

## 9. Pioneering Pathology Registries

*The evolution of the pathology registries stands out as the most important organizational development in American pathology. You are the people who had the foresight to start them.*

BRIG GEN ELBERT DECOURSEY, USA  
TO THE ACADEMY, 1952

A PROBABLE BY-PRODUCT of events surrounding the outset of the Postgraduate Program was the advent of an Academy Section on Pathology. Officially created at an interim Council meeting in June 1921 (a few months before the first course offering), the Section on Pathology was launched at the instigation of Postgraduate Committee Chairman Harry Gradle, who reported on preliminary plans for a museum of ophthalmic and otolaryngic pathology within the Army Medical Museum in Washington, DC.<sup>39(p12)</sup>

The Council promptly approved this proposal, designated Dr Gradle chairman of a committee to establish this department of Academy activity, and appointed Ira Frank, of Chicago, as his co-worker to represent otolaryngology.<sup>39(p12)</sup> The committee of two had, by the time of the October 1921 meeting, arranged for a Section on Ophthalmic and Otolaryngic Pathology within the Army Medical Museum. The object of the affiliation was to build a permanent collection of ophthalmic and otolaryngic pathology, and the museum offered central facilities where specimens could be sent for pathologic diagnosis, categorized, and

stored for instructional purposes. For the museum, in return for housing and processing specimens sent in by Academy members, the arrangement offered a ready means of collecting substantial amounts of pathologic material which it did not have and which would be virtually impossible to acquire through military sources.<sup>59(pp432,433),130</sup>

This cooperative endeavor was the forerunner of the Registry of Ophthalmic Pathology, established the following year, and the inspiration for the American Registry of Pathology which now contains 27 separate registries sponsored by national medical, dental, or veterinary organizations, and the Armed Forces Institute of Pathology (AFIP).

Although Harry Gradle did not record what forwarded his thought for a central laboratory and museum of pathology, the idea undoubtedly had its origins in both his personal abiding interest in the education of the specialist and his official responsibility in heading development of the Academy's instructional program. Lack of fundamental training in the basic science of pathology was a subject that figured prominently in creation of the Academy's Postgraduate Course. It was singled out by Edward Jackson in 1917 when he first pointed to

Academy potential for instruction courses,<sup>100</sup> and it was his exhibit of ocular pathology in 1920 that triggered the suggestion for a full-blown program of instruction courses.<sup>58(p375)</sup>

Inherent in the original concept of the postgraduate courses was that they would help provide fundamental education in areas where training was deficient. Certainly, pathology was a prime target. There was probably no area in which the practitioner of the early 1920s had less training than in the pathology of his specialty. This reflected a general indifference of American medicine toward pathology and its vital role in the total spectrum of medicine.

During the First World War, which was the acid test for American medicine and its underpinnings, American resources in the field of pathology were found particularly wanting. "At no time during the war was there a sufficient number of trained pathologists in the service," wrote Surgeon General Merritte W. Ireland in 1919. "The same condition seems to exist in civil life," he noted, "for it proved impossible to find a sufficient number of trained men."<sup>131</sup> The war was the catalyst for turning apathy into action.

The general shortage of trained pathologists and of laboratories in this country was even more acute in the specialized area of ophthalmic pathology. "We have not a single large and well equipped ophthalmic laboratory in the United States,"<sup>64(p152)</sup> said Lucien Howe in 1919. Only a handful of laboratories were equipped to work with ophthalmic pathology in the early twenties, and they examined a total of about 300 specimens yearly.<sup>132</sup> There was a pressing need to give ophthalmologists throughout the country access to a diagnostic service and direct communication with the few men trained and experienced in ophthalmic pathology.

Otolaryngologists, on the other hand, had greater access to diagnostic facilities, since their specimens were handled by general pathologists who did not recognize otolaryngic

pathology as a special discipline. In the long run, its lack of identity as a special field of pathology with specific requirements made progress in otolaryngic pathology all the more difficult.

From the standpoint of 1921, special pathology suffered from scant facilities and resources for education and from a rather low rating on the interest-importance scale. The glaring neglect of training in pathology and the allied fundamentals of anatomy, physiology, and bacteriology was one result of the dearth of specialty training programs, but it was true even for the programs that did exist. It took years for programs to develop the necessary ingredients for a truly adequate curriculum in these subjects.

Harry Gradle's plan for a national laboratory and museum of ophthalmic and otolaryngic pathology was ingenious in that it worked to satisfy immediate needs while storing up provisions for future development. Essentially, the plan had a three-tiered aim of providing a diagnostic service, developing the resources for education, and establishing a national center. Academy members were to build the collection by sending in specimens, thus putting at their disposal a diagnostic laboratory, enriching their knowledge with the educational feedback of a consultative-diagnostic service, and hopefully, stimulating their interest in pathology. When enough material had been collected, it would be used for a variety of educational purposes, all designed to extend the resources of the museum to the practitioner. And eventually, the collection would become a national treasury of ophthalmic and otolaryngic pathology with unlimited possibilities for study, teaching, and development in both fields.

Dr Gradle's idea coincided fortuitously with new stirrings in an old institution. The Army Medical Museum, which housed one of the world's largest collections of specimens, was undergoing a transition toward becoming a "live activity" in pathology.

## THE ARMY MEDICAL MUSEUM: "PICKLE FACTORY" TO INSTITUTE

Founded in 1862, the Army Medical Museum was the brain child of Surgeon General of the Army William Alexander Hammond. Its purpose was to process and preserve material collected during the Civil War which would be valuable to the progress of military medicine and surgery.

Surgeon General Hammond directed medical officers "diligently to collect, and to forward to the office of the Surgeon General, all specimens of morbid anatomy, surgical or medical, which may be regarded as valuable; together with projectiles and foreign bodies removed, and such other matters as may prove of interest in the study of military medicine or surgery."<sup>133</sup> A few weeks after announcing his intention to create a museum for the collection of specimens, Surgeon General Hammond declared a second purpose for the museum—"to prepare for publication the Medical and Surgical History of the Rebellion."<sup>134</sup> This museum was the beginning of what we now know as the Armed Forces Institute of Pathology.

After the First World War, the museum's purpose expanded from mere collector to active collaborator in development of pathology and eventually to the true teaching institute it is today with the threefold mission of consultation, education, and research. The Army Medical Museum retained its original name until 1946, when it was rechristened the Army Institute of Pathology, with the museum as one of four major components. Three years later, it became a conjoint effort of the three branches of the armed services and was redesignated the Armed Forces Institute of Pathology.

In a book on the Institute's first hundred years, historian Robert S. Henry says the Army Medical Museum and its descendant, the AFIP, played a major part in evolving a "broader concept of pathology and the place of the pathologist in the scheme of things medical."<sup>135(p5)</sup> In its

developing role as the Army Medical Museum, he describes that "it contributed to medical research and education through compiling and publishing the massive 'Medical and Surgical History of the War of the Rebellion,' and through the introduction and development of such techniques as photomicrography and the use of aniline dyes in staining slides for microscopic study. Through its Curator, Maj Walter Reed, it contributed to the conquest of yellow fever, and through another curator, Maj Frederick Fuller Russell, it helped mightily in stamping out typhoid fever. Under the curatorship of Maj George Russell Callender, the Museum broadened its work of education and research through its linkage with civilian medicine in the Registry movement."<sup>135(p5)</sup>

It was through the pathology registries, pioneered by the Academy, that the museum activities were channeled into the mainstream of American medicine.

Bonds between the museum and civilian medicine were forecast by its founder, and the first formal link between the two was forged in 1895 when the American Dental Association named the museum as a national repository for its dental and oral collections.<sup>135(p196)</sup> Other medical organizations also recognized its valuable material and facilities and their potential use. However, prior to the Academy arrangement in 1921, there had been no large-scale, productive effort to tap the resources of the museum. And although the museum had amassed a wealth of pathologic material, its staff in the late nineteenth and early twentieth century had concentrated their efforts in the field of bacteriology, and the museum had become a stagnate warehouse of pathology.<sup>135(p150)</sup>

The First World War infused new material and new life into the museum and a new sense of mission into its staff. Predating the spark supplied by American involvement in the war was recognition that the museum could and should function as more than a passive

repository. Voicing this sentiment in an article which appeared in the *New York Medical Journal* in 1916, Col William O. Owen, the museum's tenth curator, said the museum of the future should not be "merely a collection of medical history of the United States but should also be a teaching center in the truest sense. . . ." A medical museum, defined Colonel Owen, should be "a great library of histology and pathology, where the student of medicine may come and study the history of disease and its pathology. . . ." <sup>136</sup>

When the United States entered the war the following year, the museum sprang to life for its original purpose of collecting material and getting it to Washington, DC, in usable form. Strenuous efforts were made to interest and instruct medical officers and enlist their cooperation. (As a medical officer, assigned to posts in this country and overseas, Harry Gradle would undoubtedly have been aware of the museum's activities.) When the war ended, the museum was swamped with material and short of the personnel to process it and the space to store it, but it was a going concern and wide awake to the part it could play in medical research and education.

The force of events which had brought the museum to life pushed it around the corner in a new direction in 1920. Maj George R. Callender became the first practicing pathologist to assume the administrative post of museum curator, and he later told the Academy, "The staff of 1920 decided the institution should become a live activity in pathology in addition to its function of collecting, studying, and reporting on the injuries and diseases of armed conflict. Major General Merritte Weber Ireland, then Surgeon General, ably supported the decision and enabled the Museum to become an Institute of Pathology rather than a 'pickle factory' as he had facetiously called it." <sup>137</sup>

Surgeon General Ireland believed the full potential of the museum could only be realized

by working in harness with civilian medicine. Aggressive efforts were instituted to open every door to civilian physicians and urge their use of the museum. "Only in this way," said the surgeon general in his 1920 annual report, "will the Museum fulfill its larger function of being not only a place for the exhibition of pathological and other material, but a great instruction center in pathology and epidemiology." <sup>138</sup>

Conditions were ripe for Harry Gradle and his plan. It was sometime during 1921 that Dr Gradle broached his idea for creating a nucleus of ophthalmic and otolaryngic pathology in the Army Medical Museum to the surgeon general, who approved, and to the museum's new curator, Major Callender, who later recalled "It was a great inspiration to us to have this opportunity to cooperate with the Academy." <sup>137</sup>

## FOUNDING THE REGISTRY SYSTEM

### Registry of Ophthalmic Pathology

Although the museum could supply the home for the Academy collection, it did not have technicians or pathologists trained in ophthalmic pathology. Eye specimens were a rare commodity in the museum of 1921, the oldest one dating back only to 1917, <sup>139</sup> so the staff had had little opportunity to become well versed in the field of ophthalmic pathology. To assist the museum, the Academy Council in 1921 appointed a Committee on Ophthalmic Pathology to work under the new Academy Section on Pathology. Chaired by Frederick H. Verhoeff, of Boston, the committee consisted of Hans Barkan, of San Francisco, Marcus Feingold, of New Orleans, and William C. Finnoff, of Denver. <sup>39(p23)</sup> In May 1922, Dr Verhoeff paid a visit to the museum. In addition to instructing technicians in the sectioning of eyes, he suggested a name for the ophthalmology collection—the Registry of Ophthalmic Pathology. <sup>52</sup>

The registry idea—a central agency for the registration and follow-up of cases—had been introduced less than two years before by E. A. Codman, a Boston physician who was both a friend and patient of Frederick Verhoeff's. Dr Codman's registry had its origins in a private inquiry instituted by and for the family of one of his patients who was thought to have a bone sarcoma. The family wanted to know if there were any cases of bone sarcoma in which the patient had been cured, and if so, what treatment had been used. They gave \$1,000 for the probe, and Dr Codman began a collection of cases and a system of follow-up investigation.

Although the patient died, the project did not. Dr Codman had accumulated a valuable core of material and information that could be used for future study of the disease. With the help and cooperation of Dr J. C. Bloodgood, of Baltimore, and Dr James Ewing, of New York, Dr Codman organized what he called the Registry of Bone Sarcoma. This first national registry attracted the interest of surgeons, at whose suggestion it was assumed by the American College of Surgeons as part of their work.<sup>52</sup> The project continued under the sponsorship of the American College of Surgeons until 1953 when the College donated the Codman Bone Sarcoma Registry to the American Registry of Pathology at the AFIP. The collection of 2,374 cases became part of the Registry of Musculo-Skeletal Pathology, but it retained its name in honor of Dr Codman who started the first registry.<sup>135(p325)</sup>

Undoubtedly, Frederick Verhoeff derived the term "registry" from his familiarity with Dr Codman and his work.

In the summer of 1922, prospects for the ophthalmic collection received considerable encouragement when James Moores Ball, of St. Louis, was persuaded to donate his extensive collection of specimens, plates, photographs, and instruments, accumulated over a 30-year period.<sup>52</sup> Following on the heels of this con-

tribution and of Dr Verhoeff's suggestion to establish an ophthalmic registry, Harry Gradle requested authority from the Academy Council to proceed with steps toward nationalizing the project.\* Growth of the museum collection required the interest and cooperation of ophthalmologists throughout the country, which could best be stimulated through a conjoint effort of the national ophthalmological societies. The Council agreed, and in 1923, the American Ophthalmological Society and the Section on Ophthalmology of the AMA joined in the effort.<sup>65(pp432,433)</sup> The Academy, however, remained the backbone of the project, as described later by Jonas Friedenwald who said, "the contributions of the other Societies have been mainly spiritual, while that of this Academy has been the material essence, without which the division would not have functioned."<sup>140</sup>

Although growth of the registry collection was slow during the next few years, and Dr Gradle often complained that there was not enough active participation by members in contributing specimens, the ophthalmic collection was firmly established and its future virtually assured. By the end of the 1920s, the registry was already serving a compound purpose. It was providing an excellent consultive-diagnostic service, with a team of eminent ophthalmic pathologists headed by Dr Verhoeff and Jonas S. Friedenwald. Educationally, the material collected was being used for exhibits and for the preparation of study sets that were available for loan. The first courses utilizing registry material were presented at the Academy's 1930 meeting. And the term "registry" had been applied as a function as well as a name of the collection. After enough tumors of the eye were received, a system of follow-up had been initiated, and it was soon to be realized that the registry

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\*60 (pp499,500), 39(pp33,34)

material was a rich and fertile field for valuable research.

### American Registry of Pathology

As the Academy collection grew, and began to be used for making study sets, it became difficult for the museum's personnel to handle the work load. Major Callender made a personal appearance before the Academy in 1929 to recommend that a committee be appointed to find a means of ensuring "that this collection continues and builds up to the maximum value." "This Academy," he said, "has started the first national collection of pathologic specimens in the United States so far as I know. It is entirely independent, it belongs to no institution, no school or organization; it is there for the ophthalmologists of the country. You have gotten hold of something and it must be kept up."<sup>141</sup>(pp500,501)

Demands on the museum personnel were further increased by the establishment of two more registries during the 1920s. Following the example of the Academy-museum cooperative arrangement, the American Association of Pathologists and Bacteriologists sponsored creation of a second registry, that of lymphatic tumors, in 1925, and a third registry of bladder tumors was sponsored by the American Urological Association in 1927.

"These registries," wrote Major Callender in a 1930 letter to the Academy, "are now well established and have reached that stage of development and activity which makes necessary more professional, technical and clerical work than can be given by the Army Medical Museum."<sup>142</sup>(p531) Handling the work of the ophthalmic registry, explained Major Callender, was particularly difficult: "The drain on the technicians, of which there are two, is not great for the bladder tumors and lymphatic tumors, but the ophthalmic pathology requires over half the time of one technician."<sup>142</sup>(p534)

Up to this time, the major share of expenses incident to carrying on the work of the registries, had been shouldered by the museum. Contributions from the sponsoring societies (the Academy was giving \$500 yearly) did not begin to cover costs in terms of man-hours and supplies. With expansion of the registry idea, the burden of expenses became too great for the museum to handle with its limited funds. The problem was further accentuated when Congress cut the appropriation to the Army Medical Department, under which the museum operated.<sup>143,144</sup> Moreover, since the museum's officer personnel changed every four years, the registries were subject to fluctuations of interest and policy.<sup>142</sup>(p534)

The future of the registry system required that it be insured with a policy of continuous support and consistent management. To this end, Major Callender presented the needs of the registry system to Ludwig Hektoen, who chaired the National Research Council's Division of Medical Sciences. Dr Hektoen, in turn, presented the project to the National Research Council (the operating arm of the National Academy of Sciences), and a plan was formulated: an American Registry of Pathology would be established at the Army Medical Museum under the auspices of the National Research Council.<sup>142</sup>(pp530-535) "The object of this registry," Major Callender told the Academy in 1930,

is to collect data and specimens from patients, especially those with tumors, with a view to accumulating a sufficient number of instances of each disease to determine its characteristic course, the criteria for diagnosis, and to evaluate methods of treatment. . . . While the chief purpose of the registry is the study of tumors, no limitation as to character of disease is contemplated. The cases preferred are those living at the time of registration and that can be followed. . . . The following up of these cases will constitute a considerable and important part of the Registry's activities. . . .

The registry will never serve as a diagnostic laboratory replacing local pathologists. It is rather to be a clearing house in pathology to which will be sent cases already diagnosed, and the obscure cases about

which more can be learned by obtaining the opinions of several pathologists. . . .

The foundation on which to build is now existent in the three registries already established: The Registry of Ophthalmic Pathology, of about 2,000 cases; the Registry of Lymphatic Tumors, of 200 cases; and the Registry of Bladder Tumors, of over 200 cases. . . .

Funds donated to the Registry will be received and administered through the National Research Council by the National Academy of Sciences.<sup>142(pp532-535)</sup>

Thus was born the American Registry of Pathology in 1930, a cooperative enterprise of the National Research Council, the various societies sponsoring registries, and the Army Medical Museum. Major Callender asked that the interested societies give their formal endorsement to the proposal and make whatever contribution possible. The Academy Council approved the plan at its June 1931 meeting and continued the Academy's \$500 contribution.<sup>145</sup>

For more than 30 years after its formation, the American Registry of Pathology continued under the aegis of the National Research Council. The American Registry and the Medical Museum became two of four major components of the AFIP, the other two being the Center for Advanced Pathology and the Medical Illustration Service. Housed at the AFIP, the American Registry operated under the policy direction of the AFIP's Board of Governors.

In the mid-1960s, the National Research Council dissolved its Committee on Pathology and, in the course of reorganization, gave up sponsorship of the American Registry. Universities Associated for Research and Education in Pathology, Inc, took over as fiscal agent for the American Registry and received and administered funds donated by the societies sponsoring registries and other contributors.

After the relationship between the AFIP and the American Registry, which employs civilian scientists and physicians, was called into question, legislation enacted in 1976 provided the AFIP and the American Registry with separate legislative charters and authorized continued cooperation. The American Registry is now a

nonprofit corporation supervised by a board consisting of representatives from the societies that sponsor registries at the AFIP.

### Registry of Otolaryngic Pathology

As Harry Gradle told the Academy in 1921, the Academy and the Army Medical Museum had "effected a union . . . with hopes of establishing a National Museum of Ophthalmic and Oto-Laryngologic Pathology."<sup>59(p432)</sup> Unfortunately, the projected collection of otolaryngic pathology simply did not materialize, at least not proportionately with the ophthalmic collection. Part of the problem was that the otolaryngologists were not in such dire need of a diagnostic service as were the ophthalmologists. Therefore, there was not the incentive to send specimens for routine diagnostic work.

Otolaryngic pathology was handled by general pathologists because it covered a broad range of anatomic sites that overlapped not only general pathology but also other definitive areas of pathology. This produced another special problem in building a collection of otolaryngic pathology, since there was no clear definition of what specimens belonged in the anatomic zone of otolaryngology. Even after formal establishment of the registry, specimens sent in by otolaryngologists were often diverted to other sections of the museum.<sup>146-148</sup> Otolaryngic pathology at this time was not, as William L. Benedict put it, a "curricular entity."<sup>149</sup> And it was not until years later, with development of the highly specialized field of otology and the need for a research laboratory for temporal bone pathology, that the otolaryngic registry was on equal footing with the ophthalmic registry.<sup>150(p968),151</sup>

During the early 1920s, while the ophthalmic collection was getting started and attracting interest and support, the otolaryngology side of this endeavor was treated, in Dr Gradle's own words, "in rather a stepmotherly fashion."<sup>65(p432)</sup> In fairness to Dr Gradle, who naturally had a greater interest in the ophthal-

mic collection, he made repeated efforts to have the Academy Section on Pathology divided into two sections, one for each specialty. "The two cannot go hand in glove,"<sup>60(p500)</sup> he noted when he proposed nationalizing the ophthalmic effort in 1922. However, the Academy insisted on keeping the two under one organizational roof.

Ira Frank, Dr Gradle's designated counterpart for otolaryngology, was appointed chairman of a Committee on Otolaryngic Pathology, with his co-workers being Lee W. Dean, of Iowa City, George W. MacKenzie, of Philadelphia, and Gordon B. New, of Rochester, Minn.<sup>39(p42)</sup> What this committee did is not reported, although presumably they were appointed to help with the diagnostic work. Dr Gradle remained at the helm of the Academy's general Section on Pathology (subsequently called Committee on Pathology after constitutional revision), which continued to represent both specialties throughout the 1920s, but mostly in name only.

Harry Gradle made efforts in behalf of a collection of otolaryngic pathology that did not meet with support from any sector. In 1926, he wrote the Council a letter requesting that the Academy meet the expense of a technician in otolaryngic pathology at the Army Medical Museum. The matter was laid on the table with instructions to Dr Gradle that it should be brought up at another meeting.<sup>66(p32)</sup>

Four years later, when the Registry of Ophthalmic Pathology was put under the protective umbrella of the American Registry of Pathology, all pretense was dropped. With more pique than tact, Harry Gradle described the situation in blunt terms: "In the original scheme of things the pathology was supposed to have been both ophthalmic and otolaryngologic, but, as is rather common, otolaryngology lagged behind and it became the section on ophthalmic pathology—with all due respect."<sup>144(p413)</sup>

Otolaryngologists did not procrastinate much longer. The determination and solid

backing necessary to develop a center of otolaryngologic pathology came in the early 1930s when a coalition of interested otolaryngologists resolved that "an immediate and energetic effort should be made to create such a center," whether or not the Army Medical Museum could accommodate it.<sup>152(p29)</sup> The surgeon general authorized formation of a registry for otolaryngology at the Army Medical Museum in 1935 and all that remained was Academy sanction and support.<sup>152(p33)</sup>

Maj Raymond O. Dart, the museum's curator, was invited to the Academy's 1935 meeting and addressed both the Teachers' Section and the Council on the subject of the Academy-museum relationship. Harry Gradle and Ralph A. Fenton, of Portland, Ore, were asked to confer with Major Dart, and they recommended a registry for otolaryngology be established with parity to the one for ophthalmology.<sup>153</sup> The Council agreed, appropriated \$1,000 to the Army Medical Museum, \$500 for each registry, and appointed Joseph C. Beck, of Chicago, as Academy director in charge of the new registry.<sup>154(p497)</sup> As his collaborators, Dr Beck enlisted LeRoy A. Schall, of Boston, Frank J. Novak, Jr, of Chicago, and Herman Z. Semenov, of Los Angeles.<sup>155(p682)</sup> This advisory committee made an industrious effort to promote interest in the registry and to develop educational use of the registry material.

Two months after the Academy stamped "proceed" on the project, plans for the newly created Registry of Otolaryngic Pathology were spelled out in the Academy's *Bulletin*. "This Registry," said the formal announcement, "will be maintained by the Academy as a component unit of the American Registry of Pathology administered by the Curator of the Museum in accordance with policies similar to those for ophthalmic pathology." The objectives of the registry were

- (a) To establish in the Army Medical Museum the largest possible collection of specimens of otolaryngological pathology for study and research by



properly credited students in this field of Medical Science.

(b) To maintain a central office for the follow-up of all cases of malignant tumors of the ear, nose and throat, and such other cases as may be deemed advisable, for the purpose of determining the prognosis and best methods of treatment.

(c) To provide a consultation service for the pathological lesions of obscure and difficult otolaryngological cases.<sup>156</sup>

A note appended regarding the third purpose stipulated that the registry was not intended to act as a diagnostic service in competition with local pathologists.

Academy members were reminded that success of the registry depended on their cooperation in sending material "obtained from operation or from postmortem to the Curator of the Museum,"<sup>157</sup> along with a complete clinical record. For each specimen donated, the contributor would receive a section of tissue, a complete description of histopathologic findings, and a histopathologic diagnosis. The museum also welcomed receipt of microscopic slides accompanied by a clinical history, rare instruments of historical interest, and books, photographs, models, and drawings pertaining to otolaryngology.<sup>157</sup>

The movement toward a collection of otolaryngic pathology had gotten a shot of adrenaline in 1934 when more than 500 paraffin blocks were contributed to the museum by Harris P. Mosher, of Boston.<sup>152(p31),155(p682)</sup> When the registry was formally organized the following year, this endowment made it possible to begin immediately on the preparation of study sets. The paraffin blocks "have all been recut and slides prepared for the collection," the museum reported to the Academy in 1936.

Representative cases for loan sets of otolaryngic histology and pathology, similar to the ophthalmic sets, have been selected from this collection, from recent cases contributed to the Registry and from the Museum files. Approximately fifty of these have been cut, stained and photographed. It is planned to prepare twenty sets of a hundred slides each with catalogues containing descriptive material and photomicro-

graphs. . . . The total number of cases in the Registry on December 31, 1935, was 550.<sup>155(p682)</sup>

Progress also had been made in the area of systematically accumulating data which could later be used for definite studies. History blanks had been devised and printed for registering cases. "All tumors," it was explained, "are being carded and followup blanks will be sent to the contributors of tumor cases each January."<sup>155(p682)</sup>

## EDUCATIONAL FORMULARY

Many of the ways in which the registries function educationally were prescribed by Harry Gradle when he first proposed a central collection. And many of these functions were first implemented for or through the Academy.

### A Diagnostic Service

The key to Dr Gradle's original plan was the provision of a diagnostic laboratory that fulfilled a vital need for the ophthalmologists and, at the same time, helped build the collection. Both the diagnostic reports to donors and the resulting collection subserved his aim of education. Unlike the Registry of Otolaryngic Pathology and other registries in the American Registry of Pathology, the ophthalmic registry started and served for many years as a primary diagnostic laboratory. The museum staff was assisted by such distinguished ophthalmic pathologists as Frederick Verhoeff, Jonas S. Friedenwald, and Georgiana Dvorak-Theobald. Later, members of the museum staff—George R. Callender, James E. Ash, Elbert DeCoursey, Helenor Campbell Wilder—became prominent names in ophthalmic and otolaryngic pathology.<sup>52</sup>

After the Second World War, when the Army Medical Museum became the Armed Forces Institute of Pathology and the central laboratory of pathology for the armed services and the Veterans Administration, a sufficient volume of material for the work of the ophthalmic registry could be acquired through

military sources. In fact, the time consumed processing routine material sent in by private ophthalmologists was severely limiting the time available for teaching and research.<sup>132</sup>

A survey in 1952 of independent laboratories able and willing to process eye specimens showed that enough laboratory facilities existed to handle all routine ophthalmic pathology in the United States.<sup>158</sup> The Academy's Committee on Ophthalmic Pathology, chaired by Michael J. Hogan, suggested that the Academy take action to relieve the registry staff by curtailing the influx of routine material. In 1954, the Council agreed to sponsor publication of a list of eye pathology laboratories to which civilian ophthalmologists could send their specimens.<sup>159(p909)</sup>

Ophthalmologists were now urged to send their material to private laboratories, with the understanding that interesting or unusual specimens should be referred to the registry. This new policy was rather a historic landmark in the coming of age of Harry Gradle's idea for a central collection of pathology. Thirty years before, he had requested ophthalmologists "to send in all of their specimens, not only those that are rare or unusual, for in order to have a complete collection everything is necessary."<sup>65(p432)</sup>

More than the changed policy, it was evolution of an ophthalmic pathology training program at the AFIP and a subsequent increase in the number of ophthalmic pathologists and laboratories that eventually decreased the volume of routine work coming into the registry.

Although never intended to function as a diagnostic laboratory, the Registry of Otolaryngic Pathology has maintained an active consultation service and has encouraged use of this service as a means of enlarging and improving the registry collection. Consultation remains a major responsibility of the registries of ophthalmic and otolaryngic pathology, and

in line with Dr Gradle's idea, this service is of mutual benefit to the registries and the contributor. Since each registry is backed by the vast consultative facilities centered at the AFIP, specimens submitted receive the most thorough possible study and documentation. Reports and other material rendered to donors and kept on file in the registries still serve as a method of individual instruction for the contributor and greatly enhance the value of specimens in the registries.

### An Exhibit

At the helm of the Academy's Section on Instruction and Section on Pathology during the 1920s, Harry Gradle linked the two in his master plan for postgraduate education. The merit of Edward Jackson's organized demonstration of specimens and slides in 1920 was not lost on Dr Gradle, who made the pathologic exhibit a regular feature of meetings.

Part of the conjoint effort worked out by Dr Gradle between the Academy and the Army Medical Museum included an agreement that the museum would prepare an exhibit of pathology for Academy meetings, and the museum began doing so in 1922.<sup>130</sup> The Special Pathological Exhibit arranged for the 1921 Postgraduate Course was undoubtedly the handiwork of Dr Gradle, who put William C. Finnoff in charge of the exhibition as he had been the previous year for Dr Jackson. The program for the Postgraduate Section announced:

The Committee has prepared an exhibit of unusual pathologic specimens, each of which will be placed under a microscope and accompanied by a full description of the unusual features of the specimen. In the future, this annual exhibit will be prepared by the Army Medical Museum in conjunction with the Section on Pathology of the Academy and will consist of both gross and microscopic specimens of both ophthalmic and oto-laryngologic interest.<sup>101</sup>

For the next few years, demonstrators in the Postgraduate Course were expected to "show specimens bearing directly upon their subsequent lecture,"<sup>160</sup> as part of this exhibit.

The Army Medical Museum remained steadfast in its obligation to exhibit material at Academy meetings and did so for many years. At the Academy's 1936 meeting, material from the new Registry of Otolaryngic Pathology was included in the exhibit. The idea of displaying material from the museum collection at Academy meetings grew into a teaching modality of the registries. The unparalleled collections in both registries form a rich basis for educational exhibits, and for years, such exhibits have been prepared for display at meetings and utilized for courses and other educational programs.

### Study Sets

Another facet of Dr Gradle's plan was that the Section on Pathology would list and put out an index of the slides, charts, and other means of visualization used in the Postgraduate Course. The objective, as Dr Gradle told the Academy in 1921, was to give members access to the material "for research, for illustrating papers [and] for purposes of teaching."<sup>59(p444)</sup> A circular sent to members after the first course advised that "the Section on Pathology is preparing a file of the lantern slides, charts, moving pictures, etc., used in the course given by the Section on Instruction at the Academy meeting just passed. Mimeographed catalogues of this file will be prepared and the material will be available to all members for teaching purposes for the mere cost of shipping and such breakage as may occur."<sup>130</sup>

This type of arrangement whereby material could be loaned for teaching and research was the precursor of the study sets prepared for loan by the museum. Nine months later, in August 1922, Dr Gradle wrote to Academy President Walter R. Parker that when sufficient material had been accumulated at the museum, it would be possible "to make up study sets of 200 or more sections representing different phases of ophthalmic pathology, accompanied by complete descriptions, that could be sent

around the country to places remote from institutions as loans for home study."<sup>161</sup> He mentioned that he had two such sets, obviously prepared from instructional course material, and these were in constant demand.

By 1927, the museum had an ophthalmic collection of more than 2,000 specimens, and Harry Gradle asked the Academy to finance the making of the first study sets. As a leverage point, he reported that the Section on Instruction would show a profit of \$1,000, primarily because of the transition to the conference-style courses, and that \$500 of this could be given to the Army Medical Museum.<sup>143(pp386-387,393)</sup> This began an annual \$500 contribution that was to continue for the next decade and was matched by a similar amount for the otolaryngic registry in 1935. The funding made it possible to assemble the first 12 study sets, each containing 100 slides illustrating pathologic conditions of the eye. The sets were ready for circulation in 1929 and were loaned to Academy members on application to the museum's curator.<sup>141(498-501)</sup>

The Registry of Otolaryngic Pathology, drawing considerably on the generous pool of material contributed by Harris P. Mosher, was able to produce study sets and put them in circulation by 1937, two years after the registry was organized. There were initially 20 sets, each consisting of about 50 slides (soon increased to 78 slides per set, with 100 as the goal), illustrating some of the more common pathologic conditions affecting the ear, nose, and throat.<sup>162,163(p36)</sup> The sets were to be studied in conjunction with a photographic album which, as described by Joseph Beck, pictured "both gross and microscopic sections of these sets, with explanatory notes of the preparations contained therein."<sup>162</sup> It was otolaryngology's turn now to generate a new educational activity for the registries, and the album prepared to accompany their loan sets was the precedent for the first atlases of pathology.

Loan sets prepared from material in the registries have been in demand throughout the

years by those studying for their specialty board examination. In addition to their use by individual physicians, the sets are used in courses and other teaching programs. The number and variety of sets has expanded substantially. In recent years, the registries have prepared special study sets covering specific areas of ophthalmic and otolaryngic pathology, as well as special teaching aids, such as tape cassette discussions, to accompany the sets.

The growth of this teaching technique is well revealed in a 1967 report to the Academy from the Registry of Otolaryngic Pathology. Thirty years after the first study sets were put in circulation, the registry reported the largest number of sets and slides ever loaned: during the previous 12 months, 761 study sets, representing 40,803 slides, had been sent on loan.<sup>164</sup> Yearly requests for study sets have climbed to a current level of about 2,000.

The tremendous expansion on the idea of loaning material for home study has probably outstripped even the vision of Harry Gradle.

#### And Courses

In concert with his design to loan material from the collection at the Army Medical Museum, Harry Gradle also foresaw use of the material for more traditional formal courses. At the Academy's 1930 meeting, two special instruction courses were introduced entitled "Histopathology of the Eye" and "Histopathology of the Nose and Throat" (later to include the ear). Material for the courses was drawn from the Army Medical Museum (with particular use of the ophthalmic study sets completed the previous year) and from the collection of sections at the universities of Illinois, Harvard, and Toronto.<sup>142(p493),165</sup> These courses, based on the collections at the museum, became staples of the Academy's instructional program.

The Academy committees on pathology are responsible for augmenting the teaching of

pathology in scientific sessions, instruction courses, and Continuing Education Programs. Registry personnel often help plan the programs and participate as instructors. The original histopathology course in ophthalmology came to be known as Georgiana Dvorak-Theobald's course and in the late 1960s was reorganized and assigned to teams of instructors. It was again modified for the 1973 meeting, and the offspring of this course is presented as "Clinicopathologic Aspects of Ocular Disease."

The registries of ophthalmic and otolaryngic pathology hold a variety of educational programs at the AFIP, including courses, seminars, and symposiums (sometimes jointly sponsored by the Academy under grants from the National Institutes of Health), and there is active participation by those staffing the registries in educational meetings, courses, conferences, and residency programs.

#### The Atlases

The first atlases of ophthalmic and otolaryngic pathology were an "outgrowth of the syllabus which was prepared to accompany the loan set of slides on otolaryngic pathology."<sup>166</sup> The preface to an early edition explained, "It was felt that the Atlases, because of their greater convenience, would have a little broader appeal to busy clinicians who desired to review the pathology of their specialties. In addition they made it possible to cover the fields more comprehensively, as there was not the limitation in selection of cases through scarcity of material for slides that restricted the scope of the loan sets."<sup>166</sup>

Preparation of atlases was first proposed in 1937 by Ralph A. Fenton, who told the Academy Council that the Army Medical Museum had accumulated a large number of pathologic photomicrographs and that by photographing a representative number and including descriptive material, it would be possible to form a comprehensive atlas of the

histopathology of the eye and of the ear, nose, and throat. The prospective atlas for each specialty could be put together in loose-leaf form for an estimated cost of \$10.<sup>167</sup> A resolution signed by Dr Fenton and Harry Gradle requested a canvass of the members to determine if there was sufficient demand for such atlases, and if so, that \$500 be allotted to finance initial production expense.<sup>168</sup> The idea met with an affirmative response from the Council and subsequently from the membership, and the Academy sponsored the first atlases which were produced in the Army Medical Museum.

The original atlases of ophthalmic and otolaryngic pathology were printed in limited editions of 100 volumes each and were ready for distribution in the summer of 1938.<sup>169</sup> By the time of the Academy's fall meeting, more than half of each of these first editions had been sold out, and work had already begun on a second edition which was to appear in 1939.<sup>170(pp16-17),171</sup> Both the first and second editions of the atlases were prepared by Capt Elbert DeCoursey, MC, USA, pathologist to the registry, and Lt Col James E. Ash, MC, USA, curator of the Army Medical Museum, with the help of Roy M. Reeve, photographer, Helenor Campbell Wilder, microscopist, and Lawrence P. Ambrogi, technician.

A description of the first atlases appeared in the Academy's August 1938 *Bulletin*:

They each contain approximately 125 cases that have been selected from the material in the two registries sponsored by the Academy. Each case will be represented by a mimeographed sheet telling the pertinent clinical data available and giving the description, particularly of the histopathology. In a number of instances, comments on the condition and references in the recent literature are given. The pathology is presented by actual photographic prints, a great majority of them, of course, photomicrographs, and each atlas will begin with several pages of orientation in general pathology.

The atlas of otolaryngic pathology will open with diseases of the face such as lupus, leprosy, skin carcinomas, and then will take up in series the nose and its accessory sinuses, pharynx, mouth and tongue, larynx, trachea, bronchi, ear and temporal bone.

The atlas of ophthalmic pathology has a comprehensive review of the histology of the eye and covers in detail practically all the diseases, injuries and tumors to which it is liable.

It must be remembered that these are not text books of ophthalmology or otolaryngology but are restricted almost definitely to pathology, predominantly histopathology.<sup>169</sup>

The first atlases were a labor of love and quite distant from the sophisticated texts now available. A picture of them run with the description in the Academy's *Bulletin* shows actual photographs attached to the verso page, with the recto page being a mimeographed sheet of text. Colonel Ash dubbed them "rather primitive" and reminisced with some amusement on how collating the pages had been accomplished: "We had the pages in a series of pigeonholes on the balcony of the old Museum and it was the habit of the few of us who were then at the museum to stop and collate a book or two on our way back from the rest rooms on the first floor."<sup>172</sup> The second editions were run off with what Colonel Ash termed "an offset reproducing machine," adding, "All the time . . . we had in mind atlases that were more comprehensive professionally and technically less amateurish."<sup>172</sup>

A third edition of both atlases came out in 1942, following their adoption in 1941 as official texts for the Academy's newest educational program—the Home Study Courses. Colonel Ash and Major DeCoursey again collaborated on this third revision of the atlases. "They are still," wrote Colonel Ash in the preface to the third edition, "atlases of morphologic pathology with only incidental allusions to clinical aspects and to treatment and the attempt has been made to present the material as an adaptation of the general principles of pathology to the special fields. Pertinent references have been given, usually to comprehensive articles on the subjects, and these should be consulted."<sup>173</sup>

Steps toward a fourth revision of both atlases began in 1945 when the Academy appointed

Brittain F. Payne to chair a Committee on Revision of Pathologic Atlases.<sup>174(pp12,21)</sup> At Dr Payne's suggestion in 1946, the Academy committees on pathology and the atlas revision committee were discontinued, and in their stead, an Advisory Committee to the Registries of Pathology was appointed.<sup>175(pp124-125)</sup> The primary purpose of this committee during its years of operation, 1947 through 1951, was to work in consultation with editorial boards for each specialty in selecting material and supervising arrangements for the two volumes.<sup>176</sup> The Academy Council approved a yearly allotment of up to \$8,500 to the advisory committee,<sup>177,178(p122)</sup> most of which was earmarked for atlas revision expenses, and some of which was used for the services of a fellow or assistant in each specialty to assist at the AFIP in preparation of the atlases.<sup>179(p149)</sup>

As work progressed on both atlases, the concept of modified revision of the previous atlases gave way to the need to present a comprehensive background of disease entities for the clinician and the pathologist. The new atlases were to cover the clinical manifestations of disease and the physiologic mechanisms that influence pathologic change.

Jonas S. Friedenwald was designated coordinator and editor for final work on the ophthalmic atlas, and his book, *Pathology of the Eye*, was used as a basis for the text. The first edition of *Ophthalmic Pathology: An Atlas and Textbook* appeared in 1952, coauthored by Dr Friedenwald, Helenor Campbell Wilder, A. Edward Maumenee, T. E. Sanders, John E. L. Keyes, Michael J. Hogan, and W. C. and Ella U. Owens, with a credit to Helen Knight Steward for editorial assistance.<sup>180</sup> A second edition of this atlas and textbook, published in 1962, was the product of Michael J. Hogan, chairman of the Academy's Committee on Ophthalmic Pathology, and Lorenz E. Zimmerman, registrar of the Registry of Ophthalmic Pathology and chief of the Ophthalmic Pathology Branch at the AFIP.<sup>181</sup>

Drs Hogan and Zimmerman were assisted by a team of 13 principal contributors and six consultants.

Although built on the groundwork of the 1952 atlas, the second edition was extensively revised and rewritten and included many new illustrations. Placed on the market in January 1962, almost the entire first printing was sold out by March of that year.<sup>182(p130)</sup> Drs Hogan and Zimmerman soon began work on a third edition which is still in progress. Both the 1952 and 1962 editions of *Ophthalmic Pathology: An Atlas and Textbook* were sponsored jointly by the Academy and the AFIP and were published by WB Saunders Company.

To coordinate work toward completion of a new atlas of otolaryngic pathology, the Academy in 1951 designated Edmund P. Fowler, Jr, as chairman of a Subcommittee on Otolaryngic Pathology. Dr Fowler's subcommittee assisted Col James E. Ash, who wrote the text, and Muriel Raum, who designed the plates, for the book, *An Atlas of Otolaryngic Pathology*, which was published in 1956.<sup>183</sup> Colonel Ash, who had been an author of the earlier atlases, had served two tours of duty as curator of the Army Medical Museum and was the first director of the Army Institute of Pathology. Dr Raum was the registrar of the Registry of Otolaryngic Pathology during the early 1950s. The otolaryngic atlas was sponsored jointly by the Academy, the American Registry of Pathology, and the AFIP and was published by the American Registry. A revised edition of the atlas should be ready by the early 1980s.

The atlases have been an Academy project for almost 40 years, their preparation and revision assigned to the committees on pathology and supported with Academy funds. While the Academy appropriates the necessary funds to cover expenses incurred in revising the atlases, the largest appropriation is that of time, given by the many persons who have worked on the monumental task of producing the atlases. The

atlases perhaps represent the fullest realization of the registry as an educational medium, for through them, the registry material is actively used and widely disseminated—which is what Harry Gradle had in mind in 1921.

## RESEARCH

Although the term “registry,” as suggested by Frederick Verhoeff, was applied rather swiftly to the ophthalmic collection at the Army Medical Museum, a definition of the functions of a registry evolved as the registry idea itself developed. In the beginning, the section of ophthalmic and otolaryngic pathology at the museum did not act as a registry but rather as a central laboratory and repository. The first steps toward making it a registry were taken around 1928 when the ophthalmologists formulated history blanks to be sent to those contributing specimens.<sup>52(p85)</sup>

When Maj George R. Callender outlined the objective of the American Registry of Pathology in 1930, it was clear that the pathologic material and related clinical and laboratory data would be used for morphologic and statistical analyses, the establishment of diagnostic and prognostic criteria, and the evaluation of treatment.<sup>142(pp532-535)</sup> Research was a basic premise on which the American Registry was organized. And it was Dr Callender who first used the registry material for the purpose of investigation and conclusion. He presented his results at the Academy’s 1931 meeting in a report entitled, “Malignant Melanotic Tumors of the Eye: A Study of Histologic Types in 111 Cases.”<sup>184</sup> Since that historic report, published in the *TRANSACTIONS*, close to 500 publications have resulted from study and research conducted in the Registry of Ophthalmic Pathology and in the Ophthalmic Pathology Division of the AFIP.

When the Registry of Otolaryngic Pathology was formed in 1935, the accumulation of pathologic material and case histories that would form the basis for definitive studies

ranked along with education as a major stated purpose of the registry.<sup>156</sup> Although the registry material was used for special studies and for preparation of scientific reports by members of the staff, research activity in the registry did not gain momentum until recent times. It was not until 1960 that a report to the Academy indicated use of the material for statistical analysis. The 1960 report contained results from preliminary study of the registry records and follow-up data on 532 patients with squamous cell carcinoma of the larynx to determine actuarial survival rates.<sup>185(pp934-935)</sup> Since that time, a temporal bone laboratory has been established at the AFIP and, just recently, a repository for laryngeal sections.

In 1970, the Registry of Otolaryngic Pathology moved into the new wing of the main AFIP building and gained expanded laboratory and research facilities. During the past ten years, there has been considerable effort to create a climate conducive to research in otolaryngic pathology at the AFIP, and interest in research has increased proportionately.

For both the registries of ophthalmic and otolaryngic pathology, the advent of training grants from the National Institutes of Health in the 1960s helped augment research activities by allowing the registries to enlarge their support systems for research in terms of professional, technical, and secretarial staff.

## A MECCA FOR TRAINING

The organization of registries at the Army Medical Museum assisted and accelerated progress toward the goal of making the museum a “live activity” in pathology. Part of this activity was to meet the nation’s needs for more and better trained pathologists. That the museum grew into an educational institute is in part attributable to the registry system that made the museum a center for special pathology, with unequaled collections and highly trained and experienced pathologists in the special fields.

Although initially the museum's technicians and pathologists had to be sent elsewhere for training, the expertise they brought back was used eventually for training others, and a corps of highly skilled professionals developed. Increasingly, the museum became an institute and drew physicians, both military and civilian, for study and research. The registries were an integral part of this development and inevitably became a national resource for instruction in special pathology.

The registries of ophthalmic and otolaryngic pathology have provided instruction through residency programs, fellowships, and training programs. Those staffing the registries have participated in residency programs outside the registries and have been host to residents assigned for periods of time to the AFIP for instruction in ophthalmic or otolaryngic pathology. By far the largest effort, however, has been toward postgraduate professional training. In developing this training, the Academy has been instrumental.

#### Academy Fellowships in Pathology

The Academy first sponsored fellowships in pathology right after the Second World War, during the period when the Army Medical Museum was undergoing reorganization into the Army Institute of Pathology and, finally, the AFIP. These fellowships were paid for out of funds allotted to the Advisory Committee to the Registries of Pathology and were basically to provide assistance at the AFIP in completing revision of the atlases. Supported at the AFIP on these first fellowships were Torrence A. Makley and Frank C. Winter in ophthalmology, and Muriel Raum in otolaryngology.<sup>186-188</sup>

In 1948, Col James E. Ash suggested the Academy establish fellowships to continue after the atlases were completed. Brittain Payne, chairman of the Academy's Advisory Committee, brought the request to the Academy Council which approved in principle such fellowships but believed they should be es-

tablished under the auspices of the surgeon general's office.<sup>189(pp127,130)</sup> It was not until ten years later, in 1958, that the Academy began supporting yearly fellowships in pathology, and these scholarships were offered through 1968, when the Academy discontinued funds for individual fellowships.

Under the Academy's fellowship program, the first fellowship in ophthalmic pathology was awarded to Thomas R. McKenzie who began a year of training at the AFIP in September 1958.<sup>190(pp879-880)</sup> A similar training fellowship offered in otolaryngic pathology went unassigned because there were no applicants.

A year later, Paul H. Holinger, chairman of the Academy's Committee on Otolaryngic Pathology, suggested that the Academy fellowships in pathology not be limited to study at the AFIP but also be awarded for study at other institutions having suitable facilities.<sup>191(p864)</sup> The Committee on Ophthalmic Pathology agreed with this proposal on the grounds that it would encourage interest in the study of pathology and help development of fellowship programs. Thereafter, fellowships were awarded by the Academy for study at the AFIP and at other institutions.<sup>185(p930),192(p831)</sup>

The Academy fellowship in otolaryngic pathology was first awarded in 1964 to Mohamad Youssef Takeshian for one year of study at Johns Hopkins University.<sup>193</sup> In 1966, Benjamin Q. Puzon was awarded a one-year fellowship in otolaryngic pathology at the AFIP.<sup>194(p144)</sup>

In addition to the Academy's fellowship program, similar funds for study at the AFIP were available through a number of sources, including charitable, civilian, and governmental institutions. William L. Benedict wrote that "the potential of the Institute as a research center and training institution in pathology exceeds that of any other institution in the United States."<sup>195</sup> However, the number of investigators and trainees that could be accom-



modated was limited by lack of funds to provide the necessary support facilities. This was pointed out by Lorenz E. Zimmerman, registrar of the ophthalmic registry, in his 1960 Jackson Memorial Lecture. Dr Zimmerman described the past, present, and future potential of the ophthalmic registry and called on the Academy to support a broader scope of activity for the registry in research and teaching.<sup>52</sup>

#### **A Training Program in Ophthalmic Pathology**

In response to Dr Zimmerman's suggestions, the Academy, through its Committee on Ophthalmic Pathology, applied for a grant from the National Institute of Neurological Diseases and Blindness of NIH to support a training program in ophthalmic pathology at the AFIP. The grant was approved and the training program initiated in 1962 under the direction of Dr Zimmerman.<sup>182(p131),196</sup> The grant money made it possible to increase the registry staff, including additional consultants for research and teaching, and to invite a flow of visiting instructors through the registry. Initially, the grant was not used for trainee stipends, but many trainees were supported by NIH funds in the form of special fellowships. Later, at NIH request, trainee stipends were incorporated into the training grant.

Primary objective of the training program was to train physicians, principally clinical ophthalmologists and general pathologists who had completed basic residency training, for academic careers in ophthalmic pathology. Secondary objectives were to prepare teaching aids, such as the study sets, for distribution, and to promote utilization of registry material.

By July 1975, 67 fellows had completed one or more years in the training program. Most of them had remained in academic ophthalmology, and many were professors at leading institutions.

For 15 years, the Academy was the grantee institution for the ophthalmic training grant.

Funds were granted to the Academy and disbursed through the Academy as fiscal agent for the training program conducted at the AFIP.

The grant was terminated in 1977 when NIH's old research training programs were phased out. New NIH programs which replaced the old ones differ in that less than 25% of any award can be used to support the institution in the form of salaries, supplies, or equipment, and the bulk of the awards support trainee stipends.

#### **A Training Program in Otolaryngic Pathology**

When the Academy applied for an ophthalmic pathology training grant in 1961, an application for a grant to parallel the ophthalmic one was considered by the Academy's Committee on Otolaryngic Pathology. However, the otolaryngology branch of the AFIP required reorganization and additional facilities before a training program could be instituted, and it was deemed best to wait on a grant application. Committee chairman Paul H. Holinger described the crux of the problem in his 1961 report to the Academy:

I think it is safe to say that Otolaryngology has not been as successful as Ophthalmology in attracting beginners in the field to the more scientific or academic aspects of the specialty. I believe this is largely attributable to the fact that the study of the inner ear—which, as a special sense organ, is analogous to the eye in its special importance, its special interest and its special challenge—has been relatively neglected because of the unique problems involved in obtaining, processing and studying the temporal bone. With the current spurt of interest in the study of the temporal bone, . . . I see no reason why Otolaryngology should not soon come into its own. . . .

The fact remains, however, that at the present juncture, at the AFIP as elsewhere, otolaryngic pathology does not enjoy or require the same special treatment including special laboratory facilities as does ophthalmic pathology. . . . If and when a temporal bone center is established at the AFIP, otolaryngic pathology will be on the same footing as ophthalmic pathology, and it will then require a separate laboratory and warrant a more formal training program and a different organizational set-up.<sup>150(p968)</sup>

The temporal bone center envisaged by Dr Holinger began to become a reality in 1962 when the AFIP decided to go ahead with the project and provided the space and some equipment to establish a laboratory which was completed in 1965.<sup>151(p137),197</sup>

During 1964, Academy representatives met for numerous conferences with officials of the AFIP to enlist their interest and support for a training program in otolaryngic pathology. As a result, an application was filed for an otolaryngic pathology training grant from the National Institute of Neurological Diseases and Blindness (known as "Neurological Diseases and Stroke" since creation of the National Eye Institute).<sup>193</sup> The grant was awarded to the Academy in 1964, and work began on setting up facilities for the program.

Samuel H. Rosen, who was registrar of the Registry of Otolaryngologic Pathology, was made supervisor of the training program, and Ben H. Senturia, who succeeded Dr Holinger in 1963 as chairman of the Committee on Otolaryngic Pathology, was designated program director.<sup>197</sup> The specific aims of the program were "to train physicians for academic careers in otolaryngic pathology, either as a primary specialty or as a subspecialty in clinical otolaryngology, and to foster the development of investigators in otolaryngology, particularly in the field of temporal bone pathology."<sup>193</sup>

Otolaryngic pathology was finally emerging as a distinct field, meriting special study and requiring special facilities. This was further recognized in July 1965 when the Pulmonary, Mediastinal and ENT Pathology Branch of the AFIP's Department of Pathology was divided into two branches, a Pulmonary and Mediastinal Pathology Branch and an ENT Pathology Branch. John C. Gallagher was appointed chief of the newly organized ENT Pathology Branch, registrar of the otolaryngic registry, and supervisor of the training program.<sup>149,197</sup> Vincent J. Hyams took over from Dr Gallagher in 1968.

The inauguration of the training program remarkably increased the interest in otolaryngic pathology and in the functions of the registry. During the first 30 years of the registry's existence, approximately 10,000 cases were registered; during the past 10 years, almost 8,000 cases have been added. In 1970, the Academy's Committee on Otolaryngic Pathology voted to establish a repository for laryngeal sections at the AFIP, similar to the temporal bone repository.<sup>198</sup> This brought a further dimension to the educational and research capabilities of the registry.

The Academy was the grantee institution for the otolaryngic pathology training grant and received and disbursed funds for the training program. The training grant was renewed for three years in July 1972 but with a severe curtailment of funds and a cutoff of trainee stipends and allowances. The grant was extended for one year only in July 1975. After termination of grant support, the AFIP assumed fiscal responsibility for the training program.

## BACKING THE REGISTRIES

The Academy committees on pathology serve as liaison between the Academy and the registries and are responsible for Academy educational programs in the field of pathology. For many years after the registries were founded, these committees acted not only as close allies to the registries but also as actual co-workers in helping to chart and implement registry functions. Under steerage of these committees, the Academy acted as parent organization to the registries.

Both committees work closely with the registrars for each registry. Lorenz E. Zimmerman has served as registrar of the ophthalmic registry since 1954. Dr Zimmerman became an Associate Fellow of the Academy in 1957, was designated an Academy consultant in pathology in 1958, and is a member of the Academy's Committee on Ophthalmic Pathology. Capt Vincent J. Hyams, MC, USN,

has been registrar of the otolaryngic registry since 1968. Dr Hyams became an Associate Fellow of the Academy in 1970, and serves as consultant to the Committee on Otolaryngologic Pathology. Drs Zimmerman and Hyams also serve as chief of the Ophthalmic Pathology Division and ENT Pathology Division, respectively, of the AFIP. As registrar and chief of their respective division, they are responsible for the diagnostic, educational, research, and training activities in ophthalmic and otolaryngic pathology at the AFIP.

In addition to providing organizational support to develop and strengthen registry functions, the Academy has provided monetary support, beginning with \$100 authorized in 1921 to defray the expenses of getting a collection started.<sup>39(p12)</sup> Financial contributions have varied over the years in accordance with the needs of registry activities.

**B**ack in the early 1920s, the Academy endorsed Harry Gradle's plan for a central collection of special pathology as another means of helping the practitioner, by providing a diagnostic service, and of upgrading the quality of medicine practiced in the specialties, by establishing and making available for study a collection of pathologic specimens. From this idea grew the pathology registries, and it is safe to say that they have been the biggest single factor in advancing research and education in special pathology. Like other ideas pioneered by the Academy, the idea of a central collection

of special pathology was adopted by other fields of medicine and had an impact far exceeding the boundaries of Academy specialties.

Not the least to benefit from the Academy collection was the Army Medical Museum which agreed to house it. The registry system that evolved from this collection was a potent vehicle in propelling the museum along the road to becoming a world-recognized institute for instruction and research in pathology. Speaking to the Academy in 1952, Brig Gen George R. Callender, who along with Dr Gradle fostered the idea during its early stages, said he was "personally grateful to the Academy for starting this cooperative activity. . . . In my opinion it has done more than any one thing to establish the Armed Forces Institute of Pathology in its present position. . . ."<sup>137</sup>

Present-day medicine recognizes that a knowledge of pathology is essential to the understanding of disease and that training in pathology is a basic part of specialty training. Fifty years ago, this was not so. The Academy again led American medicine in recognizing that a thorough grounding in pathology, and in other basic sciences, was vital for the clinical specialist. Without question, the initiation of pathology registries focused attention on a neglected area, and the specialty boards, in which the Academy was also a leader, were to insist on a knowledge of pathology, which in turn helped raise professional standards in this country.