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# the AFIP LETTER

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Armed Forces Institute of Pathology  
Washington, DC 20306-6000

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## Veterinary Pathology improves quality of life for 'all creatures great and small' —including man

The Department of Veterinary Pathology provides *consultation, education, and research* in animal pathology and laboratory animal medicine to benefit many species, including *Homo sapiens*. The department includes 8 board-certified veterinary pathologists, 11 pathology residents, a laboratory animal veterinarian, a laboratory animal medicine resident, and 18 technical laboratory and administrative support personnel; 22 are active duty. These services for "all creatures great and small" are very important components of Army veterinary medicine—excellence in care. The medical readiness of Department of Defense (DoD) animal programs is paramount. The functions of the department are quite diverse.

Diagnostic consultation includes first-opinion surgical and autopsy cases submitted primarily by military veterinarians and second-opinion cases submitted by military and civilian veterinary and physician pathologists from throughout the world. Additionally, the department has a formal agreement to provide pathology

support to the National Marine Fisheries Service, the federal agency with primary responsibility for monitoring the health of legally protected marine mammals. Thus, cases submitted to the department include domestic species (mainly dogs, cats, and horses), many wildlife species (particularly dolphins and seals), and laboratory animals (from rodents to primates). Helping maintain the medical readiness of military working animals, such as security and explosive detection dogs and trained dolphins and sea lions utilized by the Navy, is a top priority. For second-opinion cases, the ability to obtain consultation from the AFIP's human pathology specialty departments helps insure accuracy and provides a unique capability from a comparative perspective. AFIP's physician pathologists enjoy discovering the similarities and differences in pathological entities encountered among the various species.

The education mission is large. In order to supply well-trained veterinary pathologists to work in DoD biomedical research laboratories, the department conducts a 3-year residency program for military veterinarians. These AFIP-trained residents have an outstanding record of performance on the American College of Veterinary Pathologists board certification examination. In the 1950s, the department began conducting a histopathology

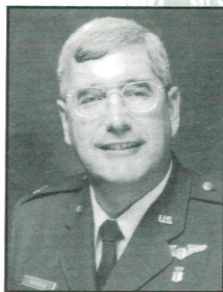
*Continued on page 12*

*A military working dog; AFIP veterinary pathologists at National Zoological Park; inspecting a camel in Kuwait; and bottlenose dolphins.*





## DIRECTOR'S MESSAGE



### AFIP performs DNA testing on Vietnam Unknown remains

Our world-renowned Armed Forces DNA Identification Laboratory (AFDIL) is once again taking center stage, this time working to identify the remains of the Vietnam Unknown. On May 14, AFIP received the flag-draped casket containing the remains, which had been exhumed earlier at Arlington National Cemetery. I'm pleased to report that AFDIL has already obtained a good DNA sample from the remains, and our staff is now in the process of matching this sample with others taken from family members. Our hope is to provide a DNA match to the Army's Central Identification Laboratory, Hawaii (CILHI), where an official identification can be made.

AFDIL utilizes a special form of DNA analysis called mitochondrial DNA (mtDNA) to identify older degraded skeletal remains of service members killed in Southeast Asia and in other past military conflicts. Since its 1991 inception, the lab has made 72 matches from Southeast Asia and is in the process of confirming over 100 others.

AFDIL was one of the first forensic laboratories in the United States to apply mtDNA sequence analysis, and remains a leader in the field. Its staff of 24 molecular biologists, DNA analysts, technologists, and technicians routinely work on the most difficult of cases, having a significant impact on the ability of the military to identify these once-missing service members.

AFDIL's work has received international attention in other ways. In 1995, our scientists successfully confirmed the

## TUMORS OF THE PITUITARY GLAND

Atlas of Tumor Pathology, Third Series, Fascicle 22

Sylvia L. Asa, MD, PhD, Pathologist

Mount Sinai Hospital, Toronto, Ontario

Armed Forces Institute of Pathology, Washington, D.C. ISBN 1-881041-44-1

This monograph represents a comprehensive review of the various tumors and tumorlike lesions that involve the pituitary gland and the sellar region. It features a clinicopathologic approach to the diagnosis of pituitary adenomas and a systematic review of other sellar and parasellar tumors that present with mass effects and/or endocrine syndromes.

The text reviews normal anatomy, embryology, and cytology as well as hormonal function and regulation. New aspects of the molecular regulation of cell differentiation and hormone function are included. One chapter is dedicated to practical issues of specimen handling, including the diagnostic roles of intraoperative consultation, conventional histology and special stains, immunohistochemistry, electron microscopy, genetic analysis, and other techniques. Clinicopathologic correlates in pituitary adenomas are emphasized, with descriptions and illustrations of clinical manifestations, biochemical data, and radiological findings relevant to the pathological diagnosis of all major entities. Morpho-

logic features of each tumor are lavishly illustrated; differential diagnoses are discussed in detail; and a large portion of the monograph is dedicated to other tumors and non-neoplastic lesions that occur in the region of the sella turcica. Prognostic implications and therapeutic approaches are reviewed for each pathological entity. Every chapter has an extensive and up-to-date bibliography.

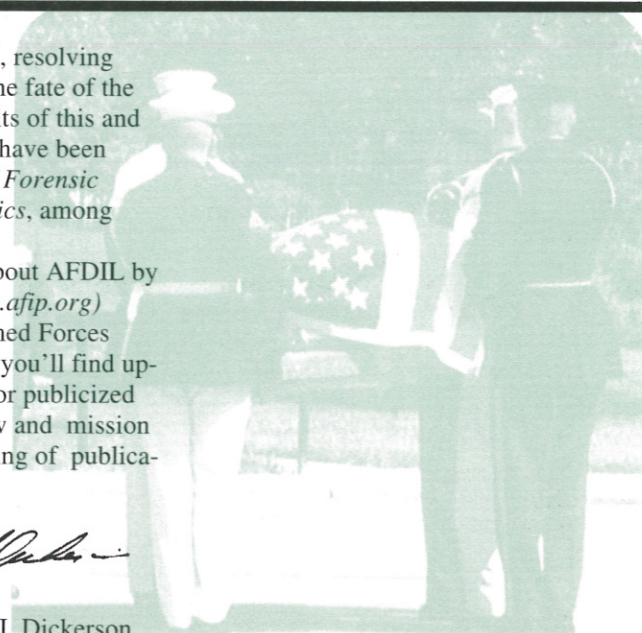
In 214 pages and 295 figures (200 in color), this volume emphasizes practical issues in diagnosis and potential pitfalls, while including essential basic information. This fascicle will serve as a valuable resource for pathologists as well as endocrinologists, neurologists, neurosurgeons, radiologists, and scientists with an interest in the diagnosis, cytogenesis, and pathogenesis of pituitary disease.

*Tumors of the Pituitary Gland* is available through the American Registry of Pathology, 14th and Alaska Avenue, N.W., Bldg 54, Room 1077, Washington, D.C. 20306-6000, Telephone (202) 782-2666/0370, FAX (202) 782-0941.

identity of Tsar Nicholas II, resolving lingering questions about the fate of the Romanov family. The results of this and other mtDNA applications have been published in the *Journal of Forensic Sciences* and *Nature Genetics*, among others.

You can learn more about AFDIL by visiting our Web site ([www.afip.org](http://www.afip.org)) under the Office of the Armed Forces Medical Examiner. There, you'll find up-to-date information on major publicized cases, a historical overview and mission statement, along with a listing of publications.

Michael J. Dickerson  
Col, USAF, MC  
The Director



## EDUCATION UPDATE

# New courses planned for 1998–1999 academic year

Planning for the AFIP/ARP 1999 educational programs has begun in earnest. All of our most popular courses will be repeated, following revision and some redesign. These courses, which we tailor specifically for the practicing pathologist and clinician, continue to be very well received. We are planning some new courses for 1999, as well. The AFIP and ARP have entered into some strategic partnerships to help the Center for Advanced Medical Education (CAME) expand the scope and reach of its programs.

For example, we are partnering with George Mason University to offer a graduate level mitochondrial DNA course. This course brings together the unique expertise of the AFIP and the modern laboratory facilities of George Mason's Prince William campus. The

aim of the course is to provide state-of-the-art training on important topics regarding the genetics of mtDNA and the current issues revolving around the use of mtDNA in forensic casework. In addition, we are planning for a mitochondrial DNA conference in November 1999 to address a range of important issues in mtDNA. We intend to bring together the best and brightest researchers and practitioners in the mtDNA field in a 3- to 4-day conference. Information will be available both in the *AFIP Letter* and on our Web site [www.afip.org](http://www.afip.org) (select education/upcoming courses).

Also in planning for May 1999 is "Assessing the Uncertainties and Assumptions for Risk Assessment of Endocrine Disruptor Chemicals: A Multi-Agency Conference." This conference will bring together the Environmental

Protection Agency, the United States Geological Survey, AFIP, and ARP in a joint endeavor. Plans are under way to hold the conference at the Crystal City Marriott complex. A call for abstracts is planned, as is support from organizations that are stakeholders in the endocrine disruptor issue. More information will be available about this course on our Web site and in the *Letter* in the near future.

A third new course on the practical/legal aspects of PAP smears is also being planned. This course will bring together science and legal medicine considerations in a unique treatment of this important topic. We are currently surveying prospective attendees to ascertain how to orient the course to address the most important issues.

## MUSEUM

### All the Symptoms of an Artist: Working from Medicine opens at NMHM on July 23

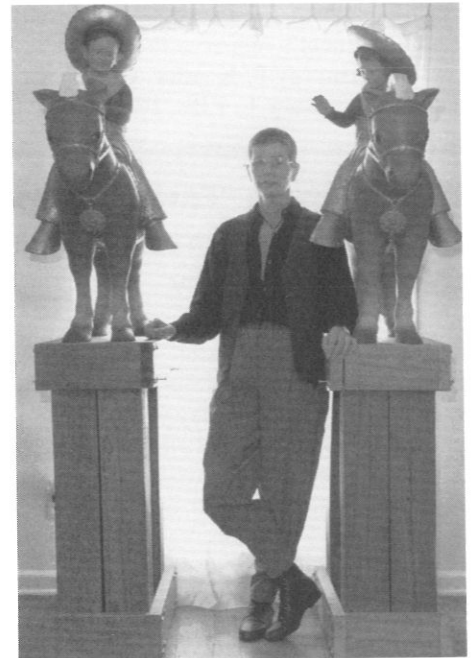
A traveling group exhibition, *All the Symptoms of an Artist: Working from Medicine*, will open at the National Museum of Health and Medicine for a 5-month run on July 23. The featured artists, current or former health care practitioners, all regularly show work in galleries and museums throughout the United States and overseas.

The exhibition explores the links connecting the domains of art and healing. The five artists featured, all current or former nurses and physicians, have created installation pieces, paintings, sculpture, mixed media, and works on paper.

The artists approach this subject in a variety of personal and evocative ways. New York ophthalmologist Rosalind Kaplan unites objects from her practice with her artwork. Elizabeth Hill, a former

Philadelphia pediatric nurse, refers to her caregiving activities only obliquely, but sees the healing experience as integral to the creation of art. And as New York psychoanalyst Cynthia Stone says, "Art and psychoanalysis have this in common: they are both interested in the unseeable sensed with the seen."

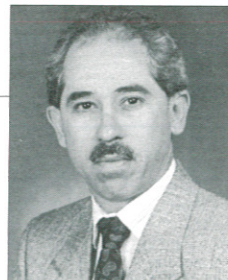
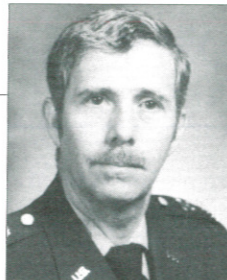
The National Museum of Health and Medicine is the centerpiece of what is planned as a five-city tour. *Symptoms* is organized by OATH, the Organization for Artists Trained in Health Care, a Philadelphia-based international organization of fine artists who are or were health care practitioners. OATH was founded in 1995 by Diane Dunning, curator for the World Bank, and Pamela Rogow, former museum director of the Academy of Natural Sciences and a long-time museum exhibition developer. According to Ms. Rogow,



the unique confluence of art and medicine in this region has provided a rich base for what is now an international organization.



## AFIP STAFF IN THE NEWS



Susan L. Abbondanzo, MD, Donald E. Sweet, MD, Harvey P. Kessler, COL, DC, USA, Jose A. Centeno, PhD, and Sarah S. Frankel, MD (from left).

● AFIP staff members presenting at the annual meeting of the American Academy of Oral and Maxillofacial Pathology in Dallas, Texas, May 1998, included **Susan L. Abbondanzo, MD**, chair, Department of Hematologic and Lymphatic Pathology, who spoke on *"Benign and Malignant Lymphoid Lesions of the Cervical Neck Region;"* **Donald E. Sweet, MD**, chair, Department of Orthopedic Pathology, who spoke on *"The Pathogenesis of Primary Bone Tumors and Relationship to Skeletal Development and Cranial Facial Structure;"* and staff from the Department of Oral Pathology, who presented the *19th Annual AFIP Seminar*. Topics included atypical, unusual, or uncommon lesions from the head and neck region that have been accessioned through the department's registry. Presenters included **Harvey P. Kessler, COL, DC, USA**, chair; **Gary L. Ellis, DDS, VA**;

**Douglas M. Arendt, CAPT, DC, USN;** **Robert K. Goode, Col, USAF, DC;** **Lee J. Slater, Col, USAF, DC;** **Gary R. Warnock, CAPT, DC, USN;** and **Theodore Zislis, COL, DC, USA.**

● **Jose A. Centeno, PhD**, research scientist, Department of Environmental and Toxicologic Pathology, Division of Environmental Pathology, was invited to present a lecture and to serve as a session chair at the First International Conference on Trace Element Speciation in Biomedical, Nutritional and Environmental Sciences, held in Munich, Germany, May 4-7, 1998. Dr. Centeno presented a research paper on metal ion speciation in biomedical research. He also lectured and served as a session chair at the 5<sup>th</sup> International Symposium on Metal Ions in Biology and Medicine, held the week of May 8-10, 1998, also in Munich, Ger-

many. A total of four research papers covering the topics of chemical, environmental, and clinical analyses;

speciation; and toxicology of trace elements and metal ions were published.

● In October 1997, **Sarah S. Frankel, MD**, staff pathologist, Department of Infectious and Parasitic Disease Pathology, Division of AIDS and Emerging Infections, presented a lecture on *Pathology of HIV Infection and AIDS* to the Thailand Branch of the International Academy of Pathology (IAP) in Bangkok, Thailand. Dr. Frankel presented her lecture at the Royal Thai Army Institute of Pathology. Dr. Frankel was in Thailand for an immunology symposium in Chang Mai, sponsored by the Walter Reed Army Institute of Research (WRAIR) Division of Retrovirology. She is collaborating with WRAIR on the development of global HIV vaccines to protect military personnel.

## Workshop on "Environmental and Human Health Research" organized by the AFIP and the US Geological Survey

The AFIP, in collaboration with scientists from the US Geological Survey (USGS), recently organized a 2-day workshop entitled *"Environmental and Human Health Research."* The workshop was held on May 12-13, 1998, at the USGS Headquarters in Reston, Va. The objectives of the workshop were to identify areas of mutual interest with respect to environmental impacts on human health and to explore the possibilities of developing mutually beneficial collaborative research and educational projects. Overviews of human health initiatives and

environmental research activities at the AFIP and the USGS were presented by scientists from both organizational units.

Other activities included a 2-day display of exhibits and new technologies (e.g., telepathology) available at the AFIP and the USGS for the study of environmental and human health-related projects. The invited speaker was Kenneth Olden, PhD, director of the National Institute of Environmental Health Sciences (NIEHS), who lectured on national environmental and human health issues at the NIEHS.

Other participants included leading

scientists from the Environmental Protection Agency, the National Cancer Institute, and the Department of Interior. The workshop was organized and directed by Jose A. Centeno, PhD, from AFIP's Department of Environmental and Toxicologic Pathology, and Robert Finkelman, PhD (USGS).

(l to r) At workshop on environmental and human health research, Len McWilliams, PhD, USGS, Jose A. Centeno, PhD, Susan Price, PhD, USGS, Florabel G. Mullick, MD, SES, and Gary Krizanich, PhD, USGS, observe a real-time computer display showing environmental problems due to geological materials. USGS and AFIP scientists demonstrated the development of an interactive Decision Support System (DSS), which is based on the use of a geographic information system and databases for the rapid analysis of environmental issues related to energy resources and their impact on human health.





## AFIP/ARP at the 1998 U.S. and Canadian Academy of Pathology Meeting

The 87th Annual Meeting of the U.S. and Canadian Academy of Pathology, held in Boston from February 28- March 6, 1998, was an outstanding success for AFIP staff members. "As usual the AFIP has excelled in its academic activities, especially when it relates to continuous collaboration with the International Academy of Pathology and the USCAP division," notes **Florabel G. Mullick, MD, SES**, AFIP Associate Director and Director, Center for Advanced Pathology. Dr. Mullick also serves as secretary for the International Academy of Pathology.

Three American Registry of Pathology (ARP) functions were held at the start of the meeting. On Saturday, February 28, **ARP Executive Director Donald West King, MD**, hosted a dinner at the Harvard Club of Boston for 120 "Friends and Alumni of the AFIP." Featured speaker Cay-Rüdiger Prüill of the Institute of History of Medicine in Freiburg, Germany, lectured on "Holism in German Pathology."

On Sunday, March 1, ARP hosted a breakfast for the Intersociety Pathology Council at the Sheraton Boston Hotel and

Towers. Jeff Goldsmith, MD, spoke on "The Effect of Managed Care on Laboratories." That evening, ARP also hosted a reception at the hotel for the History of Pathology Society, following the seminar, "The Emergence of American Surgical Pathology: Four of Its Pioneers." Attendance was strong at all events.

**Sylvana M. Tuur-Saunders, MD**, comoderated "Viruses and the Kidney" at the Binford-Dammin Society/Renal Pathology Society companion meeting, while five other AFIP staff members conducted *Short Courses*. The courses included "Radiologic-Pathologic Correlation in the Diagnosis of Solitary Skeletal Lesions" (**Donald E. Sweet, MD**); "Pathology of Sudden Cardiac Death" (**Allen P. Burke, LtCol, USAF, MC, and Renu Virmani, MD**); "Perplexing Pathological Problems of the Pleura and Pneumoconiosis" (**William D. Travis, MD**); and "Diagnostic Problems in Neoplastic Pulmonary Pathology" (**Cesar A. Moran, LtCol, USAF, MC**).

**Ann M. Nelson, MD**, codirected the *Specialty Course*, "An Interdisciplinary Approach to the Pathology of Infectious Diseases." Dr. Nelson also lectured on

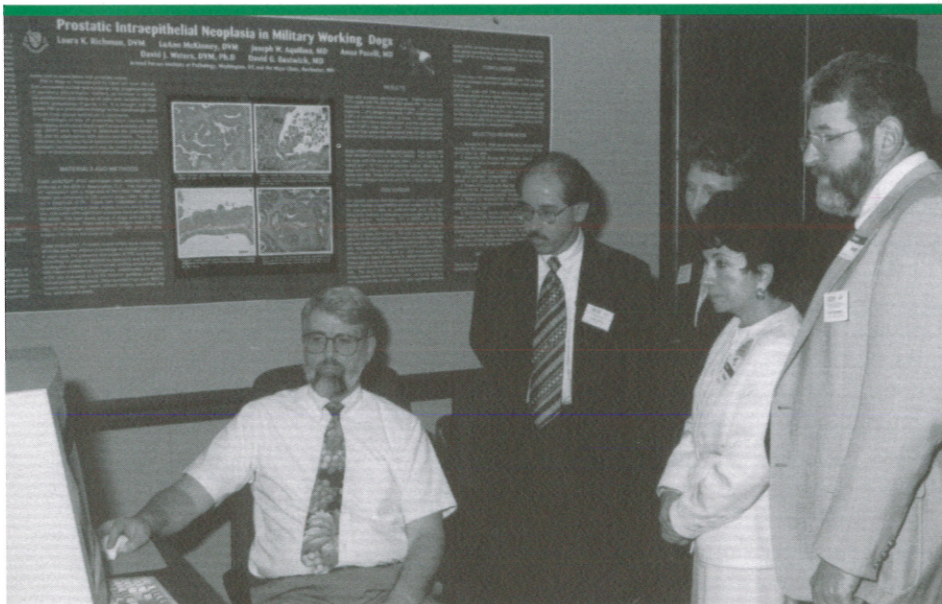
"Infectious Complications of HIV Infection" at the course, where she was joined by **Susan L. Abbondanzo, MD**, who lectured on "Infections of the Reticuloendothelial Organs." Dr. Abbondanzo also served as a panelist at the Hematopathology Specialty Conference.

**Jeffery K. Taubenberger, MD, PhD**, chief, Division of Molecular Pathology, Department of Cellular Pathology, received the 1998 Castleman Award for his paper, "Initial Genetic Characterization of the 1918 'Spanish' Influenza Virus" (*Science*. 1997; 275:1793). The recipients of the Castleman Award, sponsored by the Massachusetts General Hospital and the U.S. and Canadian Academy of Pathology, must be a pathologist or a pathology resident or fellow who has not yet reached his/her 40th birthday. Dr. Taubenberger joins fellow AFIP staff member and 1997 Castleman Award winner **Sarah S. Frankel, MD**, as the only consecutive recipients of the award from the same institute.

Sixty-seven AFIP staff members combined their efforts to produce 55 *abstracts*, including 14 *platform presentations* and 40 *posters*.

Hundreds of pathologists visited the AFIP exhibit, which included displays on education, telemedicine, and publications for sale. Attendees purchased 591 texts and 88 CD-ROMs, and 39 pathologists enrolled in the AFIP Atlas Subscribers program to receive future tumor fascicles automatically.

—Compiled by Christopher Kelly







## Nelson S. Irey, MD, 1911-1997, receives John Shaw Billings Award

The family of the late Nelson S. Irey, MD, former chair, Department of Environmental and Toxicologic Pathology, accepted the John Shaw Billings Lifetime Achievement Award in his honor at ceremonies preceding the Ash Lecture on May 21. The award, established in 1989, recognizes the contributions of a senior staff member with at least 15 years in federal or military service at the AFIP who is nationally and internationally recognized in the field; has successfully published in peer-reviewed medical journals; and has organized and participated in courses at the AFIP and/or international societies of pathology.

Dr. Irey joins Elson B. Helwig, MD, Franz M. Enzinger, MD, Fatollah K. Mostofi, MD, and Kamal G. Ishak, MD, PhD, as a recipient of this prestigious award.

Nelson S. Irey has long been recognized as the foremost environmental pathologist in the world. A native of Lewisburg, Pa., Dr. Irey received his MD degree from the University of Pittsburgh School of Medicine. After a rotating internship at St. Francis Hospital in Pittsburgh, he served residencies at Letterman General Hospital and Fitzsimons General Hospital while serving in the U.S. Army.

Dr. Irey received his board certification in anatomic pathology in 1949 and in clinical pathology in 1958. He joined the staff of the Armed Forces Institute of Pathology and was appointed chairman of the Department of Environmental and Toxicologic Pathology in 1965. He was a

member of the Senior Executive Service of the U.S. Civil Service.

Dr. Irey's professional interests were clinicopathologic studies of adverse drug-induced reactions, occupational diseases, and other aspects of chemical toxicity before it was "fashionable" to do so. He was the true pioneer of environmental pathology in its entire spectrum. Thanks to his vision and determination, the AFIP and the Department of Defense have registries for Agent Orange, Kuwait oil fires, and Gulf War syndrome, an achievement that is unmatched. Dr. Irey authored or coauthored over 50 scientific publications, which included four book chapters, two syllabi, and two monographs; served on the editorial board of three professional journals; and was an active member of the Permanent Workshop of Imputologists for Drug Surveillance, headquartered in Bordeaux, France.

Dr. Irey is credited with other multiple scientific achievements, such as describing and characterizing, for the first time, the vascular lesions associated with the use of oral contraceptives; describing the lesions associated with radiological contrast media; and providing detailed descriptions of how some drugs mimic benign and malignant tumors, just to name a few. Dr. Irey received several international honors and awards during his career, including the Department of Forensic Sciences Award from George Washington University and the David Malcolm Robinson Lectureship by the Walter Reed Army Medical Center.

Dr. Irey had several external appointments that included clinical professor of pathology, Uniformed Services University of the Health Sciences, and George Washington University in both the School of Medicine and the Department of Forensic Sciences, Graduate School of Arts and Sciences.

Dr. Irey was a kind person with a graceful spirit and possessed the ability to make fundamental concepts blossom. His success as a teacher was not so much due

to great knowledge (which he had), but rather to his elegant mind. In a world driven by measurable results and competition, his gift was curiosity and a great capacity to focus on processes that shed light on far-reaching questions.

Dr. Irey is survived by three daughters, Kathryn Irey, a ballet dancer/instructor, who lives in San Diego, Calif.; Mary Ellen LoVerso, a former actress, living in Helper, Utah; and Jane Albro, widow of retired General Ames S. Albro, who lives in Fairfax, Va.; and one son, Nelson S. Irey, II, an emergency medical technician, who resides in Darnestown, Md.

### HISTO NOTES

#### Helpful Hint: A technique to flatten plastic sections

Place a plastic section on the slide. Warm the slide on a slide warmer at 60°C for 2 seconds. The plastic softens and allows you to gently straighten and flatten out the section. Saturate section with Haupt's solution.

#### Haupt's solution:

1. Distilled water, 500 ml. Heat to 30°C.
2. Gelatin, 5 g.
3. Phenol crystals, 10 g.
4. Glycerine, 75 ml.
5. Stir until fully dissolved and filter.

Place a piece of plastic on slide and gently flatten out section with your thumb. Do not allow your section to dry out, as this causes the tissue to crack.





## F. Yvonne Schulman, DVM, receives John Hill Brinton Award

F. YVONNE SCHULMAN, DVM, staff pathologist, Division of Veterinary Pathology, Department of Veterinary Pathology, received the 1998 John Hill Brinton Award at the Ash Lecture on May 21. She won the award for her article, "Histologic, Immunohistochemical and Polymerase Chain Reaction Studies of Bottlenose Dolphins from the 1987-88 United States Atlantic Coast Epizootic," published in the July 1997 edition of *Veterinary Pathology*. Named after the first curator of the Army Medical Museum, the award is given to a junior staff member selected by a panel from the AFIP's Scientific Advisory Board. The winner must be under age 41 and not a department chairperson or equivalent, and must serve as the primary author of a scientific publication.

Dr. Schulman's award-winning article was coauthored by Thomas P. Lipscomb, DVM, D. Moffett, Amy E. Krafft, PhD, Jack H. Lichy, MD, PhD, Mark M. Tsai, MS, Jeffery Taubenberger, MD, PhD, and Seamus Kennedy, MVB, PhD, MRCVS.

The *Veterinary Pathology* article provided strong evidence that morbilliviral infection was the cause of an epizootic that is estimated to have killed 2,500 bottlenose dolphins along the U.S. Atlantic coast in 1987 and 1988. The increased mortality was originally attributed to brevetoxin, a red tide neurotoxin. In a retrospective study, Drs. Schulman and Lipscomb identified histologic lesions compatible with morbilliviral infection, including lymphoid depletion, interstitial pneumonia, syncytial cells, inclusion bodies, and

opportunistic infections. The suspicion of morbilliviral infection was confirmed by immunohistochemistry developed by Dr. Kennedy of the Department of Agriculture of Northern Ireland and reverse transcriptase polymerase chain testing developed by members of the Department of Cellular Pathology, AFIP. Historically, morbilliviral infections, such as measles and canine distemper, have been associated with high morbidity and mortality when naive populations are exposed. The 1987-88 epizootic is the first of five major aquatic mammal morbilliviral epizootics worldwide. The cause of the recent emergence of aquatic mammal morbilliviral outbreaks is unknown.

Dr. Schulman received her AB degree from Harvard University in 1983, graduating *cum laude* in biology. In 1987, she received her DVM from Tufts University. After a year as a clinical veterinarian, she completed a 2-year residency in veterinary pathology at

Angell Memorial Animal Hospital in Boston, followed by another 2-year pathology residency at the National Zoological Park. In 1993, Dr. Schulman was awarded a Callender-Binford fellowship in the Department of Veterinary Pathology at the AFIP. After her year-long fellowship, she assumed her current position as staff pathologist at the AFIP. Dr. Schulman is the head of the World Health Organization Collaborating Center for Worldwide Reference on Comparative Oncology. She is also a consultant pathologist for the Veterinary Division, Marshfield Laboratories, Marshfield, Wis.

Dr. Schulman is board certified in veterinary anatomic pathology and a member of the American College of Veterinary Pathologists. She is married to LTC Thomas P. Lipscomb, chief of the Division of Veterinary Pathology, AFIP. They have five children, Sarah, 18; Ann, 14; Julie, 4; Mary, 3; and Charles, 1.

F. YVONNE SCHULMAN, DVM, staff pathologist, Division of Veterinary Pathology, Department of Veterinary Pathology is presented with the 1998 John Hill Brinton Award by Anthony Proto, MD, Secretary, American Registry of Pathology Executive Board, at the Ash Lecture on May 21.







F. M. GARNER, COL, VC, USA (RET), one of the first two residents in AFIP's Veterinary Pathology residency program and former Veterinary Pathology Department Chairman, retired from the military and AFIP in 1971 but continues his personal interest in the program's quality. He is often present for the department's Wednesday Slide Conferences and other AFIP events. Since retiring, Garner continues to live in the Washington, DC, area and is a private consultant in veterinary pathology. He became one of the first two residents in the AFIP's Veterinary Pathology residency program in 1958, was assigned to

## Original Veterinary Pathology resident maintains keen interest in program

the staff, and served as department chairman for 7 years.

The other member of the first residents' class was Walter E. Tucker, DVM, who is now retired after a career with industry. With the flights of Sputnik and Project Mercury in the late 50s, animals returning to earth after space travel created an immediate need for additional veterinary pathologists worldwide. In fact, Tucker was assigned to Project Mercury duties while still a resident at AFIP.

The AFIP's pathology residency program for veterinarians has grown in size from the original class of 2 to an average number of 11 residents. The program's scope has continually progressed from no formal training program before 1958 to an outstanding program with the reputation of one of the most effective and efficient in the country, Garner said. Over the past 10 years, of the 30 AFIP residents who have taken the American College of Veterinary Pathologists' certifying examination, 23 have obtained board certification—18 of these after just 3 years of training. The average national pass rate for this examination is less than 40%, and most candidates have trained for more than 4 years. Garner and

Tucker made the two top scores on the ACVP examination following their residency at AFIP. "Bud Tucker had the highest grades of those taking the exam," said Garner, "He outscored me by one point."

Veterinary pathologists who trained during Garner's tour at AFIP have gone on to gain recognition in their field, with most fulfilling careers in veterinary pathology as department heads in industry or as prominent veterinary pathologists with government agencies.

Garner attributes the growth and improvement in the Veterinary Pathology program at AFIP to the ability to gain and keep top quality people in the department and to extensive technical innovations. The residents can take much credit for the residency program's evolution to its present level, said Garner. "Residents see the 'holes' — they know how a program should be run," he said. "And our residents' excellent showing on the ACVP exams and their outstanding accomplishments after graduating from the program are certainly indicators of its quality."

## AFIP customers give high marks for consultation service



AFIP customers continue to give high marks for the Institute's consultation service, according to quality assurance coordinator Frank Roberts. "Since 1992, 30,000 postcards produced by AFIP have been mailed to contributors along with final reports," Roberts says. "We ask them to rate us in four specific areas: diagnostic accuracy/data; communication; turnaround time; and overall informative value of the final report."

The survey's results validate that AFIP is the "gold standard" in pathol-

ogy consultation. "The surveys indicate that what customers really care about is the informative value of the AFIP final report," Roberts points out. "With each survey's average score improving over time, customers are continuing to be satisfied with our consultative services."

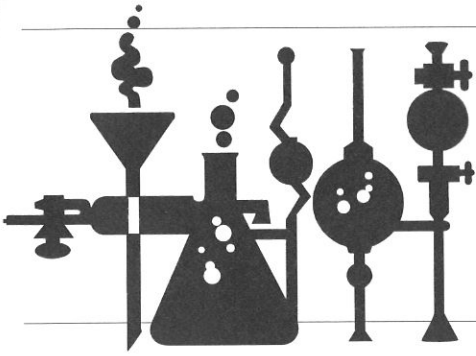
Customers are also more satisfied with AFIP's turnaround time. In 1994, the average score was 3.9 (out of a possible 5), and in 1997 that improved to 4.23. "AFIP's goal of improving turnaround time to 24 hours has really had an impact," says Roberts. "What

customers are saying is 'AFIP is doing a better job with their turnaround time.' "

Customers can provide feedback at any time simply by accessing AFIP's home page [www.afip.org](http://www.afip.org), and clicking on the survey at the top. Replies go directly to Roberts, who also can be reached by e-mail <[robertsf@afip.osd.mil](mailto:robertsf@afip.osd.mil)>; by phone at (202) 782-2695; or by mail in care of AFIP-QA, Washington, DC 20306-6000.

The next survey will be mailed in the spring of 1999.





## DNA Identification Lab attracts international attention with work on empirical mutation rate of mtDNA

The Armed Forces DNA Identification Laboratory (AFDIL), whose primary mission is to assist in identifying remains of military service members, has attracted recent international attention regarding its work on the empirical mutation rate of mitochondrial (mt) DNA (*Nature Genetics*, vol 15, pp. 363-368). The rate at which mtDNA changes, or sequence-based substitutions occur, has long been a matter of interest to the human evolution community. This type of information is used to determine the presumed age of our most recent common ancestor, or the possible beginning of mankind.

"Instead of relying on predictions from evolutionary models, the mtDNA section performed an extremely labor-intensive empirical study," said Thomas J. Parsons, PhD, a molecular biologist and research scientist at AFDIL. Previously, scientists arrived at a mutation rate by looking at differences between individual mtDNA sequences and extrapolating back to a date indicated by the fossil record. Seeing a need for experimental data that measures substitution (or mutation) rates directly, primarily as a validation exercise, the mtDNA section took a different approach. "What we've done is to compare mother and daughter, daughter to grandmother, and on and on, to determine and record how often there were differences," said Dr. Parsons. He went on to say, "We were surprised with the results." Expecting to find approximately one substitution in 600 generations, Parsons said they detected roughly 20 substitutions in that many generations. If one wished to extrapolate, the findings could be interpreted to mean that mankind is 20 times younger than previous estimates, or that the most recent common ancestor of mankind is only 6,000 years of age — not the 150,000 years as previous studies had shown.

However, since historical and anthropologic evidence proves that humans are much older than 6,000 years of age, the

*Thomas J. Parsons, PhD,  
molecular biologist and  
research scientist at  
AFDIL, pipettes a DNA  
sample.*



resolution seems to be that substitutions from one generation to the next happened at a faster "apparent rate" in more recent times than in the distant past, i.e., the apparent rate is not constant over time.

As Parsons summarized, "Only with the advent of high throughput sequencing technology have we been able to approach the question this way. Ten years ago, sequence acquisition was vastly more time consuming and expensive than it is today. We're continuing to look into these issues, trying to sort it all out. The large scale of mtDNA sequencing that we do here and the large number of family comparisons we make will in the future shed a lot of light on these issues. We're going to be a leader in this area by virtue of the sheer volume of information that we generate."

The work of AFDIL and other laboratories around the world was the focus of an international workshop on human mitochondrial DNA. The work-

shop helped to enhance AFDIL's understanding of mtDNA genetics, and was an opportunity to showcase the work being done here at the AFIP. As Mitchell M. Holland, PhD, head of AFDIL's service laboratory noted, "The work we are doing benefits a number of laboratories with a variety of interests, but what is most compelling to our group is that we can apply our scientific knowledge to bettering the quality of people's lives by helping to identify missing service members and give the families closure. It is a privilege that we take very seriously."

AFDIL has certainly made an impact in this area of forensics and hopes to expand the staff in the coming months in an effort to further increase the number of cases that are completed.

### REPOSITORY AND RESEARCH SERVICES

#### **FY97 AFIP Annual Research Progress Report available in July 1998**

The FY97 AFIP Annual Research Progress Report will be available for distribution to the public in July 1998. This publication contains progress or final reports on over 250 research projects that were active at the Institute during FY97. Anyone interested in obtaining a copy of this report should call the Research Office at (202) 782-2500 or FAX (202) 782-7831.

The AFIP Contributors' Manual is currently under revision, but a small stock of current manuals is still available. Once the stock is exhausted, the manuals will be unavailable until the new editions are printed. Anyone having questions about general case submission requirements can contact the administrator, Repository and Research Services at (202) 782-2500.



## AFIP ATLAS OF TUMOR PATHOLOGY

ITEM #		YEAR	PRICE
<b>Series Three</b>			
3F01	Non-Melanocytic Tumors of the Skin (1) *	91	\$45.00
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\* CD-ROM Electronic Fascicle available—see list at right →

## Series Two

F22	Gallbladder & Extrahepatic Bile Ducts (22)	86	25.00
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F26	Liver & Intrahepatic Bile Ducts (26)	89	40.00
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FS06	Billings Microscope Collection	74	25.00
FS03	Tropical & Extraordinary Diseases, Vol 2	76	40.00
FS01	Atlas of Kidney Biopsies	80	35.00
FS07	AFIP Laboratory Methods in Histotechnology	92	35.00
FS10	Histopathology Atlas for SIDS	93	40.00
FS11	Bone & Joint Tumors of Domestic Animals (WHO)	94	20.00
FS12	Adv Lab Methods in Histology & Pathology	94	45.00
FS05	Perinatal Autopsy Manual (Reprint '97)	83	15.00
FS13	Perinatal Autopsy Protocol	95	10.00
FS14	Métodos Histotecnológicos	95	35.00
FS15	Pathology of Systemic Lupus Erythematosus	95	35.00
FS16	Systemic Pathology of HIV Infection & AIDS in Children	97	62.00
FS17	Guiding the Surgeon's Hand: History of American Surgical Pathology	98	40.00
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	3 or more (each)		100.00
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ITEM #		PRICE
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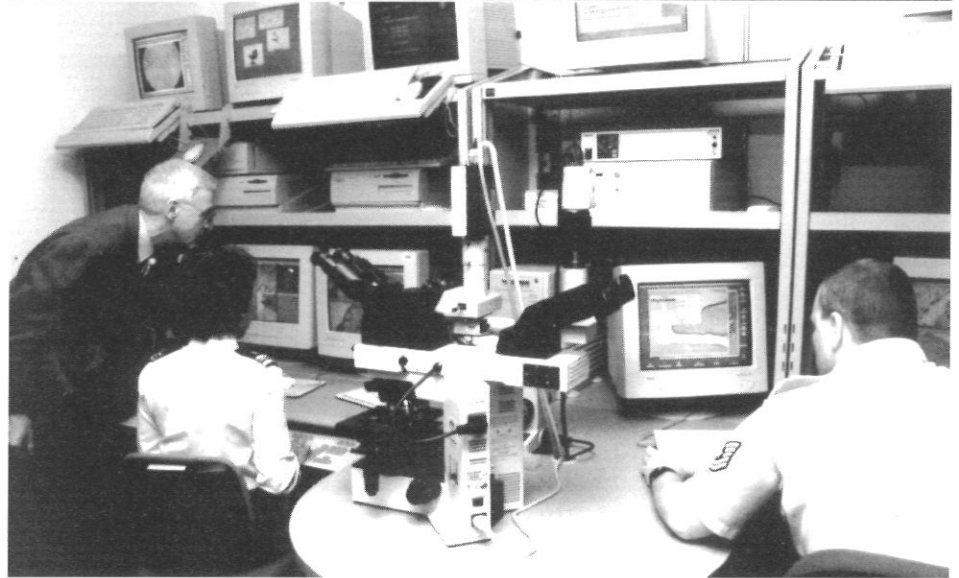
## TELEMEDICINE CORNER

# The AFIP Center for Telemedicine Applications: history and current operations

In 1993, realizing the growing impact of telecommunications technology on the business practices of the AFIP, a pilot project was undertaken by Air Force Major Alaeedin El-Sayed to investigate the feasibility of pathology diagnosis via transmission of static images between a referring military pathologist located at a remote duty station and the staff of the AFIP. The initial project involved the use of proprietary telepathology systems and compiled a total of over 60 cases of varying levels of complexity. Following overwhelming success in this area, the AFIP Telepathology Project (then under the leadership of Army LTC Paul Fontelo) was officially chartered in 1995. However, by this time, the AFIP electronic caseload consisted not only of submissions from military sites, but also from a growing number of national and international contributors interested in obtaining assistance on difficult cases. In 1996, the project deployed the AFIP Home Page. In 1997, the Telepathology Project, now headed by MAJ(P) Bruce H. Williams, officially changed its name to the AFIP Center for Telemedicine Application (ACTA) to reflect a broader scope that impacts on all three missions of the AFIP—consultation, education, and research.

Today, the ACTA receives cases from over 60 institutions and 110 contributors on five different continents. Over 40% of the AFIP electronic caseload is currently derived from international sources. As telemedicine cases enjoy a priority status at the AFIP, cases originating from the seven time zones across the United States are routinely completed within 4 hours, and a 24-hour turnaround is available for cases originating anywhere else in the world. One reason that AFIP is able to provide such rapid response on cases submitted electronically is that administrative processing proceeds concurrently with case evaluation by AFIP staff.

No special staff exists for evaluating cases arriving via electronic means. The



*Leslie H. Sobin, MD, Linda A. Murakata, CDR, MC, USNR, and Rod Herring work on a consultation case from Spain via telepathology.*

same world-renowned AFIP staff that read cases in traditional media, such as glass slides and paraffin blocks, also diagnose telepathology cases. Often within minutes after receipt, appropriate AFIP consultants evaluate case images and text-based material. As soon as the consultation letter is finalized, results are returned to contributors by facsimile.

The ACTA today is a strong proponent of open systems. Since 1995, the AFIP has relied less and less on the use of proprietary systems in favor of receiving case images in standard formats such as .JPG, .GIF, .TIF, and .BMP files. This allows the widest range of contributors to benefit from the pathology expertise of the AFIP, without regard to compatibility of imaging equipment. While the AFIP supports a number of commonly used proprietary systems, over 90% of electronic consults arrive via the Internet, with images captured in standard image formats. Today, the most common method of transmission of case material is as a MIME-encapsulated email attachment. Other contributing institutions with higher bandwidth capabilities may utilize the option of file transfer protocol to a secure site on one of the ACTA servers, and a small group of contributors continue to utilize modem-to-modem transfer for

case material. While anonymized images are sent via the Internet, all sensitive patient identifying information is transmitted either via facsimile machine or secure Web server with 128-bit key encryption in order to afford the patient the highest levels of privacy. (For more information on submitting cases to the ACTA, please refer to the ACTA Web site at <http://www.afip.org/telepathology/index.html>).

Next Issue: Success of Electronic Consultation at the AFIP—Facts and Figures.

**AFIP Web site:  
[www.afip.org](http://www.afip.org)**





# Study Sets (35MM Transparencies)

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SS02	*WHO Histological Typing of Intestinal Tumors. (2nd ed. 1989)	136	\$ 75		
SS03	*WHO Histological Typing of Esophageal & Gastric Tumors. (2nd ed. 1990)	120	\$65		
SW04	*WHO Histological Typing of Gallbladder & Biliary Tract Tumors. (2nd ed. 1991)	80	\$55		
SW05	*WHO Histological Typing of the Salivary Gland Tumors. (2nd ed. 1991)	124	\$70		
SW06	*WHO Histological Typing of Upper Respiratory Tract Tumors. (2nd ed. 1991)	200	\$125		
SW07	*WHO Histological Typing of Odontogenic Tumors. (2nd ed. 1992)	161	\$100		
SW08	*WHO Histological Typing of Liver Tumors. (2nd ed. 1994)	150	\$120		
SW09	*WHO Histological Typing of Testis Tumors. (2nd ed. 1998)	175	\$150		
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SS08	Gynecologic Pathology I	100	\$55		
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SS21	Ophthalmic Pathology I	175	\$100		
SS24	Ophthalmic Pathology II	103	\$65		
SS28	Ophthalmic Pathology III	124	\$100		
SS22	Pathological Effects of Radiation, 3rd Edition	216	\$150		
SS26	Histopathology of Cancer Chemotherapy Drugs & Chemical Warfare Agents	100	\$70		
SS27	Nephropath Medical Renal Diseases, 2nd Edition 1996 (LM, EM, IM)	63	\$60		
SS29	AIDS-Related Diseases	69	\$50		
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\* The text for the WHO sets are available through Springer-Verlag at 1-800-SPRINGER

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# 1998 Continuing Medical Education Courses

## West Coast DESCRIPTIVE VETERINARY PATHOLOGY

With our sincere regrets, this course has been *cancelled* from the 1998 schedule. If you are interested in any veterinary pathology courses, please call the Education Department and we will gladly add you to our database. When courses become available for the upcoming year, we will send you informative brochures. Here is the Education Center's contact information:

Center for Advanced Medical Education  
Telephone: 202-782-2634  
Toll Free: 1-800-577-3749 (U.S. only)  
Fax: 202-782-5020  
Toll Free FAX: 1-800-441-0094 (U.S. only)  
Email: [came@afip.osd.mil](mailto:came@afip.osd.mil)

\*Visit our Web site: <http://www.afip.org>

## 9<sup>th</sup> Annual Review in GASTROINTESTINAL SURGICAL PATHOLOGY and Endoscopic Biopsies of the GI Tract

- August 16–17, 1998/Hyatt Regency Bethesda, Bethesda, Md.
- The AFIP designates this CME activity for a maximum of 18.5 credit hours in Category 1 CME credit.

This highly informative 2-day course consists of a practical review of selected subjects in diagnostic surgical and endoscopic pathology of the gastrointestinal tract. This course is primarily for pathologists, pathology residents, gastroenterologists, and gastroenterology fellows (preparing for boards). The course consists of more than 10 hours of microscopy (microscopes provided) based on a unique collection of hundreds of endoscopic biopsies.

At the completion of this course, participants should have:

- A better grasp of endoscopic biopsy interpretation and clinical pathologic correlation
- Up-to-date information on a variety of gastrointestinal diseases and lesions.

Tuition is \$400; early registration (before July 10, 1998) is \$350. U.S. active-duty military, DoD civilians, full-time permanent VA employees (not residents or fellows), and commissioned officers of the PHS with authorized approvals have a registration fee of \$300.

## 9<sup>th</sup> ANNUAL GASTROINTESTINAL SURGICAL PATHOLOGY & the 19<sup>th</sup> ANNUAL HEPATOPATHOLOGY '98

- August 16–20, 1998/Hyatt Regency Bethesda, Bethesda, Md.
- These two courses are intended to be combined for an intense and accelerated learning experience. The AFIP designates these educational activities for 43 credit hours in Category 1 towards the AMA Physician's Recognition Award. When participants come to both courses they are entitled to a substantial discount. Tuition is \$800 for both courses. Early registration (before July 10, 1998) is \$700. U.S. active-duty military, Department of Defense civilians, full-time permanent Department of Veterans Affairs employees (not residents or fellows), and commissioned officers of the PHS with authorized approval have a registration fee of \$550. These two courses have been well received in the previous years. The majority of the previous participants said the courses were well organized, informative, and very interesting.

## 19<sup>th</sup> Annual Course HEPATOPATHOLOGY '98 The Interpretation of Liver Biopsies

- August 18–20 1998/Hyatt Regency Bethesda, Bethesda, Md.
- The AFIP designates this CME activity for a maximum of 24.5 credit hours in Category CME credit

This course provides a review of commonly encountered problems in diagnostic liver pathology. The course is devised at a level suitable for pathologist and pathology residents and also hepatologists, gastroenterologist, and gastroenterology/hepatology fellows. Areas to be covered in this course include: 1) hepatitis and other infectious diseases; 2) toxic injury due to alcohol and drugs; 3) developmental and metabolic liver diseases, cholestasis, and neoplasms. The participants will have ample opportunity for microscopic review of material drawn from the files of the AFIP.

At the conclusion of the course, the participant will have a better grasp of liver biopsy interpretation and an experience equivalent to spending a month in the Hepatic Pathology Division of the AFIP. Tuition is \$600. Early registration (before July 10, 1998) is \$500. U.S. active-duty military, Department of Defense civilians, full-time permanent Department of Veterans Affairs employees (not residents or fellows), and commissioned officers of the PHS with authorized approval have a registration fee of \$400.


## Morphologic Findings in Renal Disease And Transplants: Clinico-Pathologic Correlation

- September 14–17, 1998/Doubletree Hotel, Rockville, Md.
- The AFIP designates this CME activity for a maximum of 28 credits of continuing medical education

This refreshing course will integrate didactic lectures and laboratory sessions with case presentations complemented by clinico-pathologic correlation. The renal lesions will be described and will be complemented by a discussion on differential diagnosis. The case discussions will be based on a set of glass slides and electron micrographs to include 30 cases. This course is designed to interest practicing surgical pathologists, nephrologists, and pathology and nephrology residents and fellows.

At the conclusion of this course, attendees will be able to present a comprehensive review of morphologic lesions of medical renal diseases and kidney transplants, update newer lesions, and discuss the

—Continued on page 17

<b>CAME</b> 	<b>Center for Advanced Medical Education CME</b> Armed Forces Institute of Pathology 14th & Alaska Avenue, NW Washington, DC 20306-6000
	<b>FOR MORE INFORMATION CONTACT:</b> Telephone: 202.782.2634 Toll Free: 1.800.577.3749 (U.S. only) FAX: 202.782.5020 Toll Free FAX: 1.800.441.0094 (U.S. only) Email: <a href="mailto:came@email.afip.osd.mil">came@email.afip.osd.mil</a> URL: <a href="http://www.afip.org/homes/camepages">http://www.afip.org/homes/camepages</a>



pitfalls in diagnostic nephropathology complemented by presentations on clinical aspects.

Tuition is \$350 before August 1, 1998 and \$425 afterward. Military, DoD civilians, full-time permanent VA employees, and PHS employees with authorized approval (not residents or fellows) pay a discounted tuition of \$175.

### 27<sup>th</sup> Annual Course & Tutorial ORTHOPEDIC PATHOLOGY

- October 4–9, 1998/Held in the Elias P. G. Theros Radiologic Pathologic Education Center, AFIP
  - October 12–23, 1998 is the optional 2-week tutorial in Orthopedic Pathology/Held in the Owen Conference Room, AFIP
  - The AFIP designates this CME activity for a maximum of 56.5 hours for the course and 75 hours for the tutorial in Category 1 credit towards the AMA Physicians Recognition Award
- The 27<sup>th</sup> Annual AFIP/ARP Orthopedic Pathology Course and Tutorial is open to all military, federal, and civilian orthopedic- and pathology-related specialties. In addition to pathologists and orthopedists, radiologists, rheumatologists, and podiatrists should find this course of great benefit. This 6-day didactic course in Orthopedic Pathology limited to 80 applicants will be held at the AFIP, Washington, D.C., October 4–9, 1998. The week-long didactic session will be followed by a 2-week optional tutorial in bone and joint pathology at no extra charge, ending October 23, 1998. Tutorial participation this Fall is limited to 20 applicants. Priority for the tutorial is given to (1) uniformed services, orthopedic surgery residents, and staff, (2) military pathology residents and staff, and (3) others on a first-request space-available basis.

The objective of this highly intensive course is to improve diagnostic skills in clinical, pathologic, and radiologic evaluation, and treatment of orthopedic-related disorders through the breadth of our experience by:

- Providing a conceptual approach to understanding the primary mechanisms of disease affecting bones and joints and relationship to growth, development, maintenance, and aging of the skeleton.
- Providing exposure to normal skeletal morphology and diseases utilizing orthopedic pathology study sets (250+ histologic glass slides and @ 1000 Kodachromes) and unknown case discussions
- Providing a morphologic basis for plain film (x-ray) radiographic changes pertaining to diagnosis (location and matrix patterns) and biologic behavior (margins and periosteal reactions)
- Providing a basic understanding of the pathophysiologic principles underlying bone scans, CAT scans, and MRI and their reliability, diagnosis significance, and importance to clinical staging

Tuition is \$500. Active-duty military, DoD civilians, full-time permanent VA employees (not residents or fellows), and commissioned officers of the U.S. PHS with authorized approval have a registration fee of \$125. Tuition and registration fees cover both the course and tutorial.

### THORACIC PATHOLOGY: With Clinical and Radiologic Correlations

- December 10–13, 1998/Disney's Contemporary Resort, Lake Buena Vista, Fla.

Welcome to the world of magical wonders. This year the Thoracic Pathology course will be held at Disney's Contemporary Resort in Lake Buena Vista, Fla. This is a wonderful time of the year to go to Disney World, since all of the holiday decorations and shows are set up and the theme parks are not crowded. Therefore, if you need a relaxing vacation along with a stimulating refresher course in Thoracic Pathology, please join us and we will be able to fulfill your

wishes physically and mentally. The refresher course is designed to give a current review of thoracic pathology with clinical and radiologic correlations. The course will consist of a series of presentations and optional microscopic laboratory sessions. Most of the speakers will be expert lung pathologists, as well as renowned thoracic clinicians and radiologists. This course presents thoracic pathology the way it is practiced; in a multidisciplinary approach with clinical and radiologic correlation. The microscopic laboratory sessions will offer the participant a rich opportunity to review over 2,000 cases of common and uncommon entities in thoracic pathology. *Included in this year's course are numerous new and important topics such as Clinical Aspects of Transplantation and Immunosuppression, Surgical Pathology of Lung Cancer, and Pediatric Pulmonary Pathology.* Following this course, the participant is expected to be able to:

- Discuss in detail current issues and concepts in lung and mediastinal pathology
- Identify important correlations between clinical, radiologic, and pathologic data in diagnosis and management of interstitial lung disease and pulmonary vasculitis syndromes
- Detail the importance of lung biopsy when managing lung transplant patients and other immunocompromised patients
- List the most recent histologic concepts, including lung cancer diagnosis and classification
- Understand the differential diagnosis for mediastinal lesions

This course will be invaluable to pathologists, pulmonologists, thoracic surgeons, and radiologists, including physicians in training. Because this course was one of our most successful 1998 programs, we suggest that you register early.

Tuition is \$745 prior to October 26, 1998 and \$795 afterward. Active-duty U.S. military, DoD civilians, full-time permanent VA employees (not residents or fellows), commissioned officers of the U.S. PHS with authorized approval have a registration fee of \$645 prior to October 26, 1998 and \$695 afterward. Microscopic Slide Review additional \$200 (no discounts). Registration deadline for this session is October 1, 1998. The AFIP designates this CME activity for a maximum of 25.5 hours in Category 1 credit.

For more information contact: CAME Web site: <http://afip.org/homes/camepages>

Dept. of Pulmonary Pathology  
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## REVIEWS OF COURSES HELD

### SOFT TISSUE TUMORS: A Microscopy Workshop: *Another excellent addition to the educational offerings from the AFIP*

This year saw the introduction of a new and unique course on soft tissue. Designed specifically with practicing pathologists and residents in mind, the course is one that will undoubtedly find its way onto the calendars of those interested in state-of-the-art tumor pathology.

"I was very pleased to hear from the attendees that they enjoyed the microscopy workshop on new and old soft tissue tumors," said Dr. Markku Miettinen, the course director. "I wanted to introduce some of the newer tumors we are dealing with at the AFIP, and I wanted to provide those who attended the course with the opportunity to look at some 300+ cases we have collected; I was very pleased with the turnout."

Responses from the attendees tended to support Dr. Miettinen's contention that the program was very successful. Typical of remarks from the attendees was a comment—"this was a typical AFIP program, glass slides and an effective excellent faculty."

"We have begun planning our soft tissue course for 1999. I expect to hold it again in the Washington area. Please watch for the brochure that I intend mailing out around November of this year. Also, I will announce the course on the Web site at: <http://www.afip.org> (select education, upcoming courses)."

### 32<sup>nd</sup> Annual Course in UROPATHOLOGY

The Urothology course was held in Rockville, Md., from January 26–30, 1998. The course was designed primarily for urologists taking their boards. The in-depth study of pathological material and the manner of presentation were intended to provide a more fundamental and lasting understanding of genitourinary pathology. The course offered the opportunity for participants to acquaint themselves with modern-day concepts of urological study.

During the course, the 71 attendees had the opportunity to study 150 microscopic slides of various diseases. There were also vast amounts of kodachromes shown in the lectures. Furthermore, over 2,500 Kodachrome slides, which showed various diseases of the genitourinary system, were available for small study groups. This course has remarkably assisted urologists with their boards. Here is what two attendees had to say about this year's course:

"I thought all the faculty were dedicated and were very helpful!" and "Thank you for a fantastic course!"

A pre- and post-examination enabled the participants to evaluate their own progress. Our Urothology course has always been well received and is an asset for urologists getting ready for their boards.

### CONGENITAL HEART DISEASE

The Congenital Heart Disease course was a great success for everyone who participated. It was held at the Uniformed Services University of the Health Sciences in Bethesda, Md., during May 27–29, 1998. This course was a review of the structure of clinical manifestations and surgical corrections of congenital cardiac malformations. It was specifically aimed for thoracic surgeons and cardiology fellows who needed to familiarize themselves with pediatric cardiology and cardiovascular surgery. This course hosted a diverse faculty from not only the Armed Forces Institute of Pathology, but Georgetown University and the Children's National Medical Center, Washington, DC. There was a hands-on examination of a large number of specimens, collected over the decades at the Armed Forces Institute Pathology and the Children's National Medical Center.

Typical responses from the attendees indicate this course provided an excellent learning experience for the course participants. "Every topic was extremely informative," and "Excellent slides—comparison of actual specimens to diagnosis," are comments of recent attendees.

### DESCRIPTIVE VETERINARY PATHOLOGY

The Descriptive Veterinary Pathology course was held at the AFIP Radiology Theater during June 9–12, 1998. The course was designed to teach attendees how to describe both gross and microscopic lesions in a variety of major organs in numerous animal species. Both written and oral descriptive techniques were taught. The course included lectures on description and interpretation of electron micrographs as well. Practice tests (gross and microscopic) were given and graded to provide feedback to attendees. This course was primarily directed to veterinary pathologists and residents.

Responses from the course participants supports the notion that this course was an outstanding learning experience for the attendees. Typical responses were—"Concise presentation of information, with a true test of our ability to describe slides in a timed fashion. Other programs haven't been challenging with any true emphasis on your ability to describe for the boards." "Great practice—helped me evaluate where I am in my training."

### ANATOMIC PATHOLOGY

If you are a pathology resident preparing for boards, the 8<sup>th</sup> Annual Anatomic Pathology Course was intended for you. This course was designed to thoroughly brief pathologists on current and updated anatomic methods and procedures, as well as training practicing pathologists seeking a short, intense update and review course. This 1-week intensive review of anatomic pathology focused on current concepts and diagnostic problems. Staff from each of the AFIP Departments (over 50 in all) provided didactic lectures, which were complemented by an extensive syllabus and hands-on microscopic study sessions.

Typical remarks from the attendees, such as, "Hands-on approach by the faculty made this a great learning endeavor," and "Microscope sessions were wonderful – don't change a thing," indicate this course provided an excellent learning experience for all those involved. If you didn't get a chance to attend the course this year, note that we have begun planning our Anatomic Pathology course for 1999. We expect to hold it again in the Washington area. Please watch for the brochure, which will be mailed during the first week of December 1998. Also, look for it on our web site at: <http://www.afip.org> (select education, upcoming courses).



## ABSTRACTS OF RECENT PUBLICATIONS BY AFIP STAFF

### Neurons and Nobel Prizes: a centennial history of neuropathology

James M. Henry, M.D.

Camillo Golgi and Santiago Ramón y Cajal were selected as joint Nobel Prize recipients in 1906, "in recognition of their work on the structure of the nervous system." This posthumous *Festschrift* is written in celebration and commemoration of the 90th anniversary of that event, and the reader is invited to participate in an entertaining journey through the history of neuropathology, as it evolved from the time of Golgi and Cajal.

The story, of necessity, is written in broad descriptive terms, highlighting major events and personalities, and strives for continuity of narration and coherence of presentation. The historical framework reflects the personal experience and purview of the author and his mentor, Kenneth M. Earle, who began their careers in neurology and neurosurgery, respectively. Emphasis on the close interface linking clinical neuroscience and neuropathology indicates the antecedents of the latter discipline as well as the overlap characterizing current modes of investigation at the cellular and molecular levels. This article is intended to provide a younger generation of neurologists and neurosurgeons with a review of what has gone before as a foundation for their current studies and future careers.

*Neurosurgery*. 1998;42:143-156.

### Pathology of human immunodeficiency virus infection: noninfectious conditions

Mary K. Klassen, MD, Michael Lewin-Smith, MB, BS, Sarah S. Frankel, MD, and Ann Marie Nelson, MD

Diagnostic anatomic pathologists play a crucial role in the battle against acquired immunodeficiency syndrome (AIDS). Not only are they intimately involved in the treatment of individual patients with human immunodeficiency virus (HIV) infection, but also they make important observations that result in the expansion of the scientific understanding of its pathogenesis. Pathologists studying tissue from patients with HIV infection should be familiar with the conditions to which these patients are susceptible. Although opportunistic infections are important causes of morbidity and mortality, noninfectious conditions frequently make substantial contributions to the disease course. Patients with HIV infection may be at increased risk for neoplastic disease. They do not, however, have an increased incidence of the most common tumors affecting the general popula-

tion, such as breast, colon, and prostate carcinoma. Immunodeficiency results in increased susceptibility to malignant neoplasms, both by decreased immunologic response to abnormal cells and increased susceptibility to infection by viruses. All of the malignant neoplastic diseases that are Centers for Disease Control and Prevention (CDC) AIDS indicator conditions have been shown to have an association with a virus: Kaposi sarcoma (KS) with herpes hominis virus 8 (HHV-8), malignant lymphoma with Epstein-Barr virus (EBV), and cervical carcinoma with human papilloma virus (HPV). Patients with HIV infection also can develop reactive processes that are attributable to direct effects of HIV or immune system alterations. Such conditions include salivary gland cystic lymphoepithelial lesion, lymphadenopathy, lymphocytic interstitial pneumonitis, encephalopathy, enteropathy, nephropathy, hepatic conditions, dermatologic conditions and anemia.

*Ann Diagn Pathol*. 1997;1: 57-64.

### Transitional cell carcinoma of the endometrium and endometrial carcinoma with transitional cell differentiation

Ruth A. Lininger, M.D., M.P.H.,  
Raheela Ashfaq, M.D., Jorge  
Albores-Saavedra, M.D., Fattaneh A.  
Tavassoli, M.D.

**BACKGROUND.** Transitional cell carcinoma (TCC) is rare in the female genital tract. Although it is most common in the ovary, small series of cases in the cervix have been reported, with isolated cases described in the fallopian tube, adnexa uteri, and endometrium. **METHODS.** Eight cases of primary TCC involving the endometrium and 1 case of ovarian TCC metastatic to the endometrium were retrieved from the files of the Armed Forces Institute of Pathology and the University of Texas Southwestern Medical Center. Cases were selected based on the presence of endometrial TCC, whether pure or combined with other patterns, and regardless of the relative amount. Immunostaining for cytokeratins 7 and 20 was performed. **RESULTS.** Among the 8 women with primary endometrial tumors, the mean age was 61.6 years (range, 41-83 years). Uterine bleeding was the presenting symptom in 7 women. Macroscopically, the tumors were polypoid, and infiltrated the myometrium, although the extent of infiltration varied. Seven endometrial tumors showed a papillary component. TCC was always admixed with other patterns (pre-

dominantly squamous, but also endometrioid, papillary, and serous patterns), with the proportion of the TCC component ranging from 5% to 95% (mean, 63.8%). TCC was the main invasive pattern observed in all three of the cases that had deep myometrial invasion; these cases also had vascular invasion. Seven tumors were confined to the uterus; one was metastatic to the ovary. The ovarian TCC metastatic to the endometrium had a pure TCC pattern. Five of 7 cases of TCC had cytokeratin 7 + / 20- immunoreactivity; 2 cases were cytokeratin 7-/20-. Treatment of primary endometrial tumors was mainly surgical, with adjuvant radiation therapy in 4 cases or chemotherapy in 1 case. Survival ranged from 3 months to 12.9 years (mean, 5.1 years). Of five women for whom follow-up was available, three were alive with no evidence of disease, one was alive with a local recurrence, and one died of unrelated disease.

**CONCLUSIONS.** TCC is a rare, distinct subtype of endometrial carcinoma with morphologic features of urothelial differentiation, but retention of a müllerian immunoprofile. While the overall prognosis does not appear to be worse than what might be anticipated for the stage of tumor present, TCC appears to be the more aggressive histologic subtype among the patterns with which it is admixed.

*Cancer*. 1997;79:1933-1943.

### Primitive neuroectodermal tumor in a two-month-old black and white Colobus monkey

P. H. Long, F. Y. Schulman, A.  
Koestner, A. S. Fix, M. K. Campbell,  
and K. N. Cameron

**Abstract.** A 2-month-old male black and white Colobus monkey (*Colobus guerezakikuyuensis*) was euthanized because of progressive physical deterioration, rear limb paralysis, lymphadenopathy, and the presence of facial and retroperitoneal lumbar masses. At necropsy, soft white masses were present in and around lumbar vertebrae, the subcutis of the face, multiple lymph nodes, and the fourth ventricle of the brain. Histologic and immunohistochemical analysis of these masses revealed a primitive neoplasm with both neuronal and glial differentiation, consistent with a primitive neuroectodermal tumor (PNET) with bipotential differentiation. The extracranial tumors were synaptophysin (SYN)-positive, glial fibrillary acidic protein (GFAP)-negative, and neurofilament protein (NFP)-negative, while the intracranial tumor was SYN-positive, GFAP-positive, and NFP-negative.

*Vet Pathol*. 1998;35:64-67.



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## Recent Publications by AFIP Staff

1. Emanuele P, Goodman ZD. A simple and rapid stain for copper in liver tissue. *Ann Diagn Pathol.* 1998;2:125-126.
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