GOLDEN FORCEPS
AWARD WINNER

We are pleased to announce that Charles Churukian has been selected as the recipient of the Golden Forceps Award for 1980. Mr. Churukian, who is Supervisor of the Special Stains Laboratories at the University of Rochester Medical Center, Rochester, New York, has submitted numerous articles for publication in Histologic®. Criteria for this award were clarity, originality, scientific content and continued contribution.

The Golden Forceps Award will be presented at the Symposium/Convention of the National Society for Histotechnology to be held in Atlanta, Georgia, October 27-31, 1980. Mr. Churukian’s current article, “Prolonging the Shelf-Life of Solutions Containing Silver Nitrate,” appears in this issue. Reprints of all his articles are available from Lab-Tek Division, Miles Laboratories, Inc., 30 W 475 North Aurora Road, Naperville, IL 60540.

Prolonging the Shelf-Life of Solutions Containing Silver Nitrate

Charles Churukian
University of Rochester Medical Center
Rochester, New York 14642

It is generally accepted that refrigerator storage of solutions containing silver nitrate will considerably extend their shelf-life. The refrigerator-stored shelf-life of Fontana-Masson’s ammonium silver and Gomori-Grocott’s methenamine silver (GMS) has been reported to be about one month. Most ammonium silver solutions used in various reticulum methods are unstable, especially those containing sodium or potassium hydroxide. Because of this, most workers have overlooked the possibility of refrigerator storage of ammonium silver. Usually, ammonium silver is used shortly after it has been prepared and discarded after use. This necessitates the preparation of ammonium silver each time a reticulum stain is requested which, in laboratories where a large volume of special stains are done, could be several times a week, involving considerable time and expense.

Gomori reported that ammonium silver containing sodium or potassium hydroxide may be used for two or three days when stored at room temperature. In the same report, he indicated that ammonium silver which contains a soluble carbonate would be usable for at least five or six days. According to Lillie the ammonium silver of Laidlaw, which contains lithium carbonate, keeps well for weeks and may be reused a dozen or more times. We have found that the ammonical silver used in a modification of Gomori’s reticulum method and that used in Wilder’s method can be reused for ten to fourteen days if kept refrigerated. Just prior to use the solution is brought to room temperature and immediately after use it is returned to the refrigerator. On a number of occasions, we have observed that reticulum fibers stain better after the ammonical silver has aged in the refrigerator for two or three days. After about five days, the solution begins to take on a pale yellow-brown color which may or may not become progressively darker. This coloration does not seem to adversely affect the impregnation properties of the ammonical silver.

It is recommended that ammonical silver, especially that which contains sodium or potassium hydroxide, be discarded when its shelf-life (not more than two days at room temperature in the dark and ten to fourteen days in the refrigerator) has expired. According to Smith and Wallington this type of ammonical silver has a tendency to form explosive silver compounds if the solution is exposed to light and is kept at room temperature for several days. According to their reports, explosions have occurred in some laboratories where precaution has not been exercised. Refrigerator storage of ammonical silver retards the formation of the explosive silver compounds but, according to Wallington’s report, does not always prevent their formation. The formation of a dark precipitate in ammonical silver is an indication that explosive silver compounds have formed. Should this occur, extreme care should be exercised in discarding the solution because the potential for an explosion is great.

We have observed that silver nitrate crystals stored at room temperature will gradually take on a greyish-violet color. This does not occur when silver nitrate is kept refrigerated, even after several years. Solutions made with silver nitrate which have become discolored are usable, but from our observation, seem to be less stable than those prepared with nondiscolored silver nitrate.

References:

American Registry of Pathology
Histopathology Staining Control
Slide Program

In 1976 the American Registry of Pathology (ARP) was
chartered by Congress to be established at the Armed Forces
Institute of Pathology as a "non-federal corporation to serve
as a focus for interchange between military and civilian
pathology and encourage the participation of medical, denti-
al, and veterinary sciences in pathology for the mutual
benefit of military and civilian medicine.

In response to requests from a number of pathologists and
a state society of pathology the American Registry of Path-
ology decided to initiate a program to produce slides for the
control of stains used in histopathology. The first slides
prepared are for M. tuberculosis, gram negative bacteria,
gram positive bacteria, fungus, and amyloid. Next, slides for
other special stains, including Warthin-Starry for spiro-
chetes, will be prepared.

In diseased human tissues, microorganisms of varying
ages and states of degeneration may be more difficult to
stain than in tissues of animals experimentally inoculated.
Therefore, insofar as possible, slides prepared from human
tissues will be used. An exception, of course, will be in pro-
viding control slides for spirochetes.

The slides for each special stain will be packaged in boxes
containing 25 slides. Each box will contain one slide stained
by the method used routinely at the AFIP and a copy of the
method currently used in the histopathology laboratory at
the AFIP. For some organisms, e.g. fungi, two stains (PAS
and GMS) will be included. Each box of 25 slides will
therefore contain 64 or 25 unstained paraffin sections.

The price to laboratories (federal and non-federal) for a box
of 25 slides, when payment accompanies the order, is $45.00.
If purchase order is sent, to cover administrative costs, the
price is $50.00. Payment (U.S. dollars) should be made to the
American Registry of Pathology and addressed to Histop-
athology Staining Control Slide Program; American Registry
of Pathology; Armed Forces Institute of Pathology;
Washington, DC 20306.

Preparation of Fluid Material for
Cytologic Evaluation

Mary Buksa
Medical Center of Beaver County
Beaver Falls, Pennsylvania 15010

In many small hospitals the histotechnologist is responsible
for the preparation of non-gynecological materials for
cytologic examination. This is a very responsible task since
without proper cyto-preparatory techniques, cytologic
diagnosis is impossible. A few important technical consider-
ations of which the histotechnologist should be aware are pro-
vided below.

Appearance of Gross Specimen
When a body fluid is received in the laboratory, the volume
and the gross appearance of the specimen should be noted
and recorded. Sputum should be carefully examined for par-
ticulate material and blood-streaked areas. These areas
should be chosen for cytologic examination. It should be
noted if a pleural effusion is spun down and a large white but-
ton is obtained. This should also be done if a urine specimen
is clear and no button is obtained on centrifugation.

Specimen Handling
Fluids that are received unfixed should not be allowed to
sit in the laboratory, since exfoliated cells decompose rather
rapidly. If there is an unavoidable delay, the specimen
should be stored in the refrigerator. However, smears should
be made as soon as possible after the fluid reaches the
laboratory.

Smear Preparation
Viscid specimens, such as sputum, can be spread on a plain
glass slide. When it becomes necessary to centrifuge a
specimen to obtain sufficient cellular material for examina-
tion, the sediment can be spread on a plain glass slide coated
with a thin film of egg albumin, or spread on a fully frosted
slide. This will keep the specimen from washing off during
the fixation and staining processes. It is important to spread
the material thinly and evenly, as a thick smear will not stain
properly and is difficult or impossible to read.

Fixation
Fixation must be undertaken immediately after making the
smear. Slide/Specimen drying produces artifacts which
impair staining and interpretation. The slides may be either
immersed in 95% ethyl alcohol or fixed with a commercial
fixative.

Gross Specimen Storage
It is recommended that a few extra slides be made while
the specimen is still fresh. These slides are set aside in case
special stains or additional slides are required for diagnosis.
The unfixed gross specimen should be refrigerated and saved
until a diagnosis has been rendered and reported. Specimens
are often needed for further testing. For example, a pleural
fluid may be required for a screening test of high concentra-
tions of hyaluronic acid in a suspected diffuse malignant
mesothelioma.

Conclusion
The pathologist and the patient rely heavily on the
histotechnologist in this most responsible area of cyto-
preparation. He can only call it as he sees it, and for this he
depends on your technique.

H&E Staining With Paper Strips

J. Ziaja, V. Granat, and E. Gruebbl
Lutheran Medical Center
St. Louis, Missouri 63118

It is not uncommon to have to do a frozen section and find
the hematoxylin and other solutions evaporated and/or
precipitated. The histotechnologist then rush to change the
solutions.

To prevent this, we find that small strips of bibulous paper
soaked with hematoxylin and eosin work very well for STAT
H&E's. These squares of solution soaked papers are easily
prepared. Coverslip size, or 24 x 40 mm, strips of bibulous
paper are dipped in hematoxylin, placed on a microscopic
slide and dried in a slide dryer. Eosin strips are prepared in the
same manner.

To use, a frozen section is cut, picked-up on a slide and im-
mediately dipped in 95% alcohol to fix. Drying of the section
is avoided. Rinse slide in tap water, cover section with
hematoxylin impregnated strip, moisten with a few drops of
tap water and allow to stain for 2-5 minutes. Rinse strip and
excess stain from slide with tap water, which will then blue
the section. The eosin impregnated strip is applied in the
same manner, moistened with tap water and stained for
15-30 seconds. Rinse slide with tap water, dehydrate with al-
cohols, clear in xylene and mount. Coverslip with a
resinous media.
Histopathology will be an ever-increasing integral part of the medical field in the future.

References:

Solutions to Amylase Problems

Editor's Note: The following articles are in response to an inquiry which appeared in Vol. X, No. 1, January 1980, issue of Histo-Logic.

Bill Barlow
Riverside Hospital
Wilmington, Delaware 19899

I have a possible solution to the amylase problem that Paulyn Lawton referred to in Histo-Logic, 50 mg amylase (A-amylase A5-605 from Sigma Chemical Co. seems to be very specific) was dissolved in 50 ml of Luna-Parker Giemsa buffer (pH 6.0) with no filtering required. Complete digestion of glycogen takes place in 20 minutes or less at 37°C, or preferably at room temperature in 1 hour.

S. A. Gourley
Veterans Administration Hospital
New York, N.Y. 10010

We have solved the problem of “commercial malt diastase” in the following manner. Remove slide from distilled water; place on rack or jar. Expectorate saliva plus a few drops of water and a sprinkling of diastase. Let stand on the slide for 13 to 30 minutes. Wash in running water for 20 minutes and stain. We have experienced good results regardless of the diastase used.

Can You Help?

Brenda Collins
University of Tennessee
Veterinary Teaching Hospital
Knoxville, Tennessee 37901

I am having a problem obtaining reliable results with silver impregnation techniques for axons in the central nervous systems of large and small animals. I have experimented with both the Bodian and Holmes methods and obtained variable results. Axons may stain well in small animals and faintly with large animals with the same technique. Our tissues are perfused-fixed or immersion-fixed with 10% BNF, but the fixation method has not consistently been associated with either faint or deep staining.

Is there any technique or modification of the above methods for axons which works well with large and small animals in the central nervous systems?

Any help and advice may be forwarded directly to Ms. Collins with a carbon copy of suggestion to the Editor of Histo-Logic.
LAB-TEK MULTI-PURPOSE CONTAINERS

Save time, space, and money with clinic-white 4 to 172 oz. Multi-Purpose Containers

- Tight-fitting lids for secure collection, transport, and storage
- Shipped in compact, space-saving cartons of nested containers with lids
- Stack-packed in polyethylene bags to ensure cleanliness and easy distribution
- Easy to label with pen, pencil, or marker

For additional information contact Lab-Tek Division, Miles Laboratories, Inc., 30 W 475 North Aurora Road, Naperville, IL 60540

THE SUPER-SAVERS
4719—4 oz. 300 per case.
4721—8 oz. 100 per case.
4723—16 oz. 100 per case.
4725—32 oz. 100 per case.
4727—86 oz. 25 per case.
4729—172 oz. 10 per case.

Journals and Publications

Journal of Histotechnology
Published quarterly: March, June, Sept., Dec.
National Society for Histotechnology
P.O. Box 36
Lanham, MD 20801

American Journal of Medical Technology
Published monthly
American Society for Medical Technology
Suite 200
5555 West Loop South
Bellaire, TX 77401

Histo-Logic
Published quarterly: Jan., April, July, Oct.
Lab-Tek Division,
Miles Laboratories, Inc.
30 W 475 North Aurora Road
Naperville, IL 60540

Photography Through the Microscope
Catalogue #152-8371
Eastman Kodak Company
Rochester, NY 14650

Laboratory Medicine
Published monthly
American Society of Clinical Pathologists
2100 W. Harrison Street
Chicago, IL 60612

Journal of Histochemistry and Cytochemistry
Published monthly
The Williams & Wilkins Company
428 East Preston Street
Baltimore, MD 21202

MLO - Medical Laboratory Observer
Published 13 times a year
Medical Laboratory Observer
Box 543
Oradell, NJ 07649

Effective Use and Proper Care of the AO Microtome
American Optical Corp.
Eggert & Sugar Roads
Buffalo, NY 14215

Stain Technology
Published bi-monthly
The Williams & Wilkins Company
428 East Preston Street
Baltimore, MD 21202

Laboratory Management
Published monthly
Laboratory Management
475 Park Avenue S.
New York, NY 10016

Lab World
Published monthly
Lab World
P.O. Box 13897
Philadelphia, PA 19101

To receive your own personal copy of HISTO-LOGIC, or to have an associate added to the mailing list, submit home address to: Lab-Tek Division, Miles Laboratories, Inc., 30 W 475 North Aurora Rd., Naperville, Illinois 60540

Printed in U.S.A.