in the mouse spleen, and what needs to be changed to reduce them (Fig 4)?

Solution to Problems for Case #3

Blocks and Slides A&B
Rat skin, as with all rodent tissue, is always somewhat difficult to section. First of all, the collagen diet of a rat can significantly increase the sectioning difficulties. Secondly, rat tissue contains less chemically bound water than does human tissue and thus overdehydration during normal processing can occur. Also, the skin contains a large content of hair follicles that can cause significant sectioning problems due to the increased keratin presence.

To facilitate microtomy of rat skin and to lessen the appearance of the artifacts seen in Figs 1-3, initial dehydration during processing should be started at lower percentages than with human tissues. Initial clearing steps should be done with equal dilutions of dehydrant and clearant, before submerging in absolute clearant. These steps will help to prevent overdehydration and overhardening. Also, by shaving the skin surface prior to taking biopsy specimens, greater ease in later microtomy can be accomplished. As has been mentioned before, ensuring that there is sufficient moisture in the tissue during microtomy will also aid in sectioning. By reintroducing water into the paraffin block during microtomy, sectioning can be accomplished more easily.

All rat tissue, including lymph nodes, liver, spleen, and kidney, will process better and yield better sections if the same general guidelines are followed that were offered for skin processing.

Block and Slide C
The wrinkles in the section of spleen are sometimes unavoidable if the specimen is overdehydrated and/or embedded incorrectly. Reintroduction of moisture and sufficient cooling with an ice block during microtomy can sometimes reverse the wrinkling. All specimens that are grossed in an elongated fashion should be embedded in a longitudinal plane along with the block face. Curved specimens will produce wrinkles because of pressure points created as the knife blade travels through the specimen.

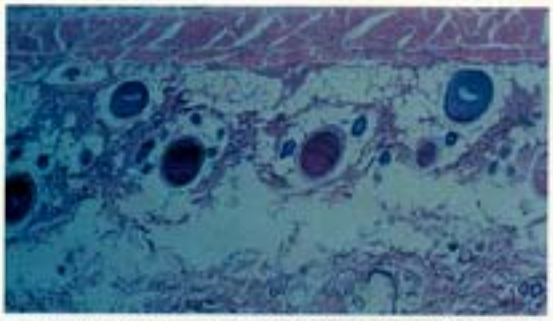

Figure 1: Notice the separation between the keratinized hair follicles and the lower portion of the connective tissue. This is due primarily to the presence of keratin and overdehydration during processing.

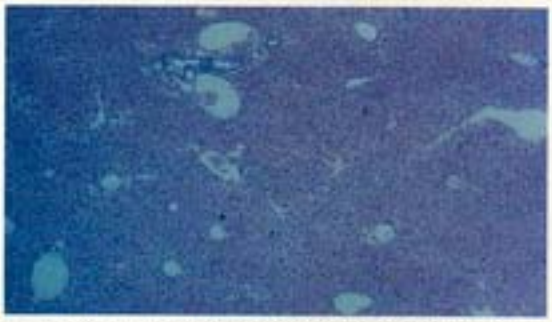

Figure 2: Notice the "dry earth" artifact seen throughout the section. This is a characteristic of insufficient moisture in the section during microtomy.

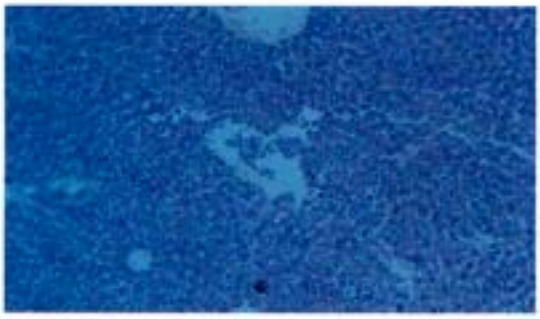

Figure 3: This is a high-power view of the same section seen in Figure 2. Reintroduction of moisture to the tissue block during microtomy will help to overcome the problem.

Figure 1: Notice the fine stippling seen throughout the section. This is mucoid material that has been stained with overoxidized hematoxylin.

Figure 4: This photograph illustrates the wrinkles almost covering the entire width of the section.

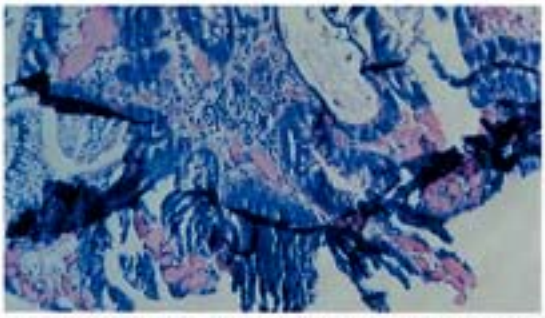

Figure 2: Notice the absence of fine stippling or precipitate in this section. This is the result of a quick dip in 0.25% citric acid.

Case #4

Ann Rogers
William Beaumont Hospital
Troy, Mich

Problem

Enclosed are the following slides for your review. We are interested in knowing how to eliminate the precipitate artifact in the mucoid area (Figs 1 and 3).

Solution to Problem for Case #4

Precipitate in Mucoid Area — Some mucins react with hematoxylin, which is the case on these slides. The staining (precipitate) can be removed by a quick dip in 0.25% citric acid (Figs 2 and 4). After having done staining in hematoxylin, I personally feel that mucin staining by hematoxylin is due to overoxidized hematoxylin. It is interesting to note that Ehrlich's hematoxylin almost always stains mucin. The reason for this reaction is not known.

Figure 3: This section also shows mucoid material stained with hematoxylin as seen in Fig 1. This is particularly well seen in the middle of the photograph.

(continued on page 308)

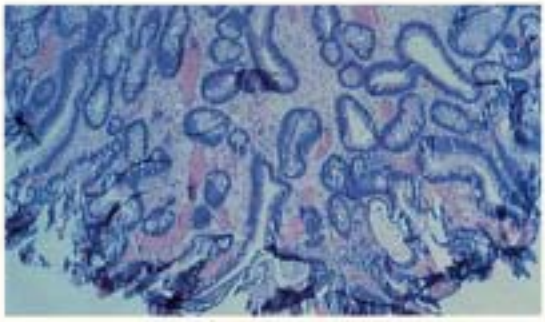

Figure 4: Treatment with 0.25% citric acid, as seen in Figure 2, also removed the mucoid material.

Figure 1: Notice the crenated appearance of the cells throughout this section.

Case #5

Diane Payne
California Veterinary Diagnostics
West Sacramento, Calif

Problem

Enclosed are the slides we spoke of during our phone conversation. The cells that seem the most affected are the lymphocytes and histiocytes; also the doctors have mentioned that the slides appear "smeared." We are using the same reagents and program schedules — no changes. What do you think? This problem does not occur every day; it seems random. Tissue was fixed in 10% formalin neutralized with sodium acetate.

Solution to Problem for Case #5

Crenated Lymphocytes and Histiocytes — It appears this problem is due to fixation. It was mentioned that the fixative was several months old. It should be remembered that sodium acetate does not buffer formalin. Therefore, there will be some pH and isotonicity changes in the solutions when tissue is placed in the fixative. In this case, the fixative solution became hypotonic, resulting in water flowing out of the cell and into the fixative solution. This hypotonic effect resulted in cell shrinkage creating the effects seen in Figs 1, 2, 3, and 4.

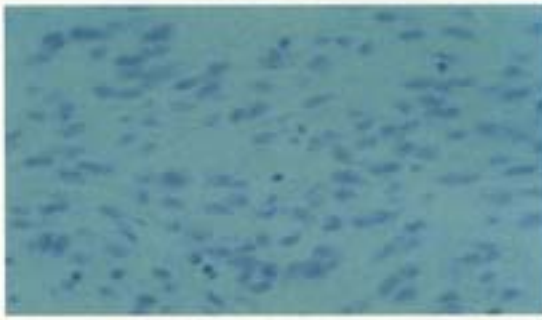

Figure 2: Higher power of the same section showing a great deal of cell shrinkage, particularly nuclear shrinkage.

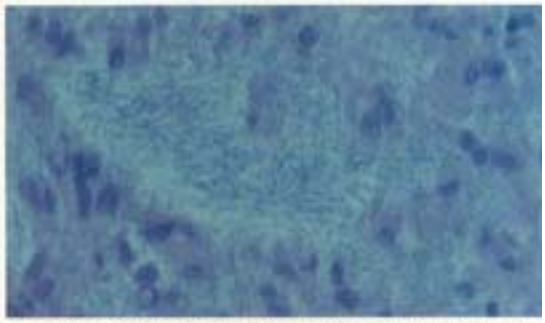

Figure 3: This demonstrates the same crenated effect to the cells as seen in Figures 1 and 2.

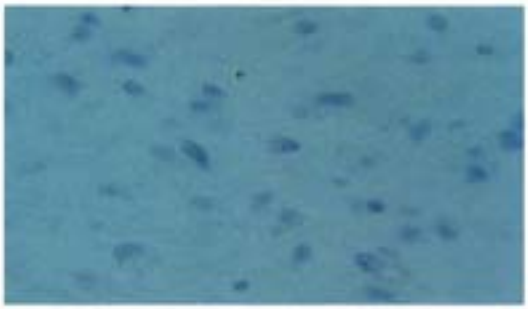

Figure 4: This is a higher power showing some cells, particularly those on the right side, which illustrate a great deal of cellular shrinkage. It should be noted that all of these cremated-appearing cells were the result of fixation as indicated in the answer to this question.

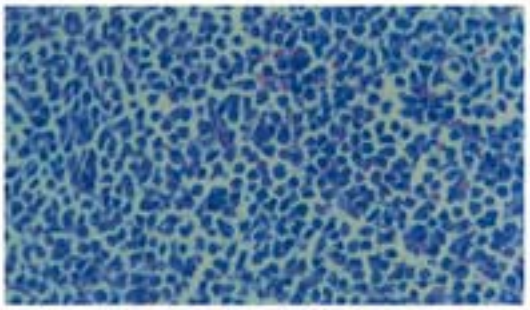

Figure 1: Section of lymphoid tissue showing some splotchy nonstaining across the middle of the section.

Case #6

Janice Gardner
Experimental Pathology Laboratories, Inc.
Herndon, Va

Problem

As per our telephone conversation, I have enclosed three sample slides demonstrating the staining artifact in question. I have also enclosed our routine staining procedure and processing schedule for your review.

We routinely use distilled ethyl alcohol, toluene, and xylene for the processing and staining procedures and have experienced no problems in the past.

The artifact (Figs 1, 2, 3, and 4) was first diagnosed as incomplete deceration, so we incorporated new xylene into the staining process; however, the problem still exists. Any advice you can offer would be greatly appreciated.

Solution to Problem for Case #6

The staining artifact in question is probably being caused by the overtreatment and/or drying of the celloidin (collodion) and not from the paraffin processing. If celloidin is too thick (0.5% is recommended) and is allowed to completely dry after the slide has been dipped, the celloidin will become thickened in some areas and not allow complete penetration of the stains. When the celloidin just begins to dry, I would recommend that you proceed immediately to an 80% alcohol change for about 5 minutes, after which you may complete the staining procedure.

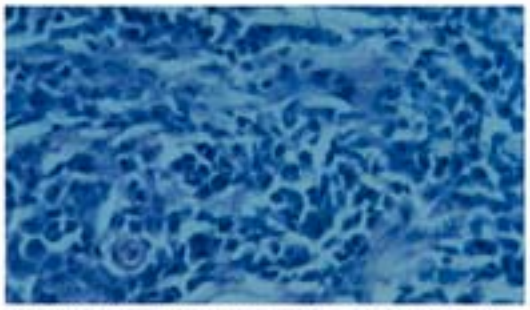

Figure 2: Higher power of the same section showing the absence of staining throughout this particular area.

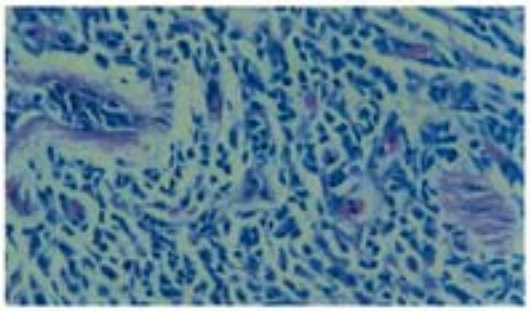

Figure 3: Section of nonstaining splotchy area in the middle of the photograph in the section of liver.

(continued on page 310)

(Case #6 continued)

Staining Procedure

Sol. Tank #	Solution	Time	Setting	Function
1	Xylene	3 min	Process	Remove paraffin
2	Xylene	3 min	Process	Remove paraffin
3	Xylene	3 min	Process	Remove paraffin
4	Alcohol — 100%	3 min	Process	Remove xylene
5	Celloidin — 1%	3 min	Process	Tissue adhesion
6	Air dry	8 min	Process	Set celloidin
7	Alcohol — 95%	1 min	Process	Hydrate
8	Alcohol — 70%	1 min	Process	Hydrate
9	Tap water	2 min	Process	Remove alcohol
10	Lugol's iodine	7 min	Process	Remove merc. chlor.
11	Lugol's iodine	7 min	Process	Remove merc. chlor.
12	Tap water	8 min	Process	Excess iodine
13	Hypo	5 min	Process	Remove iodine
14	Tap water	8 min	Process	Remove hypo
15	Hematoxylin	2 min	Process	Stain nuclei
16	Tap water	10 min	Process	Blue nuclei
17	Alcohol — 70%	½ min	Process	Dehydrate
18	Alcohol — 70%	½ min	Process	Dehydrate
19	Eosin	1 min	Process	Stain cytoplasm
20	Alcohol — 95%	½ min	Process	Differentiate
21	Alcohol — 100%	1 min	Process	Dehydrate
22	Alcohol — 100%	2 min	Process	Dehydrate
23	Alcohol — 100%	2 min	Process	Dehydrate
24	Xylene	2 min	Process	Clear alcohol
25	Xylene	1 min	Process	Clear alcohol
26	Xylene	1 min	Stop	Clear alcohol
27	Empty	0	Pass	
28	Empty	0	Pass	

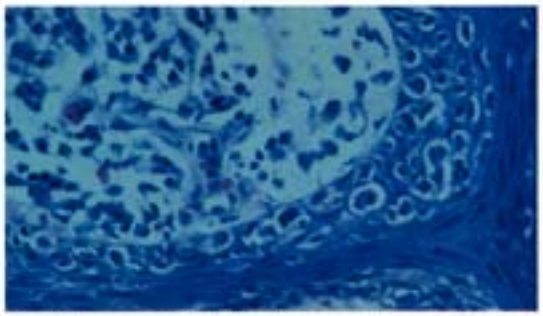

Figure 4: Higher power of the junction between the nonstaining area (upper part) and the properly stained portion of the liver (lower part).

Processing Schedule

Station	Time	Temperature
1. 70% Alcohol	40 min	40°C
2. 80% Alcohol	40 min	40°C
3. 80% Alcohol	40 min	40°C
4. 95% Alcohol	40 min	40°C
5. 95% Alcohol	40 min	40°C
6. 100% Alcohol	40 min	40°C
7. 100% Alcohol	40 min	40°C
8. 100% Alcohol	40 min	40°C
9. Toluene	60 min	40°C
10. Toluene	60 min	60°C
11. Paraffin	60 min	60°C
12. Paraffin	60 min	60°C
13. Paraffin	60 min	60°C
14. N/A	N/A	N/A

Miles Introduces Tissue-Tek® Coverslipper: Coverslips Over 1000 Slides per Hour With No Direct Exposure to Xylene

Miles Inc, Diagnostics Division, announces the introduction of the Tissue-Tek® Coverslipper — an automated laboratory instrument capable of coverslipping up to 20 histology or cytology slides per minute. The new instrument coverslips stained slides with automated consistency and uniformity.

The Tissue-Tek Coverslipper uses a unique plastic coverslipping film that eliminates sticky resins and direct exposure to xylene during coverslipping. It is easy to set up and use. Other features include: versatile batch and single-slide capability, minimal daily maintenance, and fully automated operation. Coverslip length is operator selectable (long or short) to easily accommodate various specimen types.

In place of traditional glass coverslips, the Tissue-Tek Coverslipper uses a roll of plastic film. It is a xylene-activated, resin-coated film that ensures a secure, consistent binding to the glass slide. The optical characteristics of the film are identical to those of glass, providing reading comparable to traditional glass coverslipping methods. In addition to high production throughput, the Coverslipper decreases the incidence of resin bubbles and other technique difficulties common to manual methods. If necessary, slides can be recoverslipped more rapidly and easily than glass coverslips.

The instrument is backed by Miles Inc, Diagnostics Division, with over 40 years of experience in full-line support and a full complement of customer-focused services. The Coverslipper joins the Tissue-Tek line of products dedicated to the needs of histology and cytology laboratories. These products include the Tissue-Tek® V.I.P.™ Tissue Processor, Tissue Embedding Center, Microtome/Cryostat, and a full line of disposable products and accessories.

STATE & REGIONAL MEETINGS FOR 1992

SEPTEMBER 12-18, 1992
18th NSH SYMPOSIUM/CONVENTION
Marriott & Doubletree Hotels
Monterey, California

APRIL

24-25 SOUTH CAROLINA SOCIETY OF HISTOTECHNOLOGY
Site: Myrtle Beach, SC
Contact: Vann R. Roberts
206 Rhodehaven Dr
Anderson, SC 29621
803/261-1836 (work)
803/226-4381 (home)

29-May 1 NSH REGION V SYMPOSIUM
Site: Des Moines, Iowa
Contact: Becky Scholes
RR2, 815 Walnut Ridge Dr
Waukee, IA 50263
515/283-1791 (work)
515/225-3519 (home)

30-May 2 GEORGIA SOCIETY FOR HISTOTECHNOLOGY ANNUAL SYMPOSIUM
Site: Radisson Hotel, Augusta, Ga
Contact: Craig Player
Georgia Poultry Laboratory
PO Box 20
Oakwood, GA 30566
404/535-5996 (work)

30-May 2 ILLINOIS STATE MEETING
Site: Marriott O'Hare, Chicago, Ill
Contact: Brenda Licocci
31 Bedford
Mundelein, IL 60060
708/937-3888 (work)
708/215-7127 (home)

MAY

2 OKLAHOMA SOCIETY OF HISTOLOGY
Site: Tulsa or Oklahoma City, Okla
Contact: Sharon Bomhoff
4120 NW 22nd
Oklahoma City, OK 73107
405/272-7062 (work)
405/947-2087 (home)

15-16 MISSOURI SOCIETY FOR HISTOTECHNOLOGY
Site: Days Inn at the Arch, St Louis, Mo
Contact: Christine Clark
4643 Carrie Ave
St Louis, MO 63115
618/233-7750, ext 5085 (work)
314/381-1267 (home)

15-18 FLORIDA SOCIETY FOR HISTOTECHNOLOGY
Site: Dolphin Cruise Line to Bahamas
Leaving from Miami, Fla
Contact: Julie B. Aranibar
445 S Federal Hwy
Boca Raton, FL 33432
407/395-1587 (work)
407/272-8192 (home)

28-30 OHIO SOCIETY OF HISTOLOGY SYMPOSIUM
Site: Holiday Inn, Dayton Mall, Dayton, Ohio
Contact: Kim Wood
1812 Kensington Dr
Dayton, OH 45406
513/223-6192, ext 4410 (work)
513/278-0482 (home)

JUNE

4-6 NSH REGION I SYMPOSIUM
Site: Radisson Hotel, Poughkeepsie, NY
Contact: Vincent Della Speranza
2062 Feuereisen Ave
Ronkonkoma, NY 11779
516/444-2229 (work)
516/737-9521 (home)

5-6 LOUISIANA SOCIETY
FOR HISTOTECHNOLOGY
Site: Hotel Acadiana, Lafayette, La
Contact: Suzanne Lucas
111 East Garden Dr
Thibodaux, LA 70301
504/447-0747 (work)
504/448-2012 (home)

6-7 COLORADO SOCIETY
OF HISTOTECHNOLOGY
Site: Breckenridge, Colo
Contact: Cindy Sweeney
Memorial Hospital
Colorado Springs, CO 80262
719/475-5204 (work)

11-14 NSH REGION VII SYMPOSIUM &
ARIZONA SOCIETY FOR
HISTOTECHNOLOGY
Site: Hilton Pavilion, Mesa, Ariz
Contact: Phil Knuth
16121 E Glenpoint Dr
Fountain Hills, AZ 85268
602/391-8026 (work)
602/837-7458 (home)

26-28 NSH REGION VI SYMPOSIUM
Site: Sheraton-Century Center,
Oklahoma City, Okla
Contact: Sharon Bomhoff
4120 NW 22nd
Oklahoma City, OK 73107
405/272-7062 (work)
405/947-2087 (home)

(continued on page 314)

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NATIONAL SOCIETY FOR HISTOTECHNOLOGY, INC. APPLICATION FOR MEMBERSHIP

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Work Telephone (___) _____ Ext. _____

Mail information to: ☐ Home Address ☐ Work Address

(Signature) _____ (Date) _____

Referred by NSH Member: (Name) _____
(Optional)

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JUNE

26-28 MICHIGAN SOCIETY OF HISTOTECHNOLOGISTS
Site: Mission Resort Hotel, Mackinac Island, Mich
Contact: Beth Cox
5381 Conifer Dr
Columbiaville, MI 48421
313/377-3118 (work)
313/793-2062 (home)

NOVEMBER

2 OKLAHOMA SOCIETY OF HISTOLOGY
Site: Oklahoma City, Okla
Contact: Sharon Bomhoff
4120 NW 22
Oklahoma City, OK 73107
405/272-7062 (work)
405/947-2087 (home)

Correction

In the May/June 1991 issue of *Histo-Logic*, Vol. XXI, No. 3, there was an incorrect statement in the article entitled: "The Quality Control Dilemma in Histotechnology: A Possible Answer." Under the section entitled "Processing," page 246, it stated: "If the specimen turns chalky white after a 2-minute exposure, your tissue has been excellently processed and properly impregnated . . . . Obtaining quality sections during microtomy will be possible." The statement should read: *"If the specimen turns chalky white after a 2-minute exposure, your tissue has been very poorly processed and inadequately impregnated. Obtaining quality sections during microtomy will be impossible."*

Interest in Marine Pathology Leads to Golden Forceps Award for Lynn Montgomery

Brent Riley
Managing Editor

She loves to fish and calls coastal Louisiana home. So it isn't surprising that Lynn Montgomery would develop a strong interest in marine and aquaculture pathology. It also isn't surprising that Montgomery would want to spread the word about a specialized area of histotechnology that she finds fascinating.

Montgomery takes every opportunity to do just that. She never misses a chance to lecture, conduct a workshop, or write about marine and aquaculture pathology. In fact, her latest article, "Marine Pathology and Aquaculture, Its Evolution, Disease Mechanisms, and Impact on Histologic Technique: A Challenge for the '90s," which was published in the March/April 1991, issue of *Histo-Logic*, earned her the prestigious Golden Forceps Award at the 1991 Symposium/Convention of the National Society for Histotechnology.

Her article discussed the history of aquaculture and marine pathology. Although it has been a viable specialty for many years, most of the advances have been made in the past few years. She also explained the differences between traditional mammal histology and marine histology. "There are some significant differences," Montgomery explained. "For example, when a mammal dies, it cools down. But a marine specimen warms up, so the problems of fixation and transport of these specimens are very different.

"Aquaculture represents a tremendous industry, as well as a very popular sporting activity," Montgomery explained. "It also involves an important environmental concern.

"I think marine pathology is just now coming into its own," Montgomery continued. "It has been my experience in talking with other folks in the society that there are not a lot of Pathologists or Technologists who are familiar with what's going on in marine pathology. They don't really know about the opportunities, how their expertise applies, or how much they are needed in this specialized area."

(continued on page 316)

According to Montgomery, the need is very acute, but positions in this industry are scarce because there is a lack of funding. Currently, there are no federal laws covering the inspection of seafood in the United States. But if and when the Food and Drug Administration becomes involved, federal laws will be established and the interest in marine pathology and aquaculture will grow.

Histotechnologists who work in aquaculture labs are involved in everything from environmental studies to reproduction studies of various species that are important to both commercial and sport fishing. A number of commercial companies are starting aquaculture farms where marine species are bred. The fish have to be monitored constantly for parasites, bacteria, viral diseases, and nutritional problems. "A disease can wipe out an entire operation practically overnight," Montgomery explained. As a specialized area, a lot of work remains to be done. "There needs to be an adequate method to standardize marine pathology for diagnostic purposes so that adequate quarantine and diagnostic procedures can be set up," she said.

Montgomery is originally from the Dallas/Fort Worth area. She began her career after visiting a laboratory where a friend worked. From then on, she was hooked. While still in high school, she worked part time as a lab assistant in Dr. John Andujar's clinical pathology lab. Andujar was a well-known Pathologist and one of the first presidents of the American Society of Clinical Pathologists. She continued to work in the same lab after graduation and while attending the University of Texas at Arlington.

Montgomery received a BS degree in biology from Louisiana State University. After graduation she stayed with the school of veterinary medicine at LSU where she was chief of their pathology laboratory for 16 years.

Her involvement with marine pathology originated with LSU. Louisiana is part of a five-state consortium in marine aquaculture. The headquarters of the consortium is located in her hometown, Baton Rouge.

Montgomery is currently associated with the Ochsner Foundation in Baton Rouge, one of the top cancer study and transplant clinics in the United States. She is certified in both histotechnology and cytotechnology. "I was a human Histotechnologist/Cytotechnologist for 16 years. Then I was a veterinary/marine Histotechnologist/Cytotechnologist for another 16 years," she explained. "I'm taking that combined experience and applying it to everything I do. I'm currently involved in fine needle aspirations. That's where you go into the massive tissue and come out with cells and biopsies. It's replacing a lot of exploratory surgery."

She is also a certified public manager, completing a master's program in management through LSU. Her management expertise has been a tremendous help in the laboratory, especially in these days of shrinking resources and escalating health care costs.

Montgomery has written a number of published articles throughout her career, including articles published in *Histo-Logic* and the *Journal of Histotechnology*. Her first published article was a paper on the preparation of specimens in gastric cytology, which was published in the *Journal of the Southern Association of Cytologists* in 1964.

"I feel that if you have something to share, some new techniques or information that you feel would benefit others, it is almost a professional obligation to share it," she said.

Montgomery is dedicated to educating Histotechnologists and keeping communications open. "I've done several teleconferences and do four or five workshops every year," she said. At the 1991 NSH Symposium/Convention, she conducted the first national level workshop in marine pathology.

She has traveled to Central America many times to represent histotechnology. She has conducted seminars and workshops in Costa Rica, Honduras, and El Salvador and is planning a trip to Guatemala in the spring. She is impressed by the sophistication and knowledge of Histotechnologists in these Central American countries. "The biggest problem they have," she said, "is getting supplies. A box of coverslips can be a scarce commodity."

Montgomery is chairman of the NSH Health and Safety Committee. She developed a strong interest in health and safety in the lab after developing a hypersensitivity to a chemical. "I became very aware of the critical need for attention in this area," she said. In fact, she considers her greatest career accomplishment to be the impact she has had on health and safety awareness. "I have talked to as many people in as many places as I have been allowed to go in the last 15 years," she said.

Montgomery looks forward to the future of histotechnology. "I would like to stay in the field as long as I can. I honestly believe that pathology is in a period that I

consider to be the golden age. The new techniques of the past few years are just the tip of the iceberg. I want to be around to see what's going to happen in the next few years."

For Lynn Montgomery, "spreading the word" is standard operating procedure, whether it's through writing, speaking, or her many accomplishments.

The Indiana Society for Histotechnology: The Evolution of a State Society

Brent Riley
Managing Editor

In 1989, a group of nine hospitals in the northwest part of Indiana had no contact with one another, at least in the histology department. Although geographically close, there was no communication among Histotechnologists who worked at these hospitals.

Bob Overland, knowing the many benefits of communication among histology professionals, found this to be a very frustrating situation. So he decided to try to get Histotechnologists from these nine hospitals together for a meeting.

Overland, who is supervisor of Histology and Cytology at St. Catherine Hospital in East Chicago, Indiana, invited Histotechnologists and Pathologists from the labs of all nine hospitals. "It was very successful," he remarked. "Every hospital lab was represented. In fact, every technologist from every lab attended the meeting. And from that meeting, a conscious decision was made to establish an Indiana society."

The following year, at the NSH Symposium/Convention in San Antonio, members of the newly formed Indiana society sought out other Histotechnologists from their state. They talked with a couple of technologists from Indianapolis and organized a meeting to form a chapter of the Indiana society in the capital city.

The first Indianapolis meeting was attended by about 40 people, including Pathologists, lab supervisors, industry research people, and veterinary Histotechnologists. "I really only expected about 10 people and was shocked when 40 people showed up," Overland said. "It went very well. At that meeting, I encouraged them to have a follow-up meeting. Indianapolis now has its own chapter and contributes very nicely to the organization of the state society."

One thing the addition of the Indianapolis chapter has done is to allow members to formulate committees at the state level. The society now has many of the same committees as the National Society.

With society responsibilities divided among two chapters in the state, efforts are also underway to create chapters in other parts of the state. Members from both existing chapters are holding meetings in other cities to determine interest. By spring, Overland anticipates a new chapter in Fort Wayne, where several hospitals are concentrated.

Overland gives much of the credit for the state chapter to the encouragement and advice he received from Ada Feldman, president of the Michigan Society for Histotechnology, and Lena Spencer, NSH Region 4 Director and president of the Kentucky Society for Histotechnology. "I was hesitant to approach potential members in the southern part of Indiana because some of those people belong to the Kentucky society," Overland said, "but Lena assured me that it would be no problem."

Chapters of the Indiana society meet every other month. The meetings include a lecture or workshop, as well as opportunities to discuss society business.

The Indiana society recently published the second edition of their quarterly newsletter, which includes articles about members, state society news, NSH news, and technical articles. "We're encouraging members to submit papers and articles for the newsletter," Overland explained. "It gets people involved, so they feel like they're a part of something."

The Indiana society currently has about 80 members. In addition, the Indiana membership in the NSH has increased dramatically. During the first year, NSH members from Indiana increased from 65 to 85.

"The National Society was extremely helpful in getting us everything we needed," Overland explained. "Marilyn Gamble went out of her way to receive approval so that Indiana would be a constituent society for the national

(continued on page 319)

meeting in San Antonio." Gamble is president of the NSH.

Perhaps the biggest accomplishment of the Indiana state society has been the development of the first university-based histotechnology program in the state. "We approached Indiana University and they were very receptive to the idea," Overland said. "So we applied for and received a $50,000 grant to get it going. We wrote up the curriculum and we're taking turns teaching the program." The 1-year program is based at Indiana University Northwest. In its first year it has six students who will graduate in June. The society is currently writing a proposal for an associate degree program.

The Indiana society has set many other goals as well. In fact, the Indiana Society of Pathology recently granted them $500 to help organize their first state symposium. Meanwhile, the Indiana Society for Medical Technology and the Indiana Society for Cytotechnology have offered space at their symposia.

The biggest challenge facing the new Indiana state society is to reach all the Histotechnologists in the state. "I think we could increase our membership, as well as the NSH membership, dramatically if we could reach everybody in Indiana," Overland predicted. He has sent a letter to every hospital in the state. As he follows that up with more letters, the response is increasing. Overland hopes to establish four or five more chapters within the next few years. "Unifying all parts of the state is my long-term goal," he said. "I won't be able to relax until that is accomplished. It's very gratifying to think about where we started and where we are now. I think, all in all, we've come a long way."

A Continuing Tradition of Involvement and Improvement

Brent Riley
Managing Editor

Histo-Logic has built its value to the profession of histotechnology on a foundation of disseminating information pertinent to the field. This has remained its guiding principle — making information concerning improvements in histotechnology readily available. In the first issue of *Histo-Logic*, published in 1971, Lee Luna made this purpose clear and encouraged professional involvement of *all* in the field: "The success or failure of this newsletter is dependent upon the cooperation of **all** technicians and technologists. Your help is solicited . . . by contributing your technical suggestions, modifications and/or developments."

Everyone involved in the "art and science" of histotechnology has information of benefit to their professional colleagues. Overcoming technical challenges, improving time-honored methods, and even meeting the demands of new safety and environmental concerns are part of the daily life of the Histotechnologist. Your experience and expertise have made a difference in your laboratory. Why not share these findings so that others will benefit?

This is your invitation to contribute. Make yourself an active part of the *Histo-Logic* tradition of professional service and improvement by sending articles and photographs based on solutions you have developed in your laboratory. Suggested topics include method improvements, overcoming technical challenges, and your own case studies. Creative responses to health, safety, and environmental issues unique to the histopathology laboratory are also welcome. Finally, additional suggestions and comments that shed further light on previously published case studies are also valuable, particularly if they provide a new "twist" to old problems.

We will make it as easy as possible for the novice technical author by providing support in editing your manuscript and, if required, procuring photomicrographs to accompany your article.

Histo-Logic is committed to continuing its mission of fostering technical excellence through the sharing of new and updated information. Please send your contributions to: H. L. BAND, P.O. Box 1263, Lanham, MD 20706-2925.

Home Is Where the Debts Are

Monica S. Narvaez
G.P. Graham & Associates, Financial Services
El Paso, Tex

Do you feel as though your paycheck is shrinking, even though your income has increased? Are you worried about having enough money to send the kids to college? Are you losing sleep over nightmares of poverty after you retire? Sounds like it's time to sit down and determine your own financial health.

If you find you owe more than you own, you have a negative net worth — and you need to do something about it. A bill consolidation loan could improve your financial picture. Most banks and credit unions offer bill consolidation loans at about 16% interest if unsecured, and as low as 7% if secured with a CD. Finance companies lend money at a higher rate, usually 18% and higher, depending on the amount borrowed.

You may need to work out a strict budget. As soon as it is feasible, the budget should include a systematic savings program. Your employer may offer payroll deduction for a credit union or other type of account. For example, Pathlab, Inc., in El Paso, Texas, provides payroll deductions for employed Histologists to their banking institution.

When considering large purchases, try the NORM plan (Need, Objective, Resources, and Method).

Identify the *need* you have that this purchase would satisfy. Determine the *objective* of this particular purchase as it relates to satisfying the need. Would buying a less expensive alternative also meet your need and objective? Is the objective to solve the need immediately, or could it wait?

Under *resources*, list the assets you have that will be available to offset the purchase — current and anticipated salary, the payoff of a loan that will free part of your budget, a maturing investment, or other income source.

The *method* is your budgeted plan for making the purchase: If you borrow the money, how much will you owe and for how many months? If you use a credit card, how much will be left on your credit line, and how quickly can you clear this charge? If you pay cash, what will the loss of that money do to your budget and cash flow for the next few weeks?

Obviously, there are many ways to restore and maintain financial health. It starts with determining net worth and continues with careful, well-considered planning.

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, IN 46515.

The editor wishes to solicit information, questions, and articles relating to histotechnology. Submit these to: H. L. BAND, P.O. Box 1263, Lanham, MD 20706-2925. Articles, photographs, etc., will not be returned unless requested in writing when they are submitted.

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