A History of Radiologic Pathology Correlation at the Armed Forces Institute of Pathology and Its Evolution into the American Institute for Radiologic Pathology[1]

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The evolution of the Armed Forces Institute of Pathology (AFIP) has played an important role in the history of pathology education and in radiologic pathology correlation in the United States. From its humble beginnings as a museum, showcasing dried and varnished morbid specimens—human relics of the Civil War, the institute became a leader in pathology. Later, it became a center of instruction for radiology residents seeking to understand the pathologic findings that underlay the radiologic appearance of disease. Images were gathered by the AFIP and the American Registry of Pathology (ARP) and have been used in research and education in radiology and other fields (ophthalmology, otalaryngology, dermatology, obstetrics and gynecology, and surgery). Despite the contributions of the AFIP, the ARP, and the Radiologic Pathology Correlation Course, high-ranking members of the military and the federal government frowned on a military-owned educational system that also served civilians. Although support from the radiology community dissuaded military officers and federal officials from taking action against the participation of civilians, the 2005 Base Realignment and Closure (BRAC) provisions mandated the disestablishment of the AFIP, forcing the redistribution of some of its resources to other military-only organizations and disbanding other AFIP functions. To ensure that the correlation course, known to radiology residents as the "rad-path" course, was not a casualty of the BRAC, the American College of Radiology (ACR) and leaders of the AFIP and ARP agreed that the ACR should continue this vital educational endeavor. In January 2011, the American Institute for Radiologic Pathology of the ACR debuted and successfully instructed 268 radiology residents, including 40 international residents. The faculty and staff, who had been part of the course at the AFIP, continue to help enrich and improve the course established by their predecessors.

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In January 2011, the American Institute for Radiologic Pathology (AIRP) of the American College of Radiology (ACR) debuted and successfully instructed 268 radiology residents, including 40 international residents.

Humble Beginnings

In 1862, before radiology entered the realm of medicine, U.S. military physicians began to be interested in the use of gross specimens to further their medical knowledge of disease. The country was in the spring of its 2nd year of the long and bloody Civil War when the U.S. Army Surgeon General, Brigadier General William Hammond (Fig 1), established a medical museum designed to collect and catalog several morbid anatomic specimens from the hospitals serving Union soldiers. The collection was to be used to benefit military physicians exclusively, but Brigadier General Hammond hoped that someday it would benefit civilians as well (1).

Because the U.S. Army Medical Museum, as it was called, had no permanent site, it was moved several times until 1866, when it found a temporary home in the basement of Ford's Theater in Washington, DC, where President Abraham Lincoln had been assassinated the year before. By 1876, the museum had collected approximately 6539 pathologic specimens. The museum continued to gather artifacts and their accompanying literature throughout the remainder of the century. During that period, the museum was headed by such medical pioneers as John Shaw Billings, MD, and Major Walter Reed, MD. The staff included William Gray, MD, who decades later became the first military physician to use radiographs in a clinical setting. The museum relocated to a red-brick structure located along the National Mall in 1887.

In 1910, the museum was divided into two sections: the Pathology Department and the Instruction Laboratory. Following World War I, the number of pathologic specimens had grown to more than 17 000. With such an exhaustive collection spanning more than half a century and representing thousands of diseases, the stage was set for the museum to become an educational and diagnostic resource, the likes of which had never been seen before in the United States.

From Museum to Institute

The transformation of the U.S. Army Medical Museum to a pathology educational and consulting facility began in 1920, when U.S. Army Surgeon General Merritte W. Ireland, MD, opened the museum's doors to civilian physicians and residents, encouraging them to make use of the museum's collections. A year later, Major George R. Callender, MD, the curator of the museum, signed a contract with the Academy of Ophthalmology and Otolaryngology. The agreement stated that the academy's members would provide the museum with pathologic materials in which it was deficient. In return, the museum would provide a repository for the academy's materials, as well as staff who understood how to prepare and perform consultative diagnosis on the specimens (2).

At that time, however, the museum did not have staff who understood the complex pathologic findings for specialty fields such as ophthalmology. As a result, the museum created a committee of specialists from the academy who could ensure that the diagnoses of difficult cases were accurate.

The entire arrangement with the academy was finally dubbed the Registry of Ophthalmic Pathology, which became the first of more than 20 such registries that were to be created during the next several decades. All of these pathology groups would make up the American Registry of Pathology (ARP), which was formally organized in 1930. Colonel Alfred A. DeLorimier, MD, the director of the AFIP, and Eugene P. Pendergrass, MD, the chair of the Board of Chancellors of the ACR, spearheaded the establishment of the Department of Radiologic Pathology as one of the registries of the ARP in 1944, although this establishment was not fully implemented until after World War II (Fig 2).

Notwithstanding the struggles of the Great Depression, the popularity of the museum among the public, as well as the medical community, grew, and the cases archived within the registries continued to expand—the number of specimens submitted increased to 4000 per month. In addition, during the World War II years, 200 000 tourists visited the museum annually.

Despite its very important achievements to this point, the museum was suffering—not from lack of interest but from growing pains. The "old red brick" (this site is now the location of the Hirshhorn Museum and Sculpture Garden), as it was fondly called (Fig 3), had become too small for the exhibits and storage needs of the museum. The facility had clearly expanded well beyond its original mission as a medical museum. Pathology was now its primary focus.

On January 1, 1944, Order No. 18, which mentioned the "Army Institute of Pathology" as a subordinate organization to the museum, was issued by the office of the curator of the museum. Two years later, the title became the designation of the entire operation. Following World War II, the order was issued that the institute be the center of pathology for

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Abbreviations:
ACR = American College of Radiology
AFIP = Armed Forces Institute of Pathology
AIRP = American Institute of Radiologic Pathology
ARP = American Registry of Pathology
ARRS = American Roentgen Ray Society
BRAC = Base Realignment and Closure
RSNA = Radiological Society of North America
USUHS = Uniformed Services University of the Health Sciences
WRAMC = Walter Reed Army Medical Center

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Potential conflicts of interest are listed at the end of this article.

all of the U.S. armed forces and the U.S. Department of Veterans Affairs. As a result, it was renamed the Armed Forces Institute of Pathology.

As part of its official recognition, the AFIP was to be relocated to a new building on the campus of the WRAMC in Washington, DC, in 1951. The building was dedicated on May 26, 1955, by President Dwight D. Eisenhower, who stated the following:

> A good workman deserves good surroundings, and a good place in which to work, and so if we had nothing more here to dedicate than the building itself, it would still be an occasion worthy of note. But the true dedication is probably more to the impulses which led to the erection of this building: concern for human life, and not merely to lengthen out the span of our years … but to ease man of sufferings and difficulties and the lengthening of life's span so that he may yield to the common good more from the God-given talents that are his, so that he can contribute more to the spiritual and intellectual and cultural and economic development of our time (3).

Given the importance placed on the structure by President Eisenhower in conjunction with the Korean War–Cold War climate in which it was constructed, it is little wonder that the AFIP building was a veritable fortress—atomic bombproof and predominantly windowless (Fig 4). Despite the structure's rather stark façade, however, the AFIP would thrive within its walls.

The Teaching Begins

Before the building was dedicated, General Raymond Dart, who was the head of the Army Medical Museum, invited his longtime friend, retired military radiologist Colonel William L. Thompson, to take a job as registrar (chairman) of the Department of Radiologic Pathology at the museum in June 1950.

In Colonel Thompson's words, "He wanted me to come to the museum to organize, supervise, teach, make speeches, write scientific papers, and create a teaching file and collection of imaging studies for distribution to the college and radiological societies throughout the country" (4).

Colonel Thompson believed the registry was the best place to finish out his career. As registrar, he would be responsible for collecting and archiving radiologic pathology cases, as well as for preparing such teaching aids as materials for clinical pathologic conferences, atlases, and brochures. The registry was also responsible for putting together study sets comprising cases, films, and specimens for the purpose of lending them to medical schools or any other interested organization.

As part of his duties, Colonel Thompson took it upon himself to hold small sessions to educate military radiology residents who were stationed nearby at military hospitals in Washington, DC; Baltimore, Md; and Philadelphia, Pa. Prior to these sessions, interested individuals would come and speak with the pathologists of the AFIP or would complete an informal fellowship, but there was no structure in place for educating radiology residents.

Colonel Thompson's sessions, which he preferred small and intimate, consisted of displaying his own set of cases, which were primarily on 8 by 8-inch slides of film, and then conducting a discussion about them (Fig 5). He used what he called "scientific criteria" for analyzing the films: *(a)* an orderly study of the morphologic changes with a listing of radiologic criteria; *(b)* a consideration of what corroborative evidence might be obtained with radiologic studies of other portions of the body; *(c)* consideration of the implication of such factors as the age, sex, nationality, and race of the patient in relation to the general incidence of the condition the patient was suspected of having; and *(d)* a review of the clinical history, the physical findings, and the laboratory data (5). These criteria were simplified into Thompson's "triangulation" method for formulating a differential diagnosis, with a focus on three factors, the clinical data, the radiologic results, and the pathologic findings.

This initial foundation laid the groundwork to emphasize the importance of radiologic-pathologic correlation. A basic understanding of the underlying pathologic findings of a disease allows recognition of its radiologic appearance and spectrum. This factor improves image interpretation, with more limited differential diagnoses in many cases. In addition and just as important, confidence of diagnosis may be increased. The effect of this increase in confidence is to increase our usefulness to clinical colleagues as consultants. From a resident's perspective, this understanding reduces the need to memorize facts. The importance of understanding radiologic-pathologic correlation has only been accentuated with our extensive improvement with multiple radiologic modalities and exquisite depiction of disease, now including molecular and physiologic imaging. The radiologic-pathologic correlative learning process is not a "one-way street" but enriches understanding of a patient's disease process among the medical disciplines of radiologists, pathologists, and clinical colleagues. This process provides a vital link with our colleagues, as a more specific and confident diagnosis improves patient care and treatment, for optimal treatment requires an accurate diagnosis.

Colonel Thompson's sessions became increasingly popular, but he had a minor stroke in 1961. From these sessions grew the Radiologic Pathology Correlation Course, affectionately referred to as the "rad-path" course by residents, as it is known today. Because of the stroke, plans for a successor to Colonel Thompson to continue the sessions he helped to create were required. This assignment was fulfilled by Commander Elias G. "Lee" Theros, MD (Fig 6). In 1966 at the age of 74 years, Colonel Thompson retired following a severe stroke that left him hospitalized for 6 weeks. Colonel Thompson lived another 11 years but never returned to teach sessions at the AFIP.

A New Beginning

Commander Theros was an individual capable of achieving whatever he set his

Figure 1

Figure 1: Brigadier General William Hammond founded a museum to preserve medical specimens that later became the Armed Forces Institute of Pathology (AFIP). (Courtesy of the Library of Congress.)

Figure 2

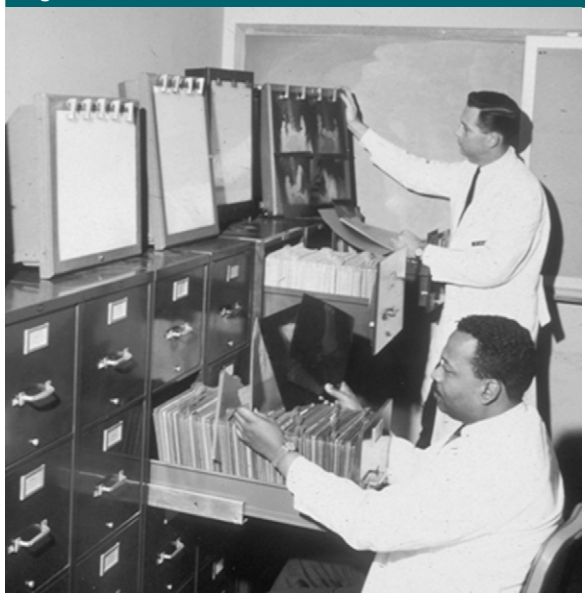


Figure 2: The Registry of Radiologic Pathology was formed in 1947 as part of the ARP. (Courtesy of the ACR Archives.)

Figure 3

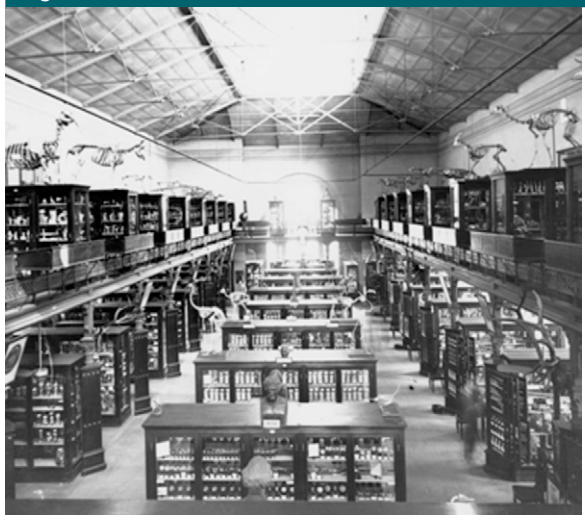


Figure 3: The "old red brick" structure was the home of the museum until it was relocated to the Walter Reed Army Medical Center (WRAMC). (Courtesy of the ACR Archives.)

mind to (6). Commander Theros spoke seven languages and served as a translator and an interrogator in the navy during World War II and became an expert in nuclear submarine radiation safety. Commander Theros visited Colonel Thompson often during his final years and conferred with him about the future of the Department of Radiologic Pathology at the AFIP, but he had new plans for radiologic pathology education. Unlike Colonel Thompson's intimate show-and-discuss classes, Commander Theros began to organize lectures and expand the curriculum. Guest lecturers were invited to come and teach sessions, and Commander Theros granted fellowships to radiologists from all of the branches of the U.S. armed forces. In addition, he also mandated that all attendees bring several pathologically proved radiology cases from their programs to contribute to the registry.

As Commander Theros's reputation at the AFIP grew, both military and civilian radiology programs began to send more of their residents to his Radiologic Pathology Correlation Course to satisfy the Accreditation Council for Graduate Medical Education requirement for radiologic and pathologic correlation to better understand the imaging appearance of disease. Some of the residents would stay at the AFIP for up to 6 months at a time, learning from Commander Theros and his staff. But later the course was shortened, perhaps to accommodate the increasing number of residents and more effectively coincide with their residency programs. First, the course was 3 months long, and then it became 2 months long in early 1973, 6 weeks long in the late 1970s, and finally 4 weeks long in 2007. Most of the other pathology registries at the AFIP also held educational courses.

The residents were taught not only by radiologists from various military branches, academic and community programs, and subspecialties but also by pathologists who were invited to lecture in their areas of expertise. Such eminent pathologists included Lent Johnson, MD (orthopedic pathology), Fathollah K. Mostofi, MD (genitourinary pathology), and Elson B. Helwig, MD (gastrointestinal pathology), who discussed the gross pathologic and histologic features of a myriad of diseases. Dr Johnson had the

Figure 4

Figure 4: The AFIP was moved to a new building in 1951. President Dwight D. Eisenhower spoke at the formal dedication on May 26, 1955. (Courtesy of the ACR Archives.)

Figure 5

Figure 5: Colonel William L. Thompson, the first registrar of the Registry of Radiologic Pathology, held small classes for nearby residents to discuss the correlation between radiologic and pathologic findings. (Courtesy of the ACR Archives.)

Figure 6

Figure 6: As the second registrar of the Registry of Radiologic Pathology, Commander Elias G. Theros was able to establish comprehensive, formal education courses at the AFIP. (Courtesy of the ACR Archives.)

reputation of fiery commentary during his case presentation and lectures, which lasted from early Friday afternoon until late at night. Despite the pathologists' enthusiasm for teaching the residents, the Radiologic Pathology Correlation Course was taught primarily by the staff radiologists.

During his tenure, Commander Theros also increased the amount and quality of publications that were developed at the AFIP. He began to showcase materials at the annual meetings of various radiologic societies, such as the Radiological Society of North America (RSNA) and the American Roentgen Ray Society (ARRS). He set up educational, scientific exhibits that were eventually expanded into a series of volumes published by the ACR. These publications marked the beginning of the professional self-evaluation program of the ACR (7). Also, the photocopied handouts from various lectures provided to residents began to be collated and organized. These were eventually bound and published as a comprehensive course syllabus, which has become an integral part of the Radiologic Pathology Correlation Course.

Facing Opposition

Commander Theros retired from the Navy in 1973. He remained on the AFIP staff as its registrar of the Department of Radiologic Pathology until 1976. He not only expanded the radiologic pathology educational programs and publications during his time as registrar, but he also helped stem the first waves of opposition that threatened to close the AFIP. In 1975, U.S. Army Surgeon General Richard R. Taylor, MD, who oversaw the AFIP, opposed the programs for teaching civilians and participating in civilian pathology consultations of the AFIP. Commander Theros, with the help of the Washington, DC, staff of the ACR—specifically Otha Linton, MSJ, who headed the lobbying efforts of the ACR—as well as other AFIP registrars, organized a strong opposition to Surgeon General Taylor's intentions. The effort included asking all of the registrars to contact the sponsoring organizations of their registry to ask Congress to continue the civilian component of the AFIP. With the insistence of several members of Congress and after seeing the overwhelming support for civilian consultation and teaching programs, Surgeon General Taylor backpedaled, stating that his intentions were simply to improve the efficiency of the AFIP with respect to military programs. Commander Theros, the ACR, the pathology community, and subsequently the AFIP were victorious—for the moment.

To prevent further actions against the civilian programs of the AFIP, Arthur Silverstein, MD, who was a pathologist-immunologist assigned to the AFIP and was on sabbatical working as a

staff member for Senator Edward M. Kennedy (D-MA), explained the recent difficulties of the AFIP and persuaded Senator Kennedy to discuss the matter with Senator John C. Stennis (D-MS), the chairman of the Senate Subcommittee on Defense. Senator Stennis subsequently added language to the 1976 Department of Defense appropriations bill (8) granting statutory authority to the civilian programs of the AFIP. Assisting in these efforts were Chapman Binford, MD, the chair of the Infectious Disease Department of the AFIP; Robert E. Stowell, MD, the scientific director of the AFIP; and General Joe M. Blumberg, MD, a former AFIP director. In addition, the bill formalized the ARP as a separate entity from the AFIP, providing the ARP with a federal charter specifying its financial oversight and management of civilian projects. Finally, the legislation created six distinguished scientist positions for nonmilitary staff that would be funded by the AFIP.

Reaching New Heights

Commander Theros recognized the talents of a senior radiology resident at the WRAMC, John E. Madewell, MD (Fig 7), who expressed interest in teaching and radiologic pathology while he worked with Dr Johnson, an orthopedic pathologist, on cases for publication. Although Commander Theros continued on as the registrar of the radiology registry until 1976, he was able to recruit Dr Madewell in 1973. Dr Madewell spent 3 years with him; he spent the 1st year as a radiology pathology fellow under the tutelage of Commander Theros, Dr Johnson, and Dr Mostofi.

Dr Madewell succeeded Commander Theros in 1976 as the registrar (chairman) of the Department of Radiologic Pathology and continued to develop the course, expand its faculty, and collaborate with the AFIP pathology departments and local radiology departments, including the WRAMC, the National Naval Medical Center (Bethesda, Md), Uniformed Services University of the Health Sciences (USUHS) (Bethesda, Md), the Johns Hopkins University School of Medicine

Figure 7

Figure 7: Dr John E. Madewell, the third registrar of the Registry of Radiologic Pathology at the AFIP, helped emphasize the importance of the Radiologic Pathology Correlation Course for radiologists, as well as the publications by its fellows and faculty. (Courtesy of Dr Madewell.)

(Baltimore, Md), the University of Maryland Medical Center (Baltimore, Md), the National Institutes of Health (Bethesda, Md), Georgetown University Medical Center (Washington, DC), George Washington University School of Medicine and Health Sciences (Washington, DC), and other community hospitals. Dr Madewell also focused on the research projects, and a wealth of scholarly publications was produced by the faculty. These vital functions of the Department of Radiologic Pathology continued with the leadership of successive chairs (Table 1). The radiologic pathology education and research at the AFIP served as an academic training ground for junior faculty and both military and civilian radiologists, who often continued to produce important academic work long after they left the institute and to serve as academic and professional leaders. Dr Madewell also emphasized that the Department of Radiologic Pathology did not work in a vacuum. He and subsequent chairs, as well as other Radiologic Pathology Correlation Course faculty, networked and relied on the support of the

Table 1

AFIP and AIRP Radiologic Pathology Registrars and Department Chairs

Registrar or Chair	Years of Tenure
William L. Thompson	1950–1966
Elias G. Theros	1966–1976
John E. Madewell	1976–1982
David S. Hartman	1982–1986
Richard P. Moser	1986–1990
James L. Buck	1990–1995
Melissa L. Rosado-de-Christenson	1995–2001
Kelly K. Koeller	2001–2005
Angela D. Levy	2005–2006
William D. Craig	2006–2010
Mark D. Murphey	2011 to present

Note.—All individuals listed in Tables 1–3 are physicians.

postgraduate faculty and staff from the local military and academic radiology departments and other specialties, but they particularly relied on support from the USUHS.

With the help of William W. Olmsted, MD, who had taught in the department as the representative of the Air Force to the AFIP from 1973 to 1976, Dr Madewell developed continuing medical education courses that were presented at various locations throughout the country. Other past and current AFIP faculty members were invited, and the courses were attended by several hundred practitioners per year.

In 1985, Dr Olmsted became the first distinguished scientist in the Department of Radiologic Pathology of the AFIP. The position had been established by the 1976 appropriations bill but was unfunded until the ACR, the RSNA, and the ARRS stepped in and supported the program. The program was designed to enable a radiologist to spend sabbatical time teaching, doing research, and producing scholarly work. According to Dr Olmsted, the experience gave him a substantial boost in the middle of his career. Dr Olmsted completed the year at AFIP while he was on sabbatical from George Washington University School of Medicine and Health Sciences. Following Dr Olmsted, there

Table 2

Radiologic Pathology Distinguished Scientists

Scientist	Years of Award
William W. Olmsted	1985–1986
Alan J. Davidson	1986–1987
Roger K. Harned	1987–1988
Terry M. Hudson	1988–1989
Anne G. Osborn	1989–1990
Robert D. Pugatch	1990–1991
Robert M. Ackerman	1991–1992
Ina L. D. Tonkin	1992–1993
Mahmood F. Mafee	1993–1994
Maer B. Ozonoff	1994–1995
Marc S. Levine	1995–1996
Jeffrey H. Newhouse	1995–1996
Phillip J. Kenney	1996–1997
Jeffrey R. Galvin	1997–1998
Diane S. Babcock	1998–1999
Carol M. Rumack	1998–1999
Paula J. Woodward	1999–2000
Charles A. Rohrman, Jr	2000–2001
William M. Thompson	2001
Andre J. Duernickx	2002
Anthony J. Wilson	2002–2003
Thomas L. Pope	2004
Arthur T. Rosenfeld	2005
Marilyn J. Siegel	2006
Deborah J. Rubens	2007
Naomi P. Alazraki	2008

were 25 distinguished scientists until 2008 (Table 2).

During the 1980s and 1990s, thanks to the efforts of the registrars and faculty, the Radiologic Pathology Correlation Course became the educational crown jewel of the AFIP and the radiology community. Its development, management, and constant support from some of the most prestigious members of the radiology and pathology professions made it an educational staple, eventually including more than 90% of the radiology residents in the United States and Canada, and it gained popularity among residents around the world.

Nevertheless, the AFIP was feeling growing pains once again; the Radiologic Pathology Correlation Course had become so popular that the program was unable to accommodate all of the residents requiring training within its available classrooms. In late 1992, U.S. Army Surgeon General Antonia Coello Novello, MD, offered the program a dilapidated movie theater that was on the campus of the WRAMC adjacent to the AFIP building, but only if the radiologists themselves renovated it for the purpose. With the help of Mr Linton, and generous donations from the ACR, RSNA, and the ARRS, approximately $500 000 was raised; the Radiologic Pathology Correlation Course was moved into the larger venue, which was christened the Elias G. Theros Auditorium at a ceremony with the inaugural class in January 1994 (Fig 8). The Department of Radiologic Pathology of the AFIP celebrated its 50-year anniversary in 1997.

Dr Olmsted started as editor of *RadioGraphics* in 1990. Beginning in 1990 and continuing until 2010 when the AFIP was disbanded, a series titled From the Archives of the AFIP was published in *RadioGraphics* in a section called AFIP Archives. These articles were written by AFIP faculty and colleagues and were based on the concept of radiologic-pathologic correlation and met with great success and popularity among the readers of the journal. In 2000, Dr Olmsted expanded this educational outreach and began to solicit articles on the basis of the best cases submitted by residents during the Radiologic Pathology Correlation courses conducted by AFIP faculty. According to Dr Olmsted, the idea of this feature in *RadioGraphics* was to give something back to the various institutions that were willing to send their residents and cases to the course. He also wanted to emphasize radiologic-pathologic correlation for the large readership of the journal and provide residents with an opportunity to explore scholarly publication, perhaps helping to foster interest in an academic career. To date, *RadioGraphics* has published more than 120 of these cases (9) and more than 120 From the Archives of the AFIP articles.

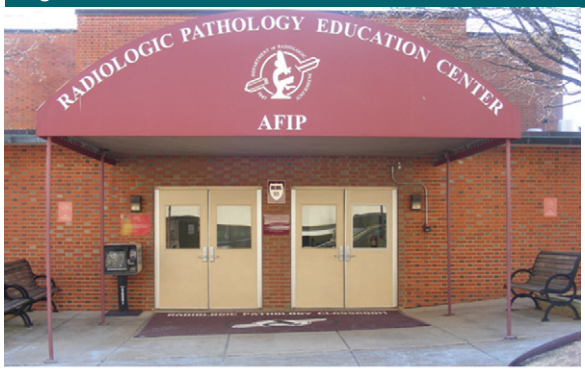
Base Realignment and Closure Commission Strike a Blow

In May 2005, after the Radiologic Pathology Correlation Course experienced several consecutive years of teaching more than 1200 residents annually, the U.S. Secretary of Defense, Donald Rumsfeld, released a cost-cutting list of base closures and realignments. The report recommended that WRAMC be closed and combined with the National Naval Medical Center in Bethesda, Md, and that several of its facilities, institutes, and programs be disbanded, including the AFIP. Others would be relocated to different facilities. The justification, which was also used in past realignments and closures, was to consolidate military installations, thereby streamlining the infrastructure of the Department of Defense and saving money (10).

The following September, the Base Realignment and Closure (BRAC) Commission, which was formed and directed by the Department of Defense to conduct an in-depth analysis of each of Secretary of Defense Rumsfeld's recommendations, sealed the fate of the AFIP and, subsequently, that of the Department of Radiologic Pathology and its Radiologic Pathology Correlation Course. In its final report to the Department of Defense, the commission confirmed the proposed realignment of the medical center, stating that although the medical center and its hospital were historically important, wounded soldiers needed more modern facilities. This need was brought into the public spotlight by the *Washington Post* in 2007, when it released a special report describing some of the substandard conditions of the ancillary support at the hospital (11). In regard to the AFIP, the BRAC commission stated the following: "The professional community regards AFIP and its services as integral to the military and civilian medical and research community, and relies on AFIP for pathology consultations and the training of radiology residents. The Commission found that [Department of Defense] failed to sufficiently address several AFIP functions, such as the Radiologic Pathology program, with the associated tissue repository, veterinary pathology and continuing medical education" (12).

Despite its complaint about the neglect of the AFIP and the future of its Department of Radiologic Pathology by the Department of Defense, the BRAC

Figure 8



a.

b.

Figure 8: **(a)** Elias G. Theros Auditorium, located in a renovated abandoned theater on the campus of the WRAMC, opened in 1994. **(b)** Interior of the Elias G. Theros Auditorium. (Courtesy of the ACR Archives.)

Commission, only a paragraph later in its recommendations, compounded the error. The commission stated that all of the elements of the AFIP should be dissolved, except the National Medical Museum and the tissue repository. It then recommended destinations for other portions of the institute: Most of the medical services were to be relocated to the new Walter Reed National Military Medical Center in Bethesda, Md, and to Fort Belvoir, Va. Other programs were sent to Dover Air Force Base in Dover, Del, and Fort Sam Houston in San Antonio, Tex. The BRAC Commission made no recommendations for the Radiologic Pathology Correlation Course, saying only that "AFIP capabilities not specified in this recommendation will be absorbed into other [Department of Defense], [f]ederal, or civilian facilities, as necessary."

It seemed apparent from the recommendations, or lack thereof, that the Radiologic Pathology Correlation Course was on its own. Its staff and faculty faced an uncertain future, which was reflected by Daniel L. Seckinger, Jr, MD, a pathologist representing the College of American Pathologists at a public hearing in Washington, DC, prior to the release of the recommendations. He said that the dissolution of the AFIP "has far-reaching implications, not only for the military but also for civilian medicine … I urge the commission to keep in mind that once you dismantle 150 years of unmatched professional, medical, and scientific expertise, there is no road back" (13).

Regardless of the legislation, the military would still need a pathology component for consultation, education, and research purposes within the federal government. As a result, the Joint Pathology Center was formed under the leadership of Colonel Thomas P. Baker, MD, of the U.S. Army and began operation on April 1, 2011. The establishment and maintenance of the Joint Pathology Center was congressionally mandated in the National Defense Authorization Act for Fiscal Year 2008 (14).

The pending dissolution of AFIP swept through the radiology education community. Because most radiology residency programs in the United States sent their 3rd- and 4th-year residents to the course, many wondered how they would provide this important training component if it was discontinued. Who would sponsor the course if the military refused to continue working with civilians?

The director of the Radiologic Pathology Correlation Course, Mark D. Murphey, MD (Fig 9), a professor of radiology at the Department of Radiology and Nuclear Medicine at the USUHS and a faculty radiologist at WRAMC and his faculty and staff discussed their options for finding new sponsorship. One option was to move the course to USUHS, which is located near the National Naval Medical Center. However, that facility did not have a space that would accommodate 200 to 300 residents at a time. The next consideration was the National Institutes of Health in Bethesda, Md. But the National Institutes of Health stated its purpose was for research only and would not consider sponsoring the course. The final consideration was to remain close to the military's medical programs and relocate to Texas, where the histology training program of the AFIP was moved as part of the BRAC, or even the Veterans Administration Hospital in San Francisco, Calif, but the opportunities never materialized.

As the search for a new home for the Radiologic Pathology Correlation Course continued, several summits were held in 2006 with the ACR, as well as the RSNA, ARRS, and the Association of University Radiologists. During those summits, Dr Madewell discussed the history of AFIP and ARP, and Dr Murphey discussed the importance of the course and its effectiveness at teaching radiology residents consistently across programs. Although no definite actions

Figure 9

Figure 9: Dr Mark D. Murphey, the current Physician in Chief of the AIRP, played a key role in the transition from the AFIP to the AIRP. (Courtesy of the ACR Archives.)

Figure 10

Figure 10: Dr Harvey L. Neiman, chief executive officer of the ACR, considered the possibility of having ACR take on the Radiologic Pathology Correlation Course. (Courtesy of the ACR Archives.)

Figure 11

Figure 11: Ronald E. Freedman was tasked with finding the Radiologic Pathology Correlation Course a new home. (Courtesy of the ACR Archives.)

came from the summits, they served to strengthen the relationship between the participating societies and the faculty and staff of the course.

A New Home

The relationship between the ACR and the AFIP, the Department of Radiologic Pathology, and the Radiologic Pathology Correlation Course was already well developed and long standing since the formation of the ARP. The ACR had previously sponsored day-long courses on breast imaging and cardiovascular radiology during the AFIP sessions, as well as sponsored selected visiting scientists in recent years. In addition, the chief executive officer of the ACR, Harvey L. Neiman, MD (Fig 10), had also served as the chief of cardiovascular radiology at the WRAMC from 1973 to 1975 and was a faculty member of the AFIP. During that time, he also performed research alongside Dr Mostofi.

Dr Neiman not only had fond memories of his time at the AFIP, but he also understood the importance of the Radiologic Pathology Correlation Course and the blow to radiology education should the course be discontinued. Shortly after the BRAC provisions were released recommending closure of the AFIP, Dr Neiman directed the government relations department of the ACR to begin working on changing the recommendations in regard to the AFIP and the Radiologic Pathology Correlation Course. When those hard-fought efforts failed to persuade the military and Department of Defense, however, Dr Murphey approached several radiological societies and other organizations, asking whether they would sponsor the program. Dr Neiman felt strongly that somehow, and in some way, the course had to continue; he began to consider the possibility of having the ACR take on the challenge.

Dr Neiman, with the help of one of the assistant executive directors, Ronald E. Freedman, MBA (Fig 11), began to discuss sponsorship opportunities with Dr Murphey. On April 1, 2010, Drs Neiman and Madewell, Mr Freedman, and Bill Shields, JD, LLM, CAE, the general council of the ACR, met with Florabel G. Mullick, MD, ScD, director of the AFIP, Dr Murphey, and William A. Gardner, Jr, MD, executive director of ARP. At the meeting, the ACR was formally asked about the possibility of transitioning the AFIP Radiologic Pathology Correlation Course to a course under the auspices of the ACR.

The more they investigated the prospects, the more Dr Neiman and Mr Freedman realized that the ACR would be the ideal sponsor of the course. The ACR seemed to be the perfect fit because it was located near Washington, DC; it had a worldwide network of both academic and practicing radiologists, as well as residents; and it had a robust education component that was committed to quality offerings and the success of its participants. Not long after the meeting, the ACR assented.

According to a 2007 U.S. Government Accountability Office summary and report describing the BRAC legislation, "[the Department of Defense] does not plan to retain AFIP's educational program," and "should assist interested groups—if any—in supporting the continuation of educational services, such as the Radiologic Pathology Correlation course" (15). Despite this rather clear-cut statement, some within the Department of Defense were reluctant to admit that the Radiologic Pathology Correlation Course would be discontinued without ACR sponsorship

and oversight. Thankfully, through the efforts and patience of Dr Murphey and others within the AFIP, the ARP, and the ACR, the path for the Radiologic Pathology Correlation Course was cleared and could continue unhindered.

Making It Happen

Now that the pieces were in place, Mr Freedman was tasked with reestablishing the course as an ACR program. ACR clearly wanted to maintain the same quality of education while bringing the technological and logistical benefits of the ACR to the rechristened AIRP program. First, Mr Freedman worked with Dr Murphey to secure the transition of faculty and staff needed to ensure continuity. He then began working with other ACR staff, including Pamela Mechler, CAE, Jan Cox, and Vickie Giannotti, the newly appointed AIRP staff director, to incorporate the new AIRP, find an appropriate and larger venue for the course, bring staff into the ACR structure, secure office space, solidify relationships with all faculty, and implement ACR-developed technology to aid the case submission process.

The course was moved to the Silver Theater and Cultural Center of the American Film Institute (Fig 12) in Silver Spring, Md, which provided a large auditorium with seating for more than 400 attendees The venue satisfied not only the volume of participants but also proximity to WRAMC, where the nearby rental housing infrastructure had been well established during the many years of the AFIP course.

To manage the course, Mr Freedman formed the AIRP and hired the same staff, including Dr Murphey, who was named physician in chief of the new institute. Dr Murphey's leadership, as well as the reputation of the course, led to maintaining a nearly identical faculty for the new course. Also, the ACR signed an agreement with the USUHS, which enables military faculty to continue their involvement in the Radiologic Pathology Correlation Course (16). As a result, the content and the format of the course would not change, and its quality and reputation would remain intact.

With the help of the information technology and marketing departments of the ACR, the AIRP launched a new Web site featuring online registration capabilities for academic programs. In addition, this Web site featured an online case-submission process in which images can be stored and viewed by using a system for transfer of images and data (TRIAD; American College of Radiology, Reston, Va), which traditionally has been used to enable physicians in remote locations to submit their research. As a result, the residents can now submit their cases via the Web and have them reviewed by the faculty before they arrive at the course. Also, in light of the growing popularity of the tablet computer (iPad; Apple, Cupertino, Calif), particularly among radiologists, the ACR is currently creating a computer application (iPad app; American College of Radiology) that will enable residents to take notes on an electronic version of the syllabus *Radiologic Pathology* and browse additional resources during the course.

More important, the AIRP has also convened a group of advisors under the leadership of Debra L. Monticciolo, MD, to facilitate communication between the AIRP and the Education Commission of the ACR. The AIRP Advisory Committee, as it is called, includes seven members, besides Dr Monticciolo, as follows: Ellen M. Chung, MD; Lawrence P. Davis, MD; Charles E. Kahn, Jr, MD, MS; Dr Madewell; Umar Mahmood, MD, PhD; Alexander M. Norbash, MD; and M. Elizabeth Oates, MD. The AIRP Advisory Committee will be seeking input to develop innovative educational programs within the AIRP and to leverage the unique training opportunity provided at AIRP. According to Education Commission Chair Cheri Canon, MD, the AIRP structure will serve as a model for radiology education and pedagogical excellence, encouraging experimentation and innovation to enhance resident-oriented programs and develop lifelong radiologic-pathologic education for the radiology community.

Figure 12

a. b.

Figure 12: **(a)** Silver Theater and Cultural Center of the American Film Institute in Silver Spring, Md, where the Radiologic Pathology Correlation Course of the AIRP is now held. **(b)** Interior of the Silver Theater and Cultural Center. (Courtesy of the ACR.)

A Bright Future

The first course under the new AIRP banner debuted on January 24, 2011, and was remarkably successful; the five courses from January through October 2011 had 1434 attendees, with 269 from outside the United States. From 1990 until the end of 2011, it is expected that more than 22 000 residents from across the world will have taken the Radiologic Pathology Correlation Course through either the AFIP or the AIRP. As long as the correlation between radiology and pathology continues to be an important step in radiology education and patient care, the course will continue.

An additional new requirement for the residents attending the AIRP course is selecting important images that best depict a patient's disease and correlating them with the associated gross pathologic and histologic findings. The AIRP is planning to use these cases to develop a radiologic-pathologic case-based system for use by residents, faculty, and practicing radiologists that is to debut in 2012. These cases may be used for educational and teaching purposes and will acknowledge the submitting radiology residents, their institutions and colleagues in radiology, pathology, and other medical specialties for their diligence and excellent addition to the AIRP archive.

The AIRP has also reinstituted "categorical courses" in which a specific organ system faculty group gives all of their lectures in a 2- to 5-day period. This schedule allows practicing radiologists and physicians interested in those specific areas to also attend the course and gain continuing medical education credit. This added educational outreach continues to expand the emphasis of the AIRP on the importance of learning radiologic-pathologic correlation. The first categorical course in musculoskeletal radiology took place August 15–19, 2011, and was followed by a course in pediatric radiology in September and a course in neuroradiology in October of 2011. Courses on chest and cardiovascular radiology are scheduled for January and February of 2012, and a course in women's imaging is planned for March of 2012, with a course in abdominal imaging scheduled in May of 2012. The AIRP is also hoping to reinstitute the distinguished scientist program sometime in the future.

The AIRP staff and faculty have established a goal to increase international resident attendance at the course. During the course in May of 2011, 62 of the 293 registrants traveled from countries outside the United States. In addition, the AIRP has been able to continue all of the international programs that began at the AFIP. AIRP faculty will travel and lecture internationally throughout the year, emphasizing the importance of the correlation between radiology and pathology to improve diagnosis and patient care. Successful international outreach efforts continue in Austria, Brazil, France, the Netherlands, Portugal, and Spain. As evidence of continued growth of its educational programs, in 2011, the AIRP added courses to be taught in England and India. The success of these international outreach programs is evidenced by the continued increase in the international attendance at the Radiologic Pathology Correlation Course, which has grown from approximately 10% of the class in the 1990s to nearly 25% in recent courses.

Finally, the AIRP staff and faculty will maintain the rich academic productivity established at the AFIP. The new 2012–2013 two-volume *Radiologic Pathology* syllabus will be published in January 2012. The first articles with the new series title AIRP Best Cases in Radiologic-Pathologic Correlation were published in the May-June 2011 issue of *RadioGraphics*. In 2012, the institute also plans to work with the new *RadioGraphics* editor, Jeffrey S. Klein, MD, to submit additional articles for publication in *RadioGraphics* with a new series title From the Radiologic-Pathology Archives. Scientific and review articles, books, and chapters by the faculty will also ensue from collaboration with radiologists at the USUHS and the new Walter Reed National Military Medical Center at Bethesda, Md, as well as our pathology colleagues. The AIRP is also seeking to establish more collaborative educational and scientific efforts with other academic centers.

In 1862, Brigadier General Hammond could never have understood the impact that a museum of war specimens would have on the future of medicine. But the important contributions that

Table 3

AFIP and AIRP Faculty

Faculty Member	Years on Staff
William L. Thompson	1950–1966
Elias G. Theros	1966–1976
Joseph F. Eckert	1967–1968
Maurice M. Reeder	1967–1970
Robert M. Allman	1969–1973
Richard C. Cavanaugh	1970–1972
Jack M. Korsower	1972–1974
James C. Reed	1972–1975
John E. Madewell	1973–1982
Harvey L. Neiman	1973–1975
William W. Olmsted	1973–1976
David S. Feigin	1975–1978
Joel E. Lichtenstein	1976–1984
David S. Hartman	1978–1986
William D. Wehunt	1978–1982
Richard P. Moser	1982–1990
James G. Smirniotopoulos	1983–1995
Pablo R. Ros	1984–1987
Michael J. McCarthy	1984–1988
James L. Buck	1986–1995
Alan J. Davidson	1987–1998
Melissa L. Rosado-de-Christenson	1988–2001
Mark J. Kransdorf	1990–1993
Paula Keslar	1991–1993
Wendelin S. Hayes	1993–1994
Peter C. Buetow	1993–1997
Mark D. Murphey	1993–present
Geoffrey A. Agrons	1994–1996
Brent J. Wagner	1994–1998
Kelly K. Koeller	1996–2005
Gael J. Lonergan	1996–2003
Jack McLarney	1997–1999
Gregory Bender	1998–1999
Paula J. Woodward	1997–2006
Angela D. Levy	1999–2007
Jeffrey R. Galvin	1999–present
Aletta A. Frazier	1999–present
Ellen M. Chung	2005–present
Alice B. Smith	2007–present
Rachel B. Lewis	2009–present
Grant E. Lattin	2009–present
Leonard M. Glassman	2007–present
Chikaodili Iloanusi Logie	2011–present

the AFIP and AIRP and their faculty (Table 3) have had in pathology and in the area of radiology education and research constitute a legacy that cannot be forgotten. This legacy reflects an appreciation that only through an understanding of the pathologic basis of disease, can the radiologic appearance and spectrum be recognized. These features are more exquisitely demonstrated today with multiple radiologic modalities, including molecular and physiologic imaging. The goal of the course is to improve the care of patients which requires an accurate diagnosis based on an understanding of the radiologic pathology correlation. This patient-centered educational tradition will continue through the AIRP and its current and future faculty.

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