

A Profile of Veterinary Pathology at AFIP

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Utilizing a “Question and Answer” format, COL Dale G. Dunn, Chairman of the Department of Veterinary Pathology at the Armed Forces Institute of Pathology (AFIP), briefly discussed the mission and accomplishments of this vital department with Legal Medicine.

Legal Medicine: What activities does the Department of Veterinary Pathology perform today at AFIP in keeping with the three traditional areas of consultation, education, and research? Approximately what percentage of time and manpower are spent in these activities?

COL Dunn: The short answer is that our efforts—that is, the efforts of everyone in the department combined—would break down something like this: 25% consultation, 50% education, and 25% research. We provide pathology consultation on a daily basis to a multitude of veterinarians and physicians on a variety of species from A to Z (aardvarks to zebras, I like to say). However, our education mission is where we spend most of the time since we have the Department of Defense (DoD) veterinary pathology residency here and we have 13 residents at the moment. Most of the research is involved with providing support for animal-based research conducted at the AFIP.

Legal Medicine: How long has veterinary pathology been at the AFIP? Why was it initially included and by whom? Who were the first specialists?

COL Dunn: AFIP has had a veterinary pathology section since World War II. During the war years, the AFIP (then the Army Medical Museum) (AMM) expanded its role as the central pathology laboratory in a network of Army hospital and regional laboratories.¹ Under the leadership and direction of Colonel James Earle Ash, an Army Medical Corps officer, the AMM recognized a need for and sought out highly competent specialists in all areas of pathology to serve terms as consultants at the AMM. This included the discipline of veterinary pathology.

We know from his papers that Dr. Ash was an enthusiastic supporter of comparative pathology. He understood and embraced the concept of “one medicine.” Dr. Ash recognized that to fully comprehend and provide for human health one would need to understand diseases occurring in other species. He encouraged the development of comparative and veterinary pathology. To back up his beliefs, he established the Registry of Veterinary Pathology, which he described as “one of great possibilities.”² Considering

the threats we face in today's world in terms of potential biological weapons, all of which with the exception of smallpox are zoonotic (transmissible to man under natural conditions) diseases, his early decision to include veterinary pathology at AFIP seems prescient.

Dr. Charles L. Davis of the U.S. Department of Agriculture was brought on active duty from the Army Reserves to be the first veterinary pathology specialist at the AMM, serving from October 1943 to December 1945.³ Dr. Davis is credited with creating a greater appreciation for veterinary pathology at the AMM and attracting talented veterinarians to the field of pathology. The C. L. Davis DVM Foundation—an international organization dedicated to the advancement of the veterinary pathology profession around the world—was named in his honor. Following Dr. Davis was another giant in the field of veterinary pathology, Dr. Thomas Carlyle Jones. Dr. Jones was twice the leader of the department and co-authored a pivotal text on veterinary pathology that remains a standard to this day. He was a prime mover in the effort to establish and incorporate the American College of Veterinary Pathologists (ACVP) in Washington, DC in 1949.⁴ Today it is one of the oldest and largest specialty groups in the veterinary profession and we can trace its roots back to this department.

Legal Medicine: How has the veterinary pathology department changed over the years?

COL Dunn: The original veterinary pathology section consisted of one person. Today, we are one of the largest departments at AFIP with more than 40 members filling responsibilities in consultation, education, and research. Looking back, however, our biggest growth area has been in education and training. A preceptorship program was developed in 1967 to meet the growing demand for veterinary pathologists in military medical research and diagnostic medicine. By the early 1980s, the leadership of the veterinary pathology specialty in the Army recognized that training could be more effective and the DoD better served by a formal residency program consolidating all training under one roof. That goal was realized in October 1983 when then Surgeon General LTG Bernhard Mittermeyer authorized the establishment of the DoD veterinary pathology residency at AFIP.⁵

Legal Medicine: Can you give us some details on the residency program?

COL Dunn: Now in its 22nd year, our residency program is one of the largest and most successful in the world. We currently have 13 pathology residents in the department. To be eligible for the 3-year veterinary pathology residency program, applicants must first be active duty officers in the Army Veterinary Corps. Our goal is to prepare them to pass the certifying examination of the ACVP at the end of the residency.⁶ This means a fast-paced three years of study, including lots of case work and postmortem examinations at AFIP, the National Zoological Park in Washington, DC, the National Institutes of Health in Bethesda, MD, and the Maryland Diagnostic Laboratory.

It also means didactic training in systemic veterinary pathology at AFIP. We have one of the most (if not the most) extensive collections of histopathology training materials on

the planet—the Registry of Veterinary Pathology today is approaching 100,000 cases. Our histopathology training collection includes more than 750 disease entities and is now on the Internet available to other training programs the world over. Residents participate in a weekly international comparative histopathology conference, the Wednesday Slide Conference, which we have been running continuously for more than 50 years and which includes 134 institutions in 22 countries. Residents also attend our annual or bi-annual training courses in gross pathology, descriptive pathology, and the pathology of laboratory animals, as well as our current laboratory animal science seminars. These courses are a staple in our program and are important to others, too, as they are well attended by residents from training programs around the world.

Legal Medicine: What do the residents do and where do they go after completing the program?

COL Dunn: As members of the Army Veterinary Service (AVS), Army veterinary pathologists end up doing a variety of things in a variety of locations. This includes diagnostic pathology, disease detection and surveillance, and forensic investigations of military and other federal working dogs and marine mammals here at AFIP. It also includes filling critical roles in all areas and at all stages of biomedical research for the DoD.⁷

Research efforts are largely directed at mitigating or preventing the effects of biological, chemical, radiological, and nuclear weapons and combat injury. Veterinary pathologists continue to do ground-breaking research on agents like the Ebola virus at the U.S. Army Medical Research Institute of Infectious Disease (USAMRIID). It should be noted that a veterinary pathologist at USAMRIID was the first to identify West Nile virus in a bird from the Bronx Zoo when that disease hit our shores a few years ago.

The majority of our pathologists are assigned to the Medical Research and Materiel Command with sites at USAMRIID, Walter Reed Army Institute of Research, U.S. Army Research Institute of Chemical Defense, U.S. Army Institute of Surgical Research, and the Armed Forces Research Institute of Medical Sciences in Thailand. Other DoD sites include the Air Force Research Laboratory, Armed Forces Radiobiology Research Institute, Naval Medical Research Center, U.S. Army Veterinary Laboratory Europe, DoD clinical investigation directorates, the Navy's marine mammal program, and of course the AFIP.

We have some very unique qualifications. Army veterinary pathologists are the only comparative pathologists in the U.S. trained to conduct postmortem examinations in the biosafety-level-four environment. Most Army veterinary pathologists are also trained in the detection and identification of foreign animal diseases that may be potential biological weapons. We also have two pathologists serving in the Army's new deployable Area Medical Laboratories (AML). These individuals perform rapid diagnostic tests for detection of biological agents in the field. One of our officers spent nearly a year in an AML in southwest Asia in support of Operation Iraqi Freedom and Operation Enduring Freedom. Right now we have one officer on a medical staff in

Afghanistan and another supporting the Navy's marine mammal program in Bahrain.

Legal Medicine: You mentioned the Army Veterinary Service. Just what are its responsibilities?

COL Dunn: The AVS is an executive agency under the Army Surgeon General (like AFIP) with responsibility for all of the DoD's veterinary needs.⁸ This includes the historical and traditional roles of the veterinarian that are firmly established in the minds of most Americans, as well as the latest and more modern roles that are perhaps not as well known, some of which I've mentioned above. The mission of the AVS can be broken down into four large but overlapping areas: 1) food safety; 2) medical care for government-owned animals; 3) control of animal diseases that present a public health threat, and 4) support for biomedical research and training activities. The AVS is comprised of nearly 3000 military and civilian personnel on more than 250 Army, Air Force, Navy and Marine Corps duty sites around the world. The approximately 420 uniformed veterinarians of the AVS service serve in the Army Veterinary Corps.

Legal Medicine: Would you please tell us a little more about military working animals?

COL Dunn: Working animals come in all sizes. Among them are the caisson horses across the Potomac River at Ft. Myer in Virginia doing daily duty in the Arlington National Cemetery. Best known of all, however, are the working dogs serving with the DoD, Customs Service, Secret Service, U.S. Department of Agriculture, and other federal agencies. Military working dogs (we have more than 2500 of them right now) are specifically trained to perform two traditional roles: patrol and detection. All are trained to serve as patrol dogs, but some dogs are also further trained to detect either explosives or drugs. The DoD is working hard to build new programs for mine detection, specialized search, and combat tracker dogs. This effort is in its infancy, but is already bearing fruit in Afghanistan and Iraq. Along with military working dogs, there are military working marine mammals serving in southwest Asia. The Navy has dolphins trained to assist with the protection of ships and harbors. We are here to provide pathology support for all of these animals.

Legal Medicine: Is veterinary pathology here to stay at AFIP?

COL Dunn: After 60 years of service to this great institute and our nation, I'd say we are here to stay. We have long enjoyed the encouragement and backing of the leadership of the AFIP, the American Registry of Pathology, and the Army Medical Department, not to mention many more veterinary-specific organizations like the American Veterinary Medical Association, C. L. Davis DVM Foundation for the Advancement of Veterinary Pathology, and the ACVP. By providing for the diagnostic and medical surveillance needs of military working animals and supporting critical military medical research—all the while constantly regenerating our own personnel inventory—we fill a unique niche for the DoD. It's a role that is highly relevant to our nation's defense. We are a resource that is greatly valued by the veterinary profession in general and veterinary pathology community in particular, and they and the DoD have come to depend on us being here.

References

1. Henry RS. *The Armed Forces Institute of Pathology: Its First Century 1862-1962*. Washington, DC: Office of the Surgeon General. 1964.
2. Ash JE. Wartime Army medical laboratory activities: general review and new developments at the Army Institute of Pathology. *Am J Public Health*. 1947;37:815-818.
3. Thompson SW. Obituary: Charles Louis Davis 1897-1970. *Vet Pathol*. 1970;7:365-377.
4. Jones TC. Early history of the American College of Veterinary Pathologists: 1947-1960. *Vet Pathol*. 1990;27:468-520.
5. Dunn DG. Historical files of the Department of Veterinary Pathology, AFIP. These unpublished materials are maintained within the Office of the Director of Veterinary Pathology, in Washington, DC.
6. Historically, 85% of the veterinary pathology residents trained at AFIP have passed the certifying examination, regularly exceeding the average annual pass rate of 30% on the 2-day exam.
7. Some of the unique duties of the Army veterinary pathologist were featured in the best-selling novel, *The Hot Zone*, by Richard Preston.
8. Stecher YC. Special tribute to veterinarians in the military. *Vet Forum*. 2003;20:14-27.