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Histo-Logic®

Technical Bulletin for Histotechnology • Managing Editor, Brent Riley • Scientific Editor, Lee G. Luna, D. Lit. (Hon.) H.T. (ASCP)
Vol. XVIII, No. 2, May/June 1988

Histo-Logic Better Than Ever

As *Histo-Logic* enters its seventeenth year of publication, it remains one of the most significant communication vehicles in the histology profession. *Histo-Logic* is distributed to more than 15,000 professionals throughout the United States. Each issue is also reprinted in a variety of languages and distributed in more than 44 foreign countries worldwide. And distribution continues to grow.

Histo-Logic was first published in July of 1971 to provide an interchange of information that would enhance the knowledge of the histotechnologist and benefit the field of histopathology. These original goals have not changed. We have always strived to make *Histo-Logic* informative, readable and useful. And in talking with histotechs throughout the country, we know that *Histo-Logic* is serving an important need.

We recently took a good hard look at *Histo-Logic* in an effort to make it even better. We polled readers to find out what they liked or disliked about the publication. The responses were encouraging. All of those polled said they read *Histo-Logic* from cover to cover, and they devote quality time to reading it. They also save back issues for future reference.

So how have we improved *Histo-Logic*? First, by combining the technical and promotional issues. As you know, for the past two years we have published two versions of *Histo-Logic*. The technical issues cover practical procedural and technical-oriented information that can be applied in your daily work. The special promotional issues are more news- and feature-oriented, covering nontechnical information that is of interest to histotechs. Most of the respondents in our poll suggested we combine the two issues.

This is the first of the combined issues. You will continue to find a variety of articles in this and future issues including technical reports, product features, information about workshops, conventions and symposia, and various other feature stories.

A few other things have changed as well. You'll find more color and a cleaner, more consistent format. In addition, we are committed to publishing *Histo-Logic* on a more timely basis —six times a year, beginning with a February issue each year.

Lee Luna will continue to be the editor for all the technical material found in *Histo-Logic*, and Brent Riley will still be the editor for the feature/news material. Both have devoted a great deal of time, effort and expertise to bring you a worthwhile publication. In fact, it was Lee Luna who established *Histo-Logic* in 1971.

These are the things *we* have done, but there is also a lot you can do to make *Histo-Logic* a better publication. We depend on you for many of the articles you read in *Histo-Logic* and encourage you to submit technical articles for possible publication. These articles can be submitted to Lee G. Luna; c/o American Histolabs; 7605-F Airpark Rd.; Gaithersburg, MD 20879.

We also rely on you for many of the feature and news articles. If you would like to write an article about anything that is of interest to histotechs, please submit it to Brent Riley; Miles Inc., Diagnostics Division; P.O. Box 70; Elkhart, IN 46515. Or if you have an idea for an article that you would like us to write, let us know.

Remember, the continued success of *Histo-Logic* depends on your support and your input.

IN THIS ISSUE

Staining Methods for *Pneumocystis carinii*

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Pneumocystis carinii is an organism that appears to be widespread in the environment and is probably acquired by the airborne route; i.e., the respiratory route from carriers or individuals with asymptomatic infections. *Pneumocystis carinii* causes interstitial pneumonia in infants, children and individuals with congenital or acquired immunodeficiency diseases. It is for the latter reason that *Pneumocystis carinii* has assumed increasing importance with the emergence of AIDS in the last few years. Organisms appear to multiply both as trophozoites and within cysts. Both trophozoites and cysts are found in alveoli of the lung. Trophozoites are 2-5 μm in diameter. Mature cysts are approximately 5 μm in diameter and are round or cup shaped.

The diagnosis of *Pneumocystis carinii* depends on their demonstration in lung tissue. It is for this reason the results of the following stains are presented here. Also presented is a schematic of an alveolar space containing pneumocystis organisms to, hopefully, provide a better understanding of the general overall morphology of this disease process. It is also hoped that the staining information and schematic (Fig. 1) will provide the technician with more information to enhance the demonstration of this organism.

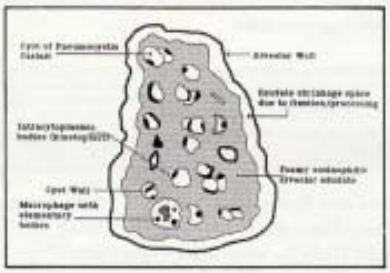

Figure 1: A schematic of alveolar space which contains exudate and numerous cysts of *Pneumocystis carinii*.

Hematoxylin and Eosin (H&E)
The hematoxylin- and eosin-stained sections reveal numerous pneumocystis organisms within the alveolar spaces, and the intracystic bodies are slightly visible within the cysts. The staining of the intracystic bodies by hematoxylin-eosin fails to give a good contrast for diagnosis.

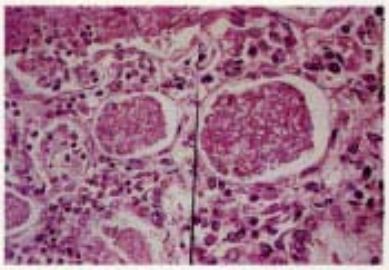

Figure 2: Lung specimen containing foamy eosinophilic exudate in alveolar space. H&E. X400R, X100L.

Periodic Acid-Schiff Reaction (PAS)
The PAS procedure stains the walls of the cysts. Some of the cysts appear smaller than others and are approximately the size of Klebsiella (2-3 micra in diameter). With this stain, occasional small bluish-stained dots can be seen in some organisms which might represent a nucleus. Inside some of the larger cysts, intracystic bodies are stained slightly grayish-blue. Macrophages may be present near groups of cysts containing PAS positive material, some of it in the form of rounded bodies which may represent phagocytosed cysts or elementary bodies of the pneumocystis. The PAS stain with diastase digestion shows no change from the PAS without digestion.

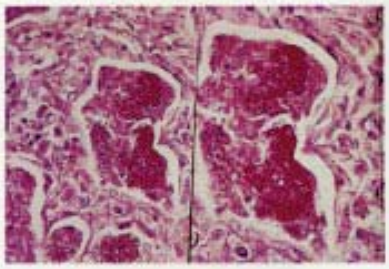

Figure 3: PAS positive foamy exudate in alveolar space. X400R, X100L.

Gomori Methenamine Silver (GMS)
The GMS silver stain is very useful for demonstrating the cyst walls. It also stains bodies within the cysts, which take the form of rounded circles or parentheses-like structures. In addition, portions of the cyst wall stain in a denser fashion in weak GMS preparations. In deeper staining GMS preparations, the cyst wall shows no characteristic denser zone of staining. In these stronger preparations, the intracystic body is densely stained and sometimes appears to be double. Within the alveolar exudate some erythrocytes are present which stain faintly with the GMS and have a faint body in the central portions, therefore simulating the cysts of *Pneumocystis carinii*.

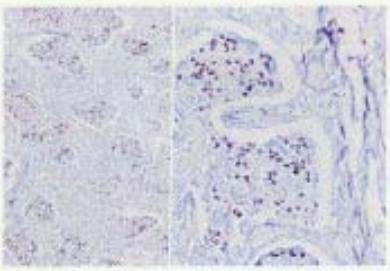

Figure 4: GMS stain demonstrating dark (black) staining organisms within foamy exudate. X400R, X100L.

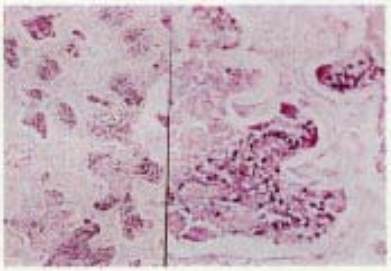

Figure 5: PAS-GMS stain demonstrating foamy exudate and GMS positive organisms. X400R, X100L.

Giemsa
In a well-stained Giemsa preparation, the cyst walls stain faintly bluish, and the intracystic bodies are well delineated and stain deep bluish to purplish.

Gridley Fungus
The Gridley fungus stains the cyst wall and some intracystic bodies. There is also a denser stained portion of the cyst wall in some of the organisms. The findings in general are not as definite as seen in the Weigert stain (see below).

Gallocyanin (Einarson's Method)
A Gallocyanin stain is of extreme interest because it stains the intracystic bodies without staining the cyst wall. These bodies are seen within the foamy material in the alveolar spaces. Occasionally some of these intracystic bodies, which may have been excluded from cysts, have been taken up by macrophages and can be seen in the cytoplasms of macrophages. The Gallocyanin stain is of special interest since close observation suggests that the alveolar lining cells are entering the alveolar spaces and phagocytosing the organisms within the alveolar spaces.

Mowry's Acid Mucopolysaccharide (AMP) With Hyaluronidase Digestion
The AMP stain for acid mucopolysaccharides stains the section irregularly. In some areas the walls of the cyst take a bluish coloration and in some parts of the masses of cysts there are bluish-stained bodies which could be intracystic bodies but often cannot be definitely identified as such. Many of the cyst walls do not stain at all with the AMP stain. The AMP, with or without hyaluronidase, fails to reveal any significant difference between the staining of the cyst walls.

MacCallum-Goodpasture
The MacCallum-Goodpasture stain does not stain the cyst walls and intracystic bodies well. Occasionally one can see gram-positive small, rounded bodies, the nature of which cannot be determined.

Weigert Method for Fibrin
In many of the organisms, the Weigert stain reveals a dense bluish-purplish stained focus in the rim of some of the cyst walls. In some areas it appears that there is an eosinophilic cytoplasmic mass extending from this dense rim into the cyst. In some of the cysts the densely stained body appears in the more central position within the cyst and occasionally has the configuration and staining properties of a small nucleus. The crystal violet of the Weigert stain stains the walls of the cyst and also the intracystic bodies faintly. The densely stained portions of the cyst walls appear to possibly represent nuclear material of the microorganisms. Within the alveolar spaces there are areas containing filamentous purplish-stained fragments that appear to be fibrin.

Cresyl-Echt Violet (Vogt's Method)
The Cresyl-Echt violet stain very faintly demonstrates the walls of the cyst. It stains the intracystic bodies much better, but the microscopic detail is not clear.

Warthin-Starry
The Warthin-Starry stains the walls of the cyst and intracystic bodies. The Warthin-Starry also demonstrates the small forms which are about the size of Klebsiella (2-3 micra) in cross section and may represent elementary bodies or possibly very early small cysts.

Bodian-Van Gieson
A Bodian-Van Gieson stains the walls of the cysts brown to black, but the intracystic bodies are not stained well.

Bodian-Gallocyanin
A Bodian-Gallocyanin stains the walls of the cyst black; it also stains the small extracystic bodies. In focal areas, one can see that these small elementary bodies are quite numerous outside the cysts, but may also occur inside the cysts.

Bodian-Alcian Blue
The Bodian-Alcian Blue stain stains the walls of the cyst grayish to black but the intracystic bodies are not well stained.

Gridley Fungus-Gallocyanin
The combination Gridley Fungus-Gallocyanin stains some of the cysts with light red, but the intracystic bodies are not stained well.

PAS-Gallocyanin
A combination PAS-Gallocyanin stains the cyst walls well but does not stain the intracystic bodies well.

PAS-Giemsa
A combination PAS-Giemsa stains the cyst walls well but does not stain the intracystic bodies well.

Brown and Brenn
A Brown and Brenn Gram stain fails to stain either the cyst walls or the intracystic bodies.

Masson
The Masson stains the cyst walls bluish-purple and the intracystic bodies a dark red, but microscopic details of the intracystic bodies are not very good.

Phosphotungstic Acid-Hematoxylin
The PTAH stain fails to stain either the cystic walls or the intracystic bodies; it also does not stain fibrin. It would appear the negative stain for fibrin is evidence that there is no fibrin mixed with the organisms in the alveolar spaces.

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4. Series of combination stains used by the author (L.G. Luna).
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Helpful Hints for Microwave Oven Use: More Than Just Staining

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The following are techniques which have been found to increase the use of the microwave oven in histology laboratories and to decrease the amount of "trial and error" time often necessary to find optimum timing.

Finding Optimum Staining Times:
No specific microwave oven is recommended. To find the optimum staining times for routine stains, the following methods are suggested:

1. For water-based stains:
   Take three plastic coplin jars and fill each with 50 ml of distilled water. Place one in the center of the microwave with lid affixed loosely and microwave on high for 30 seconds. Remove from microwave, stir and immediately take temperature reading.

   Repeat the procedure for microwaving at 45 seconds and 1 minute. The ideal temperature should be about 55° C. If the temperature is too high or the time too short for your purposes, repeat the procedure at 70% power.

2. For alcohol-based stains:
   Repeat the above procedure, using 40 ml of 70% alcohol. Remember alcohol boils at a lower temperature than water. You may want to lower the temperature, if possible, and extend the time of microwaving to avoid "Boil-overs."

3. Hematoxylins:
   Hematoxylin breaks down rapidly when heated, particularly above 55° C. Most hematoxylins will stain in 5-30 seconds. Several trial stains should probably be tried to find the optimum times for different hematoxylin mixtures.

Staining Containers:
Plastic coplin jars are standard labware for use in the microwave. However, if only 2 or 3 slides are to be stained or reagent amounts are low, plastic slide-mailing containers can be used. Those plastic mailers, which open at the top rather than the side, require less fluids—approximately 10-15 ml. If the tissue is placed at the bottom of the slide when cutting, even less reagent is required.

Place the slide holder in a Pyrex beaker, close the lid loosely, or cover with gauze. Set in center of microwave and heat. Some time variation may be necessary (usually shortening because of the smaller amount of liquid), but this does not seem to present a big problem.

If plastic slide mailers are not available, styrofoam mailers can be used. Slides will be stained horizontally rather than vertically with no adverse effects.

Coated ("Subbed") Slides:
Coat slides with adhesive as usual. Place in microwave in a plastic or wooden slide box (watch for metal closures and hinges). Place a paper towel over slides and microwave 1 minute on high; turn 90° (¼ turn) and microwave again on high for 1 minute.

Microwaves With Built-In Probes:
Remember the microwave oven "thinks" in Fahrenheit. Therefore, conversion to centigrade before starting is required.

Liquids heat hotter at the top of the container than the bottom. The probe will give the bottom temperature. Once the probe temperature has been reached, remove from the oven, stir liquid and measure the temperature with an external thermometer. This is particularly important when using fixatives.

To Heat Slides Prior to Deparaffinization:
After slides have been cut, place in a wooden or plastic slide rack. (We cut the bottom from a ribbed box in which blank slides come.) Remember to find a rack or box without metal hinges or locks. Put a paper towel over the slides (and another under the rack). Place in center of microwave, heat 1 minute on high, turn 90° (¼ turn) and heat 1 minute more.

Check slides for dehydration. They should look as they do in a conventional slide dryer after 20-30 minutes. If they are not dehydrated sufficiently, turn 90° (¼ turn) more and microwave 1 minute. Since you are heating the tissue through the paraffin, the slides can take a little more heat than usual. The slides on the ends heat faster than the ones in the center of the rack.

Fixation of Tissue for PAP/ABC:
Cut frozen sections. Place immediately in center of microwave or about 2 inches from center if using a carousel. Microwave on "defrost" for 15 seconds. Following this, fixation in 4° C acetone may be done.

The rapid drying of the tissue helps prevent leaching of surface antigens. If tissue is not to be stained immediately, conventional storage methods are then used.

The microwave can also be used for staining antibodies. Place primary antibody on the slide and position slide in microwave as for fixation (above). Microwave 30 seconds on "defrost." Proceed with conventional directions.

The use of a carousel is helpful for these procedures. Carousels can be purchased in houseware departments and need not be part of the original microwave equipment.

Setting Mounting Medium:
Place coverslipped slides on a cardboard slide folder, paper towel or 2 glass rods in center of microwave. Microwave 1 minute on high. Remove slides from microwave and cool 2-3 minutes at room temperature. Coverslips will not be dry enough to file, but they will not move.

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2. Sims, E: Microwave Use in Histopathology. Louisiana Society Histotech/NSH Reg. VI Conv./Sem., 1986.
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Defatting Procedure for Breast Tissue

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The purpose of this short paper is to present a method for the extraction of lipids to facilitate the infiltration of paraffin into the fat cell (adipocyte). Adipocytes occur in two major forms: Unilocular, with a single large inclusion of lipid, and multilocular, with smaller lipid inclusions. The adipocyte of concern here is unilocular (white adipose). Between 60%-85% of the weight of white adipose is lipid. Simple lipids are esters of fatty acids with alcohols and include fats, oils and waxes. Fats are neutral esters of *glycerol* with saturated fatty acids. Compound lipids consist of a fatty acid, an alcohol (usually *glycerol*) and one or more additional groups such as phosphorous or nitrogen. Different lipids are removed by different extraction processes. Cold acetone, for example, removes glycerides; hot acetone removes cerebrosides; hot ether removes lecithins and cephalins; a mixture of hot chloroform and methanol will remove all lipids.

Defatting Procedure:
1. Fix tissue in 10% neutral buffered formalin for a required period.
2. Place tissue in metal or nonacetone reacting cassettes.
3. Place cassettes containing tissue in acetone at a volume of at least 20 times that of the tissue to be defatted.
4. After 30-45 minutes, check solution for a cloudy or yellowish appearance. If fluid appears cloudy or yellow, change acetone; if not, change after 1 hour.
5. One hour later, change solution again.
6. Two hours later, check the tissue in one of the cassettes for oily appearance of the fat. If the fat does not appear oily, discontinue procedure. Use good judgment not to discontinue procedure too soon.
7. If procedure is to be continued, change solution for the final time. The defatting procedure should be complete after 6 hours with proper changes of acetone.
8. Wash tissue containing cassettes in cool running tap water for 3-5 minutes to remove residual acetone.
9. Process on TISSUE-TEK® V.I.P.™ as usual.

Hazardous Materials Safety Manual

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Laboratory safety, especially in the area of chemical and reagent safety, is a grossly neglected area in laboratory planning. When accidental exposure occurs, even seconds count. Emergency care providers need to act quickly in order to save lives or prevent great injury. Also, many communities have enacted "Right-To-Know" ordinances which require employers whose employees work with potentially hazardous materials to inform them of the risks involved in handling those chemicals.

Many employers have acquired the Material Safety Data Sheets (MSDS) for the chemicals and reagents they keep on site. We found, although these sheets contained much useful information, many times the pertinent information was difficult to find. Each company publishes its own format, so consistency was also a problem. We wanted to have pertinent information at our fingertips in the event of an accidental spill or the exposure of an employee.

After much discussion, we decided to establish a Hazardous Materials Safety Manual which would provide information quickly in the event of an emergency. The format for each chemical or reagent is as follows:

A. Definition and Use of the Product
B. Delivery to the Hospital
C. Storage Requirements
D. Disposal Requirements
E. Fire and Explosion Hazards
F. Employee Issues
    1. Exposure Treatment
        a. skin
        b. inhalation
        c. ingestion
        d. eye
    2. Physical Assessments
        a. baseline
        b. follow-up monitoring
    3. Prevention and Protective Measures
G. References

Categories A & B are self-explanatory. The Storage Requirements section includes heat and light restrictions, incompatibilities with their chemicals or reagents and special storage restrictions such as flammable cabinets. Disposal Requirements include any special treatment or disposal method as required by law. Fire and Explosion Hazards include information pertaining to flashpoint, explosion hazards upon mixing with incompatible materials and any decomposition products which are hazardous in the event of fire.

The Employee Issues section is the area where most of the research is involved. This section lists both acute and chronic effects of exposure to the material, making the employee and the supervisor aware of the symptoms. Many MSDS usually give first aid procedures which can be incorporated here. Most are broken down into the four categories which we use. Any extreme hazard (i.e., teratogen, carcinogen, mutagen) is listed in this section.

Physical Assessments include baseline and follow-up monitoring sections. The baseline includes tests (lab, respiratory, etc.), which would be useful in determining if the employee has a pre-existing condition which would place him at increased risk when using the material. Follow-up monitoring usually includes the frequency for repeating these tests to ensure that no gradual or chronic effects are manifested.

Prevention and protective measures include special equipment and clothing required for safe handling of the material. The references category is self-explanatory.

As stated, most of the information can be collected from material safety data sheets, hazardous materials handling books and internal medicine texts. It provides an easy way for the employees to be made aware of the dangerous properties of the chemicals and reagents they use. It also gives emergency care personnel clear, concise information regarding the effects of exposure and, as a result, allows for care to be provided on a more timely basis.

Calendar Check

See you at the NSH in Louisville, Kentucky October 9-14, 1988.

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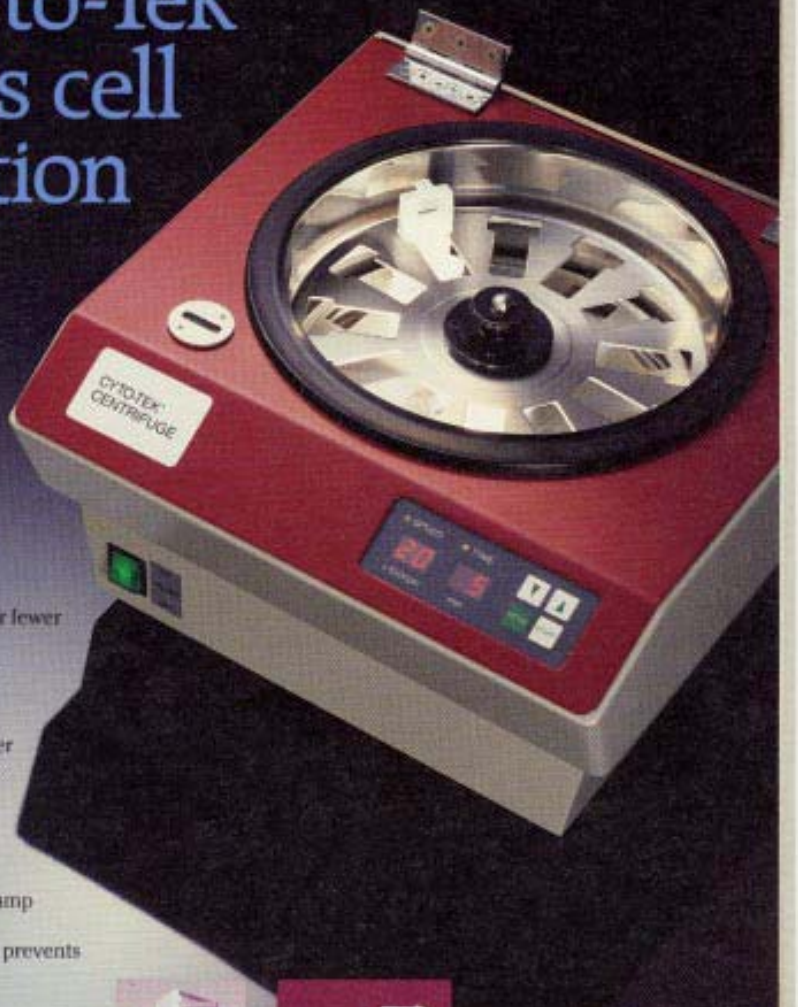

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039-0203

OSHA Sets New Formaldehyde Standards

The Occupational Health and Safety Administration's recent ruling covering *all* workers regarding the permissible exposure limits for formaldehyde is timely. With this ruling, laboratories are no longer exempt from the regulations which were originally intended to protect workers involved in the use of formaldehyde in the manufacture of products such as textiles.

In the new ruling, OSHA has specifically pointed to histology, pathology and anatomy labs and has mandated they comply with the new regulation in the same manner as industrial manufacturers.

The permissible exposure limit for an individual has been lowered from 3 ppm to 1 ppm (averaged over an 8-hour day). In addition, OSHA has established a short term exposure limit of 2 ppm (averaged over any 15-minute period). The new limits were effective February 2, 1988.

After two years of examining the issue, OSHA has determined that formaldehyde is an irritant, sensitizer and potential human cancer hazard. Research has shown formaldehyde to be a "weak initiator and a strong late stage carcinogen." This means that cancer may not appear for many years after the initial exposure. Furthermore, OSHA concluded that formaldehyde may cause asthma and skin irritations and aggravate existing cases of asthma.

In one study involving 13 different labs, OSHA found that 79% of the histotechnologists studied exhibited employment-related respiratory ailments and dermatitis as compared to 39% of a control group. Exposure concentrations for those histotechs ranged from 0.2 ppm to 1.9 ppm.

Monitoring is another issue addressed by the new OSHA standards. All employers are required to measure the formaldehyde exposure levels for each employee or job classification. Monitoring must be done for both the 8-hour and 15-minute averages. In a histology lab such tasks as preparing neutral buffered formalin, rotating and discarding solutions on the tissue processor and grossing tissues would be monitored.

The new regulations also indicate action to be taken for lower levels, even though they fall within the limits. If the 8-hour average is greater than 0.5 ppm or the 15-minute exposure exceeds 2 ppm, a medical surveillance program must be established for the employee performing that task. In addition, the work area must be monitored every six months as long as the 8-hour average formaldehyde concentration remains above the 0.5 ppm level and yearly if the 15-minute average remains above 2 ppm.

Work areas which exceed the maximum limits must post signs warning of the potential danger. Engineering controls (improved ventilation, exhaust hoods, etc.) must also be utilized. If these controls do not reduce the levels sufficiently, employers must provide workers with full face respirators.

In addition, protective equipment or clothing must be provided when the potential exists for contact with a 1% formaldehyde solution. A safety shower must also be available when working with a 1% solution, and an eye wash must be available when working with a 0.1% solution.

All histology labs will now be required to train employees concerning the hazards of formaldehyde and to inform them of the contents of the OSHA formaldehyde standard. You will also see cancer warnings printed on the labels of all products containing formaldehyde.

The best solution in a lab situation where formaldehyde levels exceed OSHA standards is the use of an enclosed tissue processing system with good fume control. The TISSUE-TEK® V.I.P.™ (Vacuum Infiltration Processor) System is designed to maintain air quality well within OSHA standards, not just for formaldehyde but also for xylene and other potentially dangerous reagents. In fact, the TISSUE-TEK® V.I.P.™ System is virtually fume-free.

There are still some "unknowns" relating to the dangers of formaldehyde. In fact, studies on the effects of formaldehyde in the histology lab are continuing. But OSHA's attention to the formaldehyde issue is an indication that it is a significant concern. We urge labs to monitor formaldehyde levels periodically in accordance with OSHA and its new formaldehyde standards.

A copy of the formaldehyde ruling may be obtained from the OSHA Office of Publications, U.S. Department of Labor, Room N-3101, 200 Constitution Avenue, N.W., Washington, DC 20210. Telephone (202) 523-9667.

V.I.P. White Paper Published

Comparing the various methods of tissue processing and the products available can be confusing and time consuming. Now the Diagnostics Division of Miles Inc., has published a "white paper" which compares various systems and methods for you.

The paper is called "Evaluation of Processing and Fixation Efficiency with the TISSUE-TEK® V.I.P.™ (Vacuum Infiltration Processor) System." It was prepared by Lee Luna based on an independent study of the processing efficiency of the

V.I.P.™ compared with hand processing, dip-and-dunk processing at room temperature and other enclosed tissue processing models.

The results clearly show that tissue processed in the V.I.P. has less trapped air after processing, fewer cutting artifacts after microtomy, more homogeneity in H&E-stained preparations and excellent paraffin impregnation. Overall, tissue shrinkage with the V.I.P. was similar to the other processing methods, but tissue preservation was shown to be superior in scanning electron microscopy. The white paper includes many microphotographs taken with the electron microscope. The study also evaluated tissue fixation efficiency, concluding that the V.I.P. was extremely rapid when compared to a control.

The study refers to an evaluation by Chaplin and Kirkpatrick which includes details about the V.I.P. System. Here, the authors conclude that they could "recommend it for widespread use." In addition, the study refers to an evaluation by Jakubiec of the safety features of an earlier V.I.P. model.

The overall conclusion of the study is that the V.I.P. System tissue processor—using heat, vacuum and pressure—provided better-processed tissue than the other processing systems evaluated.

A copy of the white paper is available through your Miles Representative or Scientific Products Division Representative.

John P. Koski

John P. Koski passed away on January 2, 1988. John was an extremely active individual who contributed much to the field of histotechnology. Many may not know, but he was a strong force and gave considerably to the profession during a time when there was very little organized activity. John presented many lectures on chemistry and histotechnology during the pre-National Society for Histotechnology (NSH) incorporation period and for many years was a staff member of the week-long course "Histotechnology Topics," sponsored by the American Society of Clinical Pathologists. He was a member of the small group of histotechnologists who met in Chicago on August 27, 1973, to discuss formation of the National Society for Histotechnology and was one of the Society's Founding Board Members. He served as the first NSH Treasurer, a board member, and representative to the Biological Stain Commission. His services to NSH continued during the past few years as a member of the Editorial Board of the *Journal of Histotechnology*. John's last contribution to the profession was at the 1987 NSH Symposium/Convention in Seattle, Washington, where he presented a workshop on histochemistry. This is particularly significant since he was extremely ill at the time. This sacrifice attests to John's dedication to his profession and colleagues.

John was extremely innovative and often presented his lectures in that manner. He simply mesmerized the audience by his intelligence, his approach to speaking and a God-gifted voice which would capture your immediate attention. I often remarked that all John had to say was "Good Morning" and he would draw immediate attention from the audience and, more importantly, retain it during his entire presentation. John Koski is missing from our midst, but his contributions will remain with us for many years. Thank you, John, for what you have done for us and the field of histotechnology.

Elmer Stotz

Elmer H. Stotz, Trustee and Treasurer of the Biological Stain Commission since 1947, died on November 22, 1987, at the age of 76. Internationally known for his contributions in the field of biochemistry, Dr. Stotz was a native of Boston and earned his bachelor's degree in chemistry from Massachusetts Institute of Technology in 1932. In 1936 he earned his doctorate in biochemistry from Harvard University and became instructor in biochemistry at Harvard Medical School. In 1943 he was appointed director of the chemistry division at the New York State Agricultural Experiment Station in Geneva, at which time he became associated with Dr. Harold Conn and began his many years of involvement with the Biological Stain Commission. Over the next 40 years he published numerous scientific reports on the standardization of dyes, which led to the development of the protocols and standards that are the basis of the quality control assays used in the Commission laboratories.

Dr. Stotz became Chairman of the Department of Biochemistry at the University of Rochester Medical School in 1946 and during the following year facilitated the transfer of the Commission Assay Laboratory from Geneva to the University of Rochester.

Over his 30-year career as department chairman, Dr. Stotz was active with a number of professional organizations including the American Society of Biological Chemists, the National Committee of Biochemistry and the International Union of Biochemistry. He was Co-Editor of "Comprehensive Biochemistry," a 41-volume treatise of advanced biochemistry and the history of that discipline.

Those of us who served with him in the Biological Stain Commission will long remember and miss his warm personal contacts. The Commission will be forever grateful for his dedication and many contributions and their impact on its activities and mission.

Profile of an Outstanding Histotech

We are all familiar with the qualifications and skills that are necessary to become a successful histotech. But when an individual exceeds those qualifications by acquiring special skills and qualities, they are usually well rewarded—in personal satisfaction and in recognition.

Such is the case of Diane Burica, supervisor of histology at Lutheran General Hospital in Chicago. Diane was recently named "Employee of the Year" for Lutheran General. Yolanda Trujillo, M.D., summarized the qualities that earned Diane the award. "I've known Diane for 11 years, and she is a real leader and has the respect of her employees. She is very professional with a great ability to listen. That's one of her most remarkable qualities."

Diane has been in her present position for 23 years. She is known for being a good listener and a sound manager. She is also known for showing an interest in the concerns of those she supervises. "Diane is an outstanding supervisor and manages her department well both financially and technically," explained Mary Ann Pohl, the hospital's administrative director of pathology. "She also manages people well by putting herself in their place in order to identify with their needs. That's a real talent because each employee is unique."

Pohl also stated, "Diane is committed to her job. She was one of the first people in her field concerned with safety issues in the lab and how they affected her employees. Because of her interest and knowledge, she is a well-known expert on laboratory safety."

Diane is a member of the Illinois Society for Histotechnology and the National Society for Histotechnology. In 1978, she was "Technologist of the Year" for the Illinois chapter and is a former vice president for the national organization.

"There are lots of capable people who deserve the award," added Pohl, "but Diane embodied all the necessary characteristics the hospital looks at for the award. She has excellence in job performance, commitment to the institution and a special concern for people. Diane hits the mark on everything."

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