THE AMERICAN COLLEGE OF RADIOLOGY:

The First 75 Years

Otha W. Linton

American College of Radiology
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Foreword

The author of this book, Otha Linton, has been a key member of the American College of Radiology (ACR) staff since 1961. He is known as "Mr. Radiology" by radiologists, physicians, and medical leaders from many specialties. Otha retired from the ACR at the annual Council meeting in September 1996. As his last responsibility, he agreed to write this history of the ACR, its founding, development, and influence on our specialty.

I first met Otha Linton at an ACR annual meeting in St. Louis in 1969, when I was a resident at the Mallinckrodt Institute of Radiology. Otha served as the staff in charge of the ACR "outpost" in Washington. The headquarters of the College was in Chicago at the time. This contact began a lifelong friendship that grew as Otha became increasingly more important to the College and as I served in increasingly more important and personally satisfying roles with the ACR, now having the honor to serve as the chair of the Board of Chancellors.

No one could be a better choice for writing the ACR history than Otha Linton. Not only did he participate in (and sometimes actually make) College history, but he is also a keen observer, has met almost everybody, and is an accomplished professional writer with a degree in journalism from the University of Missouri. Early on, Otha asked me to be a primary reviewer of this work, and I have read every chapter in draft form, making suggestions on all and often reading second and even third drafts. The final result is full of facts and extremely readable. Otha has organized the text into two general formats, emphasizing not only the historical (by decade) aspects but also specific projects of importance.

Radiologists not only should find interest in the history of our College, but should also read the chapters on specific projects. I have been an ACR proponent since the 1960s and have tried to be an acute observer, yet I learned something from every chapter. I especially encourage review of chapter 7 on Medicare and chapter 9 on mammography. Science, logic, and common sense are important, but also note the importance of politics and negotiations.

In 1968, I observed that the ACR was the most important organization for radiology. This observation has been confirmed many times since and is strongly reinforced by this history. Because of the increasing influence of governmental and societal organizations on our specialty, the ACR is even more important today than in the past. Radiology must have an organized and effective position on a variety of issues, and the College has served radiology well. This always has been important: Now it is essential. This text will help radiologists understand the past and make sense out of the future.

Otha, I speak for thousands of radiologists and other interested individuals when I say, "Thank you for a job well done," especially this most important history of our ACR.

December 1996

Ronald G. Evens, MD
ACR member since 1968
Chair, Board of Chancellors, 1996–1998
Saint Louis, Missouri

Preface

The history of an organization can have one dimension or several. The first dimension is to get the names and dates correct, noting the official actions and the results therefrom. That is useful, if sterile. What is more helpful and entertaining to a reader is an effort to explain how and why things happened as they did. A further dimension is to breathe life into the account by invoking the people involved in more than 70 years of growth and struggle.

Had there been no American College of Radiology (ACR), the specialty of radiology would have grown and prospered. However, that growth might have been stunted and the prosperity of its members diminished, absent the focus on the practice of radiology which was and is the ACR's primary mission. Those who rose to leadership in this aspect of radiology chose to work through the College, just as some of the same people and many others chose to work through other organizations on the science and educational progress of radiology and its accompanying disciplines. Thus, the interplay among the organizations of radiology is part of the story.

It is important to depict the dynamics of thousands of volunteer leaders and members working with full-time staff to create policies and programs. It is impossible to mention thousands, but the extraordinary contributions of dozens or maybe hundreds of radiologists, radiation oncologists, physicists and administrators who made the ACR an important part of their professional and personal lives can be noted. Thus, a multidimensional history consists in part of anecdotes about the people and events that shaped the organization over the years. Of course, it is also useful to set the scene for the issues and programs that are to be recounted.

This was the task accepted by the author. The information herein is drawn from ACR files in its archives, from the ACR *Bulletin* and other publications dating from the 1940s, from interviews with hundreds of members, staff and others, and from the author's own files and memories of 35 years of employment with the ACR.

The scholarly task of referencing the sources has been simplified in an effort to avert reader fatigue from repeated citations of the same documents. Particularly in dealing with the earlier decades, the author was fortunate to find in the ACR archives relatively complete sets of agendas and minutes of meetings of the Board of Chancellors and most of the annual publications through which the board began to communicate with the membership. The board's practice was to make verbatim transcripts in the earliest decades, before a staff began to summarize the discussions. The general narrative details are drawn from these sources, unless indicated otherwise. As the narrative allowed, sources are indicated within the text. Whenever the source is other than minutes and ACR reports and is not identified in the text, it is referenced. For those interested in the ACR minutes and reports, they are available only from the ACR archives and from the official records maintained by the executive director.

Once the College hired a staff and began to expand beyond the activities of its board, there was available a substantial trove of correspondence, broadsides, annual and monthly *Bulletins*, and occasional publications. Few of these publications were serialized. Thus, the citations are by title and year and nothing more. Most of these publications are found in the ACR archives. From the beginning of the monthly *Bulletin* in 1942, it was a brief, journalistic account of current items. Often, those accounts were supplemented by the publication of texts of reports or articles from other publications, and sometimes of texts of ACR policy statements. Hence, the citation of the appropriate issue will guide the reader to the indicated source.

In recent decades, the author was part of much of what is described herein. Dates and circumstances were confirmed from ACR and other publications. Some descriptions of meetings and personal dynamics are drawn from memory. Where possible, those memories have been fortified by confirmation with others who participated in the events described.

Many kind people have contributed to this history. In particular, the author is indebted to Ronald G. Evens, who volunteered to serve as first reader and critic and did so with keen interest. Likewise, Robert W. McConnell read the manuscripts and contributed insights both from his memories of the College and from his well-developed sense of fitness. Gerald D. Dodd, Jr., and Robert E. Wise both expressed an unguarded interest in reading the manuscript, were conscripted to help, and did so. My old journalist chum, Wallace Waterfall, provided useful counsel and more than a few pointed suggestions. Carol Katchmark went far beyond the line of duty to teach the author to write on a computer instead of the faithful Royal manual typewriter which served for the first 40 years; she also helped in many, many other ways. Tom Rogers and his Publications department staff made a fat wad of manuscript into a book. Dozens of radiologists and colleagues on the ACR staff dug up materials, found citations and otherwise helped the project along.

To the extent that the book serves its purpose and makes a pleasant read, all of them deserve credit for aiding and abetting. Any shortcomings must be attributed to the author alone.

Finally, to my wife, Diana, who believed I could do it all along, my thanks for so many things.

Introduction

The nineteenth-century French author Alexis de Tocqueville, after visiting the United States of the 1850s, wrote that one distinctive trait of Americans was their passion for organizing voluntary societies to reflect common interests and to respond to problems. That tendency continued to flower in the following century and a half. It was reflected in medicine, as the various schools of practice began to coalesce and as medical specialties emerged from growing bodies of knowledge.

Wilhelm Conrad Roentgen discovered x-rays on November 8, 1895, experimented with his discovery for several weeks, and submitted the first of three papers for publication the last week in December of that year. On New Year's Day 1896, he sent reprints to colleagues. Five days later, the Vienna (Austria) *Press* carried a news article about the discovery. Even on the strength of the fragmentary information in news articles, physicists could understand and repeat Roentgen's experiment. Physicians were quick to realize that a ray that could visualize the bones of the hand would have medical uses.

The first Roentgen society was created in 1897 in Britain and the first American group, now called the American Roentgen Ray Society, was organized in 1900. Some 23 years later, the American College of Radiology (ACR) was founded. It went through a slow childhood and was reorganized during its teens, when it was given a mandate to solve problems relating to the practice of radiology. It developed the structure and resources to meet the challenges facing the specialty.

In substance, the ACR is an individual membership organization. It also is a federation of state and scientific radiological societies.

Full membership is open to physicians and physicists who have been certified by the American Board of Radiology (ABR) or the Royal College of Physicians and Surgeons of Canada in radiology or one of its branches. It accepts radiological physicists who are certified by the ABR. The ACR also admits physicians who have been certified by the American Board of Nuclear Medicine or by the American Osteopathic Board of Radiology. Its membership also includes radiobiologists and other radiation scientists. The ACR has membership for radiology residents. Except for the residents, all of these groups pay dues. All categories of members receive a variety of information and services directly from the ACR.

Since the 1960s, the College has been a federation of state radiology societies. These state societies select members of the College Council, who meet annually along with representatives in the Council from other national radiology groups to establish ACR policies. Councilors and alternates are elected by state societies on the basis of one representative for each 100 members of the ACR in that state. The national groups each have one councilor. Almost all radiologists, through membership in a state society and in several scientific radiology groups, have multiple representation in the ACR Council.

The ACR Council elects its own leadership and the general officers of the College, plus a majority of members of the Board of Chancellors. The Council is led by an elected speaker and vice speaker, who are supported by 15 members of an appointed Steering Committee, chosen from current and past councilors. Councilors are eligible to serve two consecutive three-year terms.

College programs and activities are managed by a Board of Chancellors, headed by a chairman who is the chief voluntary officer of the ACR. The board elects its own chairman, vice chairman, and the secretary-treasurer of the College for annual terms. In recent years, most chairmen have held two successive terms. Most of the 25 chancellors are elected by the ACR Council. Five are designated by cooperating major radiology societies (the American Roentgen Ray Society, the Radiological Society of North America, the American Radium Society, the Canadian Association of Radiologists, and the American Society of Therapeutic Radiology and Oncology), and six are appointed annually by the chairman to bring needed skills to the board. Elected chancellors may serve two three-year terms. Appointed chancellors may serve a maximum of six consecutive years. Appointed chancellors are selected by the chairman of the board to serve as commission chairmen when the elective process fails to produce a chancellor, for example, who specializes in ultrasound or physics or nuclear medicine or interventional procedures.

Members of the board serve as an executive body for the College and also as managers of its functioning commissions. Most of the ACR's myriad activities are organized through commissions and a complex structure of related committees. The commissions are organized by subject matter and by service function. Each committee of a commission deals with an element of the commission's charge. In addition, the ACR has a group of independent committees and task forces. Some of these were created to carry out contract activities with federal agencies and other funding groups. Others have specific responsibilities which do not fit a commission, such as selection of new fellows. The volunteers who serve on commissions and committees are supported by members of the full-time staff. Some committees have liaison members from other disciplines and other organizations.

Starting with an executive secretary and his assistant in 1940, the ACR staff grew to more than 200 in 1995. Members of the staff are chosen for managerial and technical skills. These include accounting, meeting management, publishing, government relations, educational

methodology, public relations, research and basic administrative skills.

The success of any commission's activities depends upon an effective combination of volunteers and staff. Staff members assigned to committees call upon other staff members for specific skills, such as publishing, data collection, and meeting planning. Reports and publications may be drafted either by volunteers or by staff and reviewed by volunteers before being completed by staff. In the 1970s the College began publishing most of its own educational materials, departing from its earlier reliance upon commercial publishers.

The College's communications to members and to other publics are issued by staff for volunteer leaders. Comments to legislative or regulatory bodies are prepared by staff for approval by appropriate commissions and by the chairman of the board. Oral testimony may be delivered for the ACR by anyone designated by the chairman. Press releases and other public statements are generated by staff.

In its third quarter century, the ACR reflects the problems of radiology in the structure of its action groups. The exigencies of relating to government initiatives or responding to press inquiries often obligate elected leaders and senior staff to create ad hoc responses.

The College's programs have related to a series of goals and objectives which have remained remarkably constant over most of its existence. Without spoiling the stories to come, several recurring themes can be noted:

1. *An evolving definition of radiology, separate from other medical specialties and distinct from other health services.* This has grown more significant as other groups of physicians engage in imaging procedures or treatment protocols for malignant disease. It is also significant as radiology embraces new technologies, such as computed tomography, magnetic resonance or vascular and other interventional techniques.
2. *Setting and enunciating standards for the practice of radiology.* These include standards for good radiation hygiene, recommendations to health insurers for coverage of new procedures, desired qualifications for radiologists and others undertaking certain procedures, goals for continuing education for radiologists and others in the radiation science community, facility qualifications and criteria for the performance of some procedures.
3. *A broad range of primary liaison activities with other medical and health groups,* public health agencies, insurance carriers and regulators, health planners, economists, statisticians and lawyers, legislative and administrative agencies at several levels of government, with the press, educational groups, health care purchasers in the corporate world and the international radiological community.
4. *Active programs* in public relations, government relations, radiation protection, and physician, physicist, and technologist education.
5. *Services to members.* These include consultation on local practice problems, homestudy materials, short courses, practice accreditation, and a steady flow of information in the American College of Radiology *Bulletin* and other publications plus, in recent years, electronic communications.

There are overlaps in these arbitrary categories, as well as overlaps with the programs and goals of some of the other national radiology groups. An ongoing obligation for College leaders is to avoid duplicating programs with other radiology societies. One mechanism for this is the ACR InterSociety Commission and its annual meeting of officers of some 45 national broad and subspecialty societies.

This, then, is the structural and topical context in which the ACR was created, was recreated, and has grown. The details follow.

Chapter 1

The Founding of the ACR

The American College of Radiology (ACR) was founded at a meeting of 21 physicians on 26 June, 1923, at the Palace Hotel in San Francisco during the annual meeting of the American Medical Association. On 10 January, 1924, it was granted a California charter as a not-for-profit organization and has done business under that charter since that time.

The Beginnings

The organizing meeting occurred at the instigation of Albert Soiland, a Los Angeles radiologist. Late in 1922, Dr. Soiland addressed a letter to personal friends in radiology asking about their interest in forming a new national radiology group to be styled the American College of Radiology. Some 70 of his correspondents—including the 21 at the San Francisco meeting—responded indicating their interest and thus were counted as charter fellows of the new group.

The principal need and purpose of the new group was to address elements of the growing specialty which, in the opinion of Dr. Soiland, were not being handled properly by the three existing national radiological groups. These were the American Roentgen Ray Society (ARRS), founded in 1900; the Radiological Society of North America (RSNA), founded in 1916; and the American Radium Society (ARS), also founded in 1916. Dr. Soiland was just finishing his own term as president of the RSNA when he composed his letter.

Most of the recipients of the letter were men who had held leadership roles in the scientific societies and many would be honored by those societies. Thus, from its conception, the new group was meant to become part of the nascent power structure of the growing specialty.

In 1923, the discipline of radiology was 28 years old, if it dated from Wilhelm Conrad Roentgen's discovery of x-rays in November 1895, or 27 years old in the United States if its growth was dated from the first medical use of x-rays in this country early in 1896.[1] From the first x-ray exposure in a Dartmouth College physics laboratory to detect a suspected arm fracture, medical applications for diagnostic purposes and for treatment of cancers and other diseases had grown to be an accepted part of early 20th century medicine. Others besides physicians made use of x-rays, some in what would now be regarded as whimsical ways for portraiture and amusement. A major challenge to the ARRS at its founding in 1900 was to define medical uses within the ambit of allopathic medicine and to discourage its adoption by electrotherapists and other practitioners of various healing concepts.

By 1923, radiology was generally accepted as part of orthodox medicine. Most leading hospitals acquired radiology facilities and assigned one or more young physicians to master the arts of radiography. George E. Pfahler of Philadelphia, the first president of the ACR, was given such an assignment as a medical student and chose to make it his specialty. By the 1920s, advances in the performance and safety of equipment, contrast media, diagnostic acumen, and physician acceptance had created a national market for medical x-ray services. Physicians in their own offices and in community hospitals across the country had acquired x-ray equipment. Many American doctors were first impressed with the value of x-ray diagnosis in military field hospitals during World War I. Enough therapeutic benefits from applications of x-rays and radium for cancers, tuberculosis, arthritis, skin diseases, and lupus had been demonstrated to support the special therapeutic interest of the American Radium Society, which attracted radiologists, surgeons, and gynecologists.

Professional Issues at Stake

The issues which were the raison d'etre for Dr. Soiland's new group concerned physicians, like Soiland and Pfahler, who had committed themselves to specialty practice. They were distressed to see that the role of the radiologist as a referral specialist distracted from his image as a physician, since patients seldom related to radiologists as they did to other physicians. They were perturbed that hospitals were hiring radiologists as employees, rather than treating them as professionals like the other physicians on their staffs. Being almost entirely self-trained in radiology themselves, they also were concerned about improving training, both for those already in practice and for the young physicians who would follow. And they were concerned about assuring the future of a specialty to which they had pledged their careers.

To Dr. Soiland, something more was needed. His letter to other leaders of the specialty suggested that it was time to organize a new group. Seventy agreed, and 21 of them attended his June 1923 meeting. While there was no practical way to determine the number of radiologists in the absence of any training, certification or public registration, contemporary reports suggest that the self-selected 70 represented a tenth of those who practiced enough radiology to consider themselves specialists. The hundreds of other physicians with office x-ray units, who regarded the use of x-rays as part of general practice or surgery, were not considered as part of the new specialty. However, their unrestricted x-ray use was regarded by radiologists as a threat to the future of radiology as a discipline.

Dr. Soiland was representative of the early radiologists. A native of Norway, he emigrated to California, taking his medical degree at the University of Southern California in Los Angeles and staying to practice there. He founded the Los Angeles Tumor Institute and focused his work on x-ray and radium

treatment of cancers. He prospered in his practice and became a member of the ARRS. His political career in that pioneer organization was thwarted by what many western and midwestern radiologists saw as an effort by eastern radiologists to dominate the organization and the growth of radiology.[2] He participated in organizing the Radiological Society of North America, rising to its presidency in 1922.

Dr. Soiland was well acquainted with those who attended the meetings of the three scientific societies and thus counted among his "personal friends" most of their leaders, including some who had been his professional rivals and political opponents. Besides his profession, his principal interest was sailing. He became commodore of the Los Angeles Yacht Club and represented it in ocean races on his cutter, the *Viking*. The picture he furnished for the official gallery of ACR presidents showed him in full yachting dress blues, with cap and piping.

If Dr. Soiland was the undisputed founder of the College, almost as much paternal credit should go to Benjamin H. Orndoff of Chicago, another pioneer whose career and leadership roles extended more than 60 years, until the late 1960s.

Dr. Orndoff had been president of the RSNA in 1918, was later president of the ACR, and was a gold medalist of both societies. In 1933, he was president and principal organizer of the first and only American Congress of Radiology, sponsored by all three of the scientific societies and held in Chicago during the 1933 world fair. But his organizational forte was serving as secretary, which gave him extended access to the structure and management of the groups in which he worked. He was the first treasurer of the ACR and followed Dr. Soiland as the executive secretary and then as president. He was secretary-general of the fifth International Congress of Radiology in 1937 in Chicago and was professor and chairman of radiology at Loyola Stritch School of Medicine in Chicago for 47 years. Among his last contributions to radiology in the 1960s was his role with other College stalwarts Edwin C. Ernst of St. Louis and Walter Wasson of Denver in creating the American Institute of Radiology within the ACR as a focus for preserving the history of the specialty.

Just before the June 1923 meeting in San Francisco, Dr. Orndoff had responded to a request from Dr. Soiland to prepare a draft constitution and bylaws for the proposed organization. The two spent several days before the meeting revising an organizational document, which was adopted by the group.

Organizing the New College

Besides agreeing to organize and to adopt a provisional constitution and bylaws, the group emerged from the June 1923 meeting with a slate of six officers plus members of the specified 10-man board of chancellors. The object of the new College was "to create a fellowship among medical men, who have distinguished themselves in the science of radiology." The number of fellows was limited to 100, with new fellows entering only to replace those who died. The chancellors had full power to run the organization without consulting the other fellows. Annual dues were set at $10.

The terms of chancellors and of the executive secretary were set at five years and those of the officers at one year. Dr. Soiland chose to start as executive secretary, with Dr. Orndoff as treasurer. As its first president, the group chose Dr. Pfahler, already the 1910 president of ARRS and a leading teacher of new radiologists. Henry Schmitz of Chicago was vice president, and William H. Stewart of New York City was president-elect. The final officer was I. S. Trostler of Chicago as historian, a task which must have been minimal.

Among the other chancellors were Drs. Ernst and Wasson, Russell D. Carman, chief of radiol-

ogy at the Mayo Clinic, and Gordon Richards of Toronto, who founded the Canadian Association of Radiologists 14 years later. The others, ensuring geographical spread, were Lloyd Bryan of San Francisco, Arial W. George of Boston, Amedee Granger of New Orleans, Leon T. LeWald of New York City, and W. W. Watkins of Phoenix, Arizona.

In June 1924, the ACR held its first convocation in Chicago, with the American Medical Association (AMA) annual meeting. By the time of publication of the first roster of fellows, 10 had been added to the original 70, and 20 more would follow during that year and the next.

The first annual meeting in 1924 could have been the last. The first president, Dr. Pfahler, was an admirer of the American College of Surgeons, which had been organized a decade earlier. In the course of the AMA meeting, he encountered Franklin Martin, one of the founders of the surgeons' group, and asked his advice about the new ACR. According to the minutes, Dr. Pfahler entered the ACR meeting quite excited about Dr. Martin's casual suggestion that the radiologists should consider applying to become a special section or department of the American College of Surgeons. He noted that his Philadelphia neighbor, Henry Pancoast, was serving on the surgeons' cancer commission. After discussion, a committee was named to explore the possibility of merging with the surgeons. The logic of such a combination rested on the use of radium implanted in cancer patients, as performed both by surgeons and by radiologists. Indeed, Dr. Soiland, as a subspecialist in radium therapy, had applied unsuccessfully to join the surgeons some years earlier. The 1924 minutes reflect only Dr. Pfahler's enthusiasm; subsequent minutes show no further consideration of the possibility.

Radiologists had a strong interest in the activities of the American College of Surgeons because of its early leadership in cancer standardization and also because it started a program of hospital standards, the first criteria for American hospitals and the eventual forerunner of the Joint Commission on Accreditation of Healthcare Organizations. Thus, in later years there would be liaison, joint meetings, surgical statements of support for radiology, and discussions of common resistance to hospital initiatives against physician status and privileges.

Also at the 1924 meeting, Dr. Pfahler created a Committee on Hospital Standards, naming as chairman James T. Case of Battle Creek, Michigan, with Preston Hickey of Detroit and Russell Carman. The new organization was gratified to have a brief talk by Nathan Pusey, the president-elect of the AMA. Most of the recorded discussion at the meeting related to the concerns of the chancellors about the status of radiology in hospitals.

At the conclusion of his presidential term, Dr. Pfahler was elected as a chancellor for a five-year term. He served two additional terms, leaving the board in 1939.

William Stewart, the second president, deplored the action of a New York City hospital in hiring technicians to make x-ray exposures for interpretation by physicians in each clinical department. "I believe that the tendency toward such things must be checkmated, and we are the body to accomplish this," he asserted. The issue was referred to the new Committee on Hospital Standards.

Triumph and Disappointments

Writing much later, Dr. Orndoff recalled,

> The early days of the College were attended by both triumph and disappointments, e.g., within three years of its birth, nine of the fellows had resigned, including the second president, William H. Stewart, and a future president, Hollis Potter of Chicago. Both gentlemen later recognized the good work the College was doing and were reinstated and finally honored with the gold medal.
>
> I have frequently heard expressions that the formation of the College was a sort of whim of its founders motivated by personal aggrandizement. To me, nothing could be further from the truth.

> The ACR as an organized entity took form after many months, even years of travail. The deep desire to elevate the standards of radiologic practice, to create a new division in the medical science, to keep it in close step with ethical medicine, to overcome growing pains, jealousy and to promote the joy and advantages of good fellowship all preceded the inception of our College.[3]

Even so, the most visible activity of the new College was its annual convocation, when new fellows were inducted with academic pomp and regalia. New fellows were asked to subscribe to a fellowship pledge, which demanded continued scholarship, strict ethical conduct, donation of services to the needy, the avoidance of fee-splitting and "to teach the patient his financial duty to his physician."

The constitution and bylaws were modified slightly in 1926, and the first six honorary fellows were inducted. All were distinguished European radiologists: A. E. Barclay of Manchester, Thurstan Holland of Liverpool, Robert Knox and John Muir of London—all in England; Gosta Forssell of Stockholm; and Lara Edling of Lund, Sweden. By 1928, the role of honorary fellows had swelled to 23, including Antoine Beclere, the French radiotherapist; American pioneer Francis Williams of Boston; and American physicists William D. Coolidge of Schenectady, New York, inventor of the hot cathode x-ray tube, and H. Clyde Snook of Philadelphia, inventor of other technical advances in x-ray equipment.

Also in 1928, the bylaws were modified to eliminate the cap of 100 fellows and to allow, instead, the selection of up to five new ones yearly, plus replacements for deaths. Six of the original group had died and nine had resigned, some to rejoin later. Annual dues were still $10, but a $25 initiation fee had been imposed.

Dr. Soiland remained executive secretary until 1930, when he turned the post over to Dr. Orndoff, who had remained treasurer during the same period. Dr. Soiland served as president in 1932. A gold medal had been created, with the first going to Dr. Coolidge in 1927, to Snook the next year, to physicists Marie Curie and C. C. Lauritsen in 1931, and to Dr. Soiland in 1933.

In 1928 in Stockholm at the second International Congress of Radiology and in 1931 at the third congress in Paris, the ACR held convocations and initiated honorary fellows. Dr. Soiland bestowed the third ACR gold medal on Mme. Curie in a special outdoor session concluding the College convocation in 1931.

Exhortations for the Future

At the 1931 meeting, President Rollin H. Stevens of Detroit proposed College activities in the education of radiologists. "We, who have had many years of experience; we, who have been pioneers; we, who have been obliged to teach ourselves, to learn from our mutual experiences ... must now see to it that the coming generations of radiologists are not merely technicians, but are well grounded in the medical as well as the allied radiological sciences that are their inheritance." He proposed a study of existing training programs and the development of standards.

He continued by deploring the rise of commercial x-ray laboratories in which "untrained technicians make x-rays to be interpreted by equally untrained physicians." These laboratories often were owned by technicians, who split their fees with referring physicians. He took an equally dim view of the success of commercial radium rental companies, which rented radium needles to any physician willing to pay the fee.

Another area for ACR activity was the standardization of hospital radiology departments. Dr. Stevens noted, "Considerable diplomatic education, ethical and otherwise, is needed badly by many hospital managements on this subject." He said that radiologists should offer to contribute to the efforts of the American College of Surgeons toward hospital standardization.

His final charge again related to the American College of Surgeons program to standardize

the diagnosis and treatment of cancer. He quoted a College of Surgeons publication: "That cancer is, in principle, a surgical problem; that the diagnosis and treatment of cancer should be recognized as a responsibility of the surgeon or radiologist who has had surgical training; that he should be qualified for his work by experience in the surgical pathology of tumors and in the employment of radiation methods as well as surgery for both the radical and palliative treatment of cancer, and that he should work in close cooperation and consultation with the radiologist in the use of x-ray treatment." Though he demurred from the surgeons' proprietary interest in cancer, he welcomed their recognition that the radiologist had a role to play in both diagnosis and treatment of that disease.

In 1932, a new fellow, Eugene P. Pendergrass of Philadelphia, began a long career in the ACR by being designated to head a Committee on Education. Most of the College chancellors were involved in organizing the American Board of Radiology. The minutes of the 1932 annual meeting recorded a contribution from ACR of $500 to the new examining body. Dr. Pendergrass proposed that the ACR explore educational activities, suggesting that the College might develop programs for the meetings of the scientific societies and materials for their journals. Other chancellors objected that such activities might be seen as poaching on the turf of the older groups.

Working Committees

The bylaws were changed in 1933 to create the category of "master of radiology," a status for senior fellows. The idea was dropped in a subsequent bylaw revision. More substantively, the College had begun to be involved in issues affecting radiology and had established nine standing committees, each with three members. Several dealt with the mechanics of the College, one was to explore development of a national board for radiology, one looked at the cost of medical care, one at hospitals and radiological education, and one at public education about radiology.

In addition to its annual convocation, the work of the committees prompted other meetings and the issuance of intermittent communications about their activities. These were styled *Transactions* of the annual meeting of the Board of Chancellors and *Bulletins*, which carried information about the committees.

In the 1934 annual report, Dr. Orndoff wrote as executive secretary:

> Since the College was established, the Board of Chancellors and the officers have created within the College machinery for undertaking the solution of many problems that grow out of the practice of radiology and the development of radiology as a whole. While the scientific advance of this division of medicine has been developed most effectively by the national societies, there remains much for the College to undertake....
>
> The College proposes to create and maintain high standards of radiological practice; promote in every way the recognition of qualified radiologists, and, furthermore, to establish and emphasize, with all of its power, the principle [*sic*] object of the College, which is to inspire every radiologist to be more than a man with excellent practical and scientific knowledge; he must also be a man of honor, trustworthiness, and strong moral character; advocate the wisdom of a life of high ideals socially and professionally; and, finally, he must contribute liberally in establishing close bonds of fellowship within the College.
>
> The future of the College is assured. The bonds of fellowship that have been established within its ranks have knitted men together until it constitutes truly a GUILD, whose brotherhood is bound in a common purpose, is not limited by national or other restrictions, and whose policies shall forever remain unselfish.

End Notes

1. EB Frost, *Science* 3(1896):235-236.
2. BH Orndoff, letter to EE Barth, 10 March 1959; ACR files.
3. BH Orndoff, ibid.

Chapter 2

The 1930s: A Time of Growth and Struggle

As Ben Orndoff wrote in 1934, the ACR had completed its first decade of life and had met the expectations of its founders. Most of them remained active as chancellors or fellows in what was still a very select organization. By that year, the ranks were increased by five new fellows yearly, plus replacements for deaths and resignations. Dues were still $10 a year and resources were tight. The membership list included 184 fellows and 36 honorary fellows, plus five gold medalists, the most recent awarded in 1933 to the founder, Albert Soiland.

The ACR had gained the recognition of the scientific societies and was listed among the sponsoring groups for the American Board of Radiology, the AMA Section Council on Radiology, and the combined American Congress of Radiology held in 1933 in Chicago with the world fair.

It had committees assigned to deal with radiology education, with hospital standards, with public education, and with its own structure and finances. Many of the founders in 1923 remained active, passing through the offices and returning for further service on the Board of Chancellors. Most of the same relatively small group were also passing through the leadership positions in the American Roentgen Ray Society, the American Radium Society, and the Radiological Society of North America.

Radiology had grown and improved significantly over that decade. Much of the growth resulted from scientific breakthroughs, which provided radiologists with safer and more sophisticated equipment for both diagnosis and cancer therapy. By then, some of the pioneers had been in practice for 30 years, demonstrating that the practice of radiology was

no longer as dangerous or as deadly as it had been to its earliest practitioners.

Increased Opportunities

Opportunities for radiologists multiplied as more and more American communities built hospitals. In many communities, the hospital had the only x-ray facility. In others, specialists in radiology and thousands of other physicians had equipment in private offices.

Hospital practice brought the problems that weighed most heavily on the leaders of the ACR. Radiologists practiced in most hospitals on a different basis than other physicians on the staff. Some were salaried; others had mixed compensation, often including a basic guarantee plus some percentage of the revenues beyond an agreed minimum. In most hospitals, much patient care was not reimbursed. The radiologist either was paid for services to nonpaying patients by the hospital or was unpaid.

During the College's first decade, the nation moved from the frantic prosperity of the 1920s to the great depression, which began with the October 1929 crash of the stock market and destroyed the savings of millions. Hospitals turned to public funds and philanthropy to cover the costs of unpaid care and most physicians carried large unpaid balances in their patient accounts.

The nation had elected a Democrat, Franklin D. Roosevelt, as president in 1932 and followed with a Democratic Congress. Amid the series of programs to restore fiscal responsibility, create jobs and get the economy moving—called the New Deal—were early proposals to improve the quality of and access to health care. These had a lower priority for the Roosevelt administration than did jobs. But their very mention attracted the worried attention of the American Medical Association and of specialty groups like the ACR.

The minutes of the Board of Chancellors and the annual meetings of the ACR continued to reflect the concerns which had prompted Albert Soiland to organize the College. As such, the ACR did not undertake to challenge or support the New Deal. But it did continue to quarrel with the American Hospital Association (AHA) and to attract letters and other complaints from radiologists across the country who were encountering difficulties and undesirable practice circumstances.

The Chicago Office Opens

As executive secretary, Ben Orndoff established an office in Chicago, combined with the American Congress of Radiology and subsequently with the secretariat for the 1937 fifth International Congress of Radiology, also to be held in Chicago. He had a secretary, paid by ACR, to handle office routine and correspondence. All other College activities, including the executive secretary's efforts and the travel of officers and chancellors, were unpaid. The College had added a special initiation or convocation fee of $50 for new fellows. But the bulk of its revenue consisted of the $10 annual dues paid by fewer than 200 fellows.

Even so, the officers and chancellors devoted significant amounts of their own time and resources to ACR chores. The commissions began to undertake programs. By 1934, there were nine standing committees: Fellowship; Finance; Life Fellowship and Endowment; National Board of Radiology; Cost of Medical Care; Revision of Constitution and Bylaws; Colleges, Hospitals and Radiological Education; Public Instruction; and Radiological Jurisprudence. Each committee had three members and now included fellows who were not members of the Board of Chancellors.

The Committee on Costs of Medical Care became the Commission on Economics under

the leadership of Arthur C. Christie of Washington, the 1931 president and one of the chancellors who had been active since 1923. He was a founding partner in Groover, Christie and Merritt, a partnership that dominated Washington radiology for most of the century and provided leaders for all of the American radiological societies. Dr. Christie and Thomas Groover, the 1935 ACR president, were activists, and Edwin Merritt stayed home to mind the business, as one contemporary observed. Dr. Christie's notion of an active force in radiological economics was to receive a strong push from California.

Voices from the West

At the beginning of the 1930s, California radiologists in San Francisco and Los Angeles had organized the Pacific Roentgen Society with a general mission to avert the efforts of California hospitals to coopt the practice of radiology. Among the leaders of the Pacific Roentgen Society were L. Henry Garland of San Francisco and Lowell Goin of Los Angeles. As Goin wrote later, "The organization achieved some success in coping with the problems which confronted it and, encouraged by their success, was bold enough to suggest that the principles for which it stood, and the methods which it had employed, could be adapted to the national scene."[1]

Before the ACR was ready to consider new initiatives, it needed to get itself organized to be something more than an annual gathering of the elders of radiology. The exhortations of Rollin Stevens and Arthur Christie had resulted in much conversation but relatively little action. The College's limited money was part of the problem. Even more of a problem was the absence of someone to carry out the good intentions of the officers and committees. The executive secretary was a radiologist. He made time for occasional conferences with people at the AMA, the AHA and the American College of Surgeons, all a few blocks away in Chicago. But Dr. Christie continued to recommend the employment of a "field secretary to carry out the economics efforts he felt vital to the survival of radiology."

The February 1935 meeting of the Board of Chancellors was more politically charged than most of the earlier ones. The chancellors, apparently at the request of Olin West, general secretary of the AMA, adopted a resolution decrying the tendency of some (unnamed) medical societies to issue statements on general medical policy issues without clearing such statements with the AMA. Dr. Orndoff reported making a College statement supporting animal research and opposing those who sought to make it illegal. Dr. Soiland, himself an immigrant, and still active as chairman of the Committee on Fellowship, proposed a resolution urging the US Immigration Service to limit the immigration of doctors "in view of the present oversupply of physicians in the United States." The chancellors authorized publication of two ACR Bulletins, reporting on their activities and offering the board's opinion on current medical issues. They endorsed a resolution from the Chicago Roentgen Society declaring the publication of fee schedules as "unethical." Dr. Pendergrass brought up the pending effort to publish the "System of Diagnosis," which had been approved but not funded. No action was taken. Significantly, they gave tentative approval to a draft of a new constitution, placing it on the agenda for a June vote of the membership. The chancellors decided to table a proposal for the ACR to attempt to broker unification of the ARRS, the ARS, and the RSNA.

The ACR Becomes as an Adult

The June 1935 meeting of the chancellors and of the College at Atlantic City, New Jersey, was portentous. The new constitution was adopted. A new leader was chosen to bring the College into a new era. The beginning of a determina-

tion to make the College a viable organization emerged.

The tone was set in a speech by the president, Thomas A. Groover of Washington, DC. "As I think of the ACR, I envision it as having survived the infantile and adolescent periods and now about to emerge into its adult stage of development.

"Radiology must be clinical practice by broadly trained physicians and not just a technical service by 'plate readers,'" he said as earlier presidents had likewise observed. But this time, his listeners were responsive.

The work of the revitalized ACR must be largely educational and advisory, he continued. At that time, there was no other national radiological organization qualified to speak for the specialty. The scientific societies had their own areas, which did not include economics and practice. As it existed, the ACR was too small, too elite and too poor to undertake the task. It had to become larger, more open, and—from more dues—more prosperous. Radiology had to reach out to the public with its search for acceptance if it was to thwart "those endeavoring to overthrow our present system of practice."

Groover acknowledged that the new constitution was important. He noted that the old one had been generally ignored. The new one would need to be respected. The new document was more an outgrowth of the older version than a strong departure from it. The roll of membership still was limited to fellows and honorary fellows. These had to be physicians belonging to the AMA, diplomates of the American Board of Radiology (some of them grandfathered) with seven years in the active practice of radiology, and "who shall have acquired honorable distinction in the science and practice of radiology." The board would still consist of 10 chancellors, each serving a five-year term. The only hierarchical change was the creation of the position of chairman of the Board of Chancellors.

A Leader Emerges

Behind the significance of the new chairman was a series of discussions about his role as the "take-charge" leader of the ACR. The night before the meeting, several of the leaders had taken a long walk on the Atlantic City boardwalk to talk through the problems and to agree on a candidate for the chairmanship. Their informal agreement was that the chairman should have the possibility of serving multiple annual terms and the broadly undefined power to change the College into a stronger organization. On those terms, the position was offered to and accepted by W. Edward Chamberlain of Philadelphia.

With his unanimous election the next day, Dr. Chamberlain became the man of the hour, the day, the year, and perhaps the decade for the ACR. He was well suited to the role, bringing one of the reputedly most brilliant minds and managerial bents in the specialty to the task.

As a young radiologist at the Stanford University School of Medicine in 1923, Dr. Chamberlain had been one of the 21 who had attended Albert Soiland's first meeting. He had come onto the Board of Chancellors several years later. In the intervening years, he had moved from Stanford to the chairmanship of radiology at Temple University in Philadelphia. There he had formed strong alliances with the seniors of the discipline—Pfahler, Pancoast, Pendergrass, and others across the country. He was regarded as a good teacher, a good administrator, and a strong researcher on radiologic imaging systems. A few years later, his work was significant in the development of the first image intensifier by John Coltman of Westinghouse X-ray.

Armed with a mandate for change, Dr. Chamberlain started on what would be a five-year task to shape the College into the undisputed economic spokesman for radiology, strong and resolute enough to stand up to the hospitals,

the new health insurance companies, the social reformers in Washington, and anyone else who challenged the future of radiology.

The Formation of the InterSociety Committee

Tom Groover was succeeded as president by John T. Murphy of Toledo, Ohio, whose presidential rhetoric carried on Dr. Groover's plea for action. The February 1936 board meeting heard a presentation from the Pacific Roentgen Society about its tactics and successes in fighting off the enemies of the private practice of radiology in California.

Both of the emissaries from California were to play their own important roles in the College and in radiology. Lowell Goin of Los Angeles was the more politic. He was a delegate to the AMA, a past officer of the state medical society, later a member of the InterSociety Committee, and a chancellor, president and gold medalist of the College. Harry Garland of San Francisco was the more outspoken, aggressive, and dynamic one. He was trained in medicine in his native Ireland and came to San Francisco in the early 1920s for a short visit, which lasted the rest of his life. He opted to specialize in the new discipline of radiology, joining the voluntary staff at Stanford with Ed Chamberlain and with the long-time chairman, Robert R. Newell. He was in the first class of ABR diplomates in 1934. By all accounts, Garland, like so many ACR leaders, was brilliant; he was also witty, acerbic, fierce in his beliefs, his friendships, and his antagonisms. As its almost-permanent secretary, he used the Pacific Roentgen Society to impose his views of the proper status of radiology on young practitioners and balky hospital administrators. His more than 150 contributions to the radiologic literature ranged over developments in diagnosis, therapy, and economics. Perhaps his most lasting papers were several with statistician Jacob Yerushalmy studying interobserver error among radiologists. He was a prolific writer of letters, pamphlets, policy statements, and essays on subjects removed from radiology. He was the only person to serve two terms as president of ACR. His first was to finish the term of a president, H. W. Van Allen, who died in 1938; he then had a term of his own in 1961. Between those years, he served as a chancellor, and for many of them was chairman of the ACR Commission on Hospitals. He resigned from the ACR in 1963 when the board refused to support his claim of unethical conduct against a radiologist who accepted a contract with a California hospital against his advice. He saddened many of his friends in his later years by testifying for tobacco companies and denying that smoking is causative of cancer.

Both Goin and Garland were eloquent spokesmen for the rights of radiologists and for the need for a national effort such as their activities in California. Their message reinforced the comments of Tom Groover, John Murphy, and, over several years, Arthur Christie.

Because of the limits on the College's manpower and finances, it could not undertake such an effort by itself. The scientific societies would have to be involved. Harry Garland had written to the RSNA in 1934 to propose that it lead the joint venture and had been told unofficially that the College was the proper venue. So letters were sent, conversations were held, boards met and approved. The mechanism to be known as the InterSociety Committee (ISC) began to take shape. By mutual consent of the four groups, the members of the ACR Commission on Economics, Drs. Christie, Goin, and Edward H. Skinner of Kansas City, Missouri, were appointed to represent all of the societies on the ISC. It was to have a budget of $15,000 a year from the societies and the authority to hire the "field secretary" long coveted by Dr. Christie. An advisory committee of officers of the sponsoring societies would provide guidance, but for practical purposes, the three members would run their own operation with the help of the field secretary.

The activities of the InterSociety Committee are described in detail in chapter 3.

Encouraging the Members to Unite

At the same time that he was encouraging the ISC, Ed Chamberlain moved to make the College more meaningful to its members. The sixth annual conference of members, in February 1936, featured a strong lineup of speakers. From the AMA they had Morris Fishbein, the powerful editor of the *Journal of the American Medical Association*, plus R. G. Leland, director of the Bureau of Medical Economics, and Homer F. Sanger of the Council on Medical Education and Hospitals. From the American Hospital Association came Robin C. Buerki, its president, and from the American College of Surgeons, Malcolm T. MacEachern, its executive secretary. Dean L. R. Chandler of Stanford also spoke, as did members of the College's own leadership: Drs. Chamberlain, Skinner, Pendergrass, and B. R. Kirklin, secretary of the American Board of Radiology.

Dr. Fishbein's comments supported the ISC. "What you require is far more organization and much less disorganization, as represented by the wide variety of opinions in your field. When you appear with so many bodies, each with its own officers and its own interests, you cannot get definite results.... It is no secret that hospitals, with their backs to the wall, turn to roentgenology as a field for exploitation. They see an opportunity to make money for the hospital and they are going to take it, and unless you are able to come to the hospitals with a distinct representation of your stand as professional men, you will find yourselves more and more in the situation of technicians employed by the hospitals for services which they feel they can have somebody else do."

Dr. MacEachern also was supportive. "The American College of Surgeons has for many years advocated that all radiologic departments should be manned by radiologists, accredited radiologists, and now believes they should be diplomates of the ABR. But with only 600 or 700 diplomates and 2,500 approved hospitals, many do not have adequate radiologic service."

Gradual Growth

While the societies were completing the task of organizing and financing the ISC, the ACR expanded its own sphere. Dues had been increased to $25 yearly, with an initiation fee of $50 for new fellows. Some 62 new fellows were added, with the prediction that there would be 350 names on the roster by 1937. Extra copies of the two 1935 *Bulletins* were approved for distribution to hospital administrators, recognizing that the administrators were a prime target for persuasion. Dr. Pendergrass succeeded to the chairmanship of the Commission on Education and proposed that the ACR sponsor an annual conference of teachers. He was directed to organize it in time for the May session with the AMA. Dr. Orndoff's five-year term as executive secretary ended in 1936, and he was succeeded by Edward Jenkinson of Chicago. Plans were approved for ACR involvement in the fifth International Congress of Radiology the next year in Chicago.

A new chancellor came into the leadership, Sam Donaldson of Ann Arbor, Michigan. Dr. Donaldson was part of the group that installed Ed Chamberlain as chairman. He took on two new efforts: to collect copies of all state and federal laws and regulations pertaining to radiology and to begin a placement service for radiologists. The latter concept arose from complaints that too many hospitals attempted to recruit radiologists solely on the basis of how much or how little they had to pay, rather than on the basis of qualifications, the status and rights of incumbents, and any guarantees of needed equipment and support

personnel. Dr. Donaldson operated the placement effort on a voluntary basis out of his department at St. Joseph's Hospital until his death in 1960. For many of those years, one of the fringe benefits of residency training at the University of Michigan was the opportunity to have a first look at job openings.

Despite Ed Chamberlain's promise to broaden the base of ACR support, he rejected a proposal to open the ranks to any ABR diplomate. The chancellors adopted a resolution opposing the inclusion of radiology benefits in Blue Cross plans. The resolution generally was ignored by the plans and their hospital sponsors. A proposal by Dr. Pendergrass for the College to organize refresher courses at the meetings of the ARRS and the RSNA again was declined by the board. One of the longer discussions at the June 1937 board meeting was the preferred attire for the board and new fellows at the annual convocation. Several chancellors were sensitive to comments that the academic regalia of caps and gowns was too pretentious to be taken seriously. Tuxedos were advanced as an alternative. However, Ben Orndoff, then president, spoke strongly for the academic garb and settled the issue for at least the next 60 years. The board session was followed by the first conference of teachers, as organized by Dr. Pendergrass.

The most significant actions by the Board of Chancellors in 1937 were the creation of the ISC and the ratification of a statement titled "Principles of Relationships between Radiologists and Hospitals," which resulted from discussions by the ISC with leaders of the AHA.

That first teachers conference program in May included five presentations. Dr. Pendergrass spoke about radiology in the undergraduate medical curriculum. Evan J. Carey, dean and professor of anatomy at Marquette University in Milwaukee, Wisconsin, spoke about radiology in teaching anatomy. Andrew C. Ivy of Northwestern University talked about radiology in teaching physiology. W. C. McCarty, professor of pathology at the University of Minnesota, dealt with radiology in teaching pathology. George W. Meeker, dean of graduate medicine at the University of Pennsylvania, spoke about sites for radiologic instruction.

At a brief June session, the chancellors argued about whether the ACR should continue to grant honorary fellowships to leading European radiologists unless the European national societies reciprocated. "I want recognition for American radiology," said John T. Murphy, the past president. "It won't happen in our lifetime," responded Dr. Chamberlain. Dr. Pfahler announced that he and Drs. Kirklin and Christie held honorary awards from one or more European societies.

International Congress in Chicago

The major portion of the 1937 board session was held in Chicago in September with the fifth International Congress of Radiology, headed by Dr. Christie as president and Dr. Orndoff as secretary-general. At that meeting, Dr. Pendergrass became executive secretary, succeeding Dr. Jenkinson. He left the hired secretary in the Chicago office which was shared with the ICR and the ISC, rather than moving the office to his own department in Philadelphia. The executive secretary of the ISC was designated as the assistant executive secretary of the ACR. The chancellors again passed resolutions condemning the practice of radium companies renting to any physician, rather than restricting their clientele to radiologists. There was more discussion about broadening the membership, despite Ed Chamberlain's opposition the previous year. This time the proposal was made to the board by George W. Holmes of Boston, a distinguished Harvard professor who had started the first residency program for radiology in 1915. Dr. Holmes had accepted ACR fellowship and then resigned, with criticism of many ACR positions. So his sugges-

tion that the organization should grow carried import.

At their February 1938 meeting, the chancellors returned to the sore subject of radium rental. Most radiologists performed both diagnostic procedures and treatments with x-rays and treatment with radium sources. Because radium was expensive, difficult to handle, and dangerous, only a few physicians and hospitals had their own sources. More commonly, they rented sterile needles filled with radium gas from one of several commercial sources. The needles were shipped in lead containers for the physician to insert into the patient. After use, the radium needle was returned to the lead container for shipment back to the supplier. Some surgeons performed radium implants, as did gynecologists. Indeed, the American Radium Society was interdisciplinary, having members from several medical specialties who treated cancer. The commercial radium companies, to the dismay of radiologists, rented their sources to any physician who would pay for them. To radiologists, this practice resulted in many untrained physicians using radium with little advantage to cancer patients, and a decided disadvantage to the radiologists. With only a few exceptions, the ACR and other radiology groups were unable to attract professional or public support for their radium concerns. The problem later disappeared as advances in radiation treatment of cancer benefited from stronger orthovoltage x-ray sources and, later, megavoltage sources and artificial isotopes with more useful handling characteristics.

Struggles with Hospitals

On its familiar ground of concerns with hospitals, the board authorized exploration of a survey of hospitals concerning their treatment of radiology services. Edward Skinner, a chancellor and member of the ISC, posed a series of policy questions that the board answered.

The first question related to a perception that "unless fees for radiology are lowered, physicians and surgeons will continue to demand that the AMA approve the inclusion of x-ray services as a part of hospital care." Those charges were, almost without exception, being made to patients or insurance carriers by the hospitals, which then compensated the radiologists on a contracted basis. However, maintenance of the concept that radiology was a physician service required the specialty to accept an onus not entirely theirs. One comment by Harry Garland was that an advantage of office practice was the ability of the physician to adjust his charges to the patient's circumstances, unlike hospitals, which "tend to stick closely to printed schedules of charges."

The second asked for disciplinary action against radiologists who "unethically" allowed their services to be sold by hospitals for an institutional profit. "It was agreed that where the Board of Chancellors is convinced that certain evils exist, especially when those evils exist within our own ranks, it is the proper function of the Board of Chancellors to take a definite stand, even at the risk of incurring displeasure in some radiological circles."

The third question contended that the solution to radiologist problems with hospitals lay in acceptance of their status as private practitioners. "This principle can be supported only if the radiological staff is opened to more than one radiologist so that these specialists can work on a competitive basis like other specialists on the staff." In response, the chancellors, all of them with exclusive contracts, noted that radiologists might pay dearly for their monopolies "because of the ability of the institution to deprive them at one stroke and quite unceremoniously of their practice by depriving them of their appointments."

The fourth called for a policy statement endorsing the appointment of more than one radiologist to a hospital staff. Some hospitals had more than one radiologist, but those radiologists were affiliated formally in a practice group. Here was

the idea of competitive individual radiologists or groups. The chancellors agreed, as noted in the minutes. Added to that point was the concept that radiologists should bill their own patients. The premise was that the hospital's cost of operating the x-ray facility should be separated from the radiologist's charge for professional service and billed separately to the patients. The chancellors rejected the separation, preferring that radiologists bill the entire charge and pay a portion to the hospital. This was essentially the reverse of the prevailing pattern, in which the hospital billed the combined charge as part of its total bill and paid the radiologist on some basis. The chancellors balked at endorsing the concept that radiological interpretations should be done by qualified radiologists. "While insisting that every roentgen examination is actually a medical consultation and a radiologist must be consulted, we must not adopt the attitude that roentgen interpretation shall be done only by approved radiologists; the orthopedist, the urologist and many other specialists possess special abilities in the field of interpretation of roentgenograms." Finally, they disapproved of hospital salaries for radiologists unless other physicians also were salaried.

The discussion was closed after rejection of a draft statement whose elements would recur over the years. "Inasmuch as no one basis of financial arrangement between a hospital and its radiologist would seem to be applicable or suitable in all instances, that basis should be followed which would best meet the local situation. This may be on the basis of salary, commission or privilege rental, but in no instance should either the hospital or the radiologist exploit the other or the patient."

The board agreed to explore opportunities for a radiology exhibit at the 1939 world fairs in New York City and San Francisco. Recognizing the limitations of the ACR's resources, cooperation of the scientific societies was to be sought.

Help from the AMA

The ACR and the ISC turned to the American Medical Association for support in their efforts to resist hospital controls on radiology. At the 1938 AMA House of Delegates meeting in San Francisco, radiologists were active in seeking support.[2] While they were not acting specifically as representatives of the ACR or the ISC, the same small group of radiologists was involved, just as Albert Soiland had sought a section on radiology as an AMA base for the specialty 14 years earlier. Roy W. Fouts, a radiologist from Omaha, Nebraska, became the speaker of the AMA House of Delegates. Edward H. Skinner, chancellor, member of the ISC, and delegate from the radiology section, sponsored resolutions. Francis F. Borzell of Philadelphia, an ACR chancellor and delegate from his state medical association, sponsored other resolutions. The main impact of the successful resolutions was to give the AMA Council on Medical Education and Hospitals a mandate to work with the ISC on a detailed study of specialty practice and compensation in hospitals. The AMA reference committee report recommended that any hospital found to be treating its physicians unethically should be removed from the AMA's list of approved hospitals for intern and resident training.

"If the medical profession in its relationship to these institutions is not a unit and not united, we are going to find ourselves in many difficulties that we can avoid by a well-understood and well-supported approach to these difficult questions," asserted Ray Lyman Wilbur of San Francisco, speaking as chairman of the AMA Council on Medical Education and Hospitals.[3]

By the 1940 annual meeting, the work of the ISC had been judged effective, and the discussion related to bringing its activities into a permanent ACR structure and function. Ed Chamberlain was completing five years as chairman of the Board of Chancellors and felt that the College had matured enough to take on broader

tasks. Those tasks had changed little in the five years.

In his 1940 presidential speech, Harry Garland asked: "What are our immediate problems? They are (1) the maintenance of medical radiology as a branch of medical practice, rather than as a federal- or state-conducted laboratory procedure; (2) the expansion of opportunity for young radiologists to go into practice by the emancipation of 'hospital' radiology; (3) the expansion of the College along the well-considered lines outlined in our new constitution and bylaws."

Dr. Garland's reference to public facilities related to unrealized proposals for the federal government and states to establish cancer hospitals and clinics. The National Cancer Institute had been created in 1937, and its early prospects included support for patient treatment, as well as the research and education which shortly became its thrust.

By 1940, Ed Chamberlain had reversed his earlier opposition to broadening ACR membership, and the constitution was amended to create a new category of membership, open to any diplomate of the ABR. The fellows remained the controlling element, with new protocols for members to become fellows. However, the expansion allowed the College to embrace the majority of practicing radiologists. And, importantly, it produced a major new dimension of revenue for the expanded staff and programs.

Mac F. Cahal, the executive secretary of the ISC, had also been designated as the assistant executive secretary of the ACR in 1938; his office was in Chicago, in space shared by the two organizations and the remnants of the 1937 International Congress of Radiology structure. With the merger of the ISC into the ACR structure, he became executive secretary of the College, replacing the series of radiologists who had held that position.

The ACR faced the 1940s with a clearly defined purpose and role, new finances, a permanent staff, and a cadre of radiologists on the board and committees who had proven their mettle in struggles with the American Hospital Association and the growing number of hospital insurance plans.

End Notes

1. LH Goin, letter to Hugh N. Jones 19 January 1960, ACR files.
2. EH Skinner, "Report of the InterSociety Committee for Radiology," *AJR* 40(1938):631-634.
3. Editorial. "The roentgenologist, the pathologist and the anesthetist under hospital insurance plans." *JAMA* 111, 158, (9 July 1938) p. 236.

Chapter 3

The Work of the InterSociety Committee

The InterSociety Committee came into existence on 14 February, 1937. At its first meeting, Arthur C. Christie of Washington, DC, was elected chairman; Lowell Goin of Los Angeles was named secretary; and Edward H. Skinner of Kansas City, Missouri, was confirmed as the third member. The mandate of the ISC was to ward off perceived threats to radiology from hospital domination and undesirable treatment in the burgeoning Blue Cross hospital insurance plans. One of its first actions was to interview candidates for the job of executive secretary: Mac F. Cahal of Wichita, Kansas, was hired.

Several years of agitation and politics by members of the ACR Board of Chancellors led to the organizing meeting. Notable in that effort was Dr. Christie. Repeatedly, he had voiced concerns that the capture of radiologists as salaried hospital employees would change the public perception of radiology from a medical specialty to a technical service, perhaps not requiring a physician. Also significant in pushing the ACR and the national scientific societies was the experience of California radiologists in the Pacific Roentgen Society in battling hospitals and insurance companies in that state. ACR presidents Thomas A. Groover of Washington, DC (in 1935), and John T. Murphy of Toledo, Ohio (in 1936), had emphasized the need to create a structure that would do more than discuss problems with hospitals at annual meetings. College leaders recognized that the ACR lacked the size, financial strength, and general support to undertake the political tasks necessary if radiology was to survive as a medical specialty. They proposed to broaden the College membership and financial base. But that would take several years. In the short

range, they turned to the scientific societies for a joint effort. The name InterSociety Committee was chosen to reflect the combined sponsorship of the effort by the American Roentgen Ray Society, the American Radium Society, the Radiological Society of North America, and the ACR.

The bulk of the money would come from the deeper pockets of the ARRS and the RSNA. But the leadership was to come from the ACR Board of Chancellors. Most of the same people had occupied the leadership slots in all of the societies during the 1930s, so no difficult negotiations were needed. The minutes of the societies do not reflect the hallway conversations that led to all four societies selecting the same three individuals—Drs. Christie, Goin, and Skinner—to represent them on the ISC.

They were reasonable choices. Dr. Christie was the 1921 president of the ARRS and the 1931 president of ACR. In 1937, he was president of the fifth International Congress of Radiology in Chicago. He had written a book about the practice of radiology[1] and had served since his ACR presidency as chairman of the Committee on Economics. He had been an AMA delegate and was well known throughout American medicine. Dr. Goin had helped to organize the Pacific Roentgen Society campaign, had represented California in the AMA House of Delegates, and later would be president of the ACR and of the RSNA. Dr. Skinner was a chancellor and later would be president of the ACR. He was the Radiology Section Council delegate to the AMA House of Delegates. The three were the members of the ACR Committee on Economics and remained so as they took on the broader mandate of the ISC.

The societies pledged an annual budget of $15,000 for the ISC. The money came from the sponsoring societies through their general funds and also through a special assessment of $10 per member. Since most radiologists belonged to more than one society, a scheme was devised to collect only one $10 contribution from each radiologist. When the ACR raised its annual dues from $10 to $25, $10 of the fee was targeted for the ISC.

The Executive Secretary Arrives

With the hiring of Mac Cahal, the ISC got Dr. Christie's long-awaited "field secretary," the man who would do the work of the ISC. Cahal was a Kansan who had obtained degrees in journalism and law before joining the staff of the Kansas Medical Society. Cahal's legal and journalistic efforts had gained the attention of Ed Skinner, who invited him to apply for the newly created job with the ISC. Within weeks, he had moved to Chicago for a salary of $4,800 a year plus travel, a secretary (at $125 a month), and space in the office shared by the ACR and the international congress.

Cahal quickly provided the focus that had been lacking in earlier efforts to deal with economic problems. The ISC designated radiologists in each state as liaison representatives, asking them to keep the committee informed of economic problems. The representatives also were encouraged to urge radiologists to contact the ISC for help with local problems. The flow of troubled letters and phone calls began immediately. Cahal also made himself known to staff at the AMA, the AHA, and the American College of Surgeons, as well as to state medical society executives, state attorneys general, and the editors of medical publications. He was a prolific writer, producing a steady flow of position statements, editorials, legal opinions, draft studies, and correspondence. This was accomplished despite a demanding travel schedule, when travel involved days on a train rather than hours on a plane.

The practice of radiology had developed as a referral service to other physicians, whether for the contribution of x-ray imaging to a diagnosis or the use of x-rays or radium to treat cancer pa-

tients. Radiologists practiced in their own offices, much as other physicians did. But most radiologic services were delivered in hospitals, where radiologists held exclusive contract relationships with the institutions. By the mid 1930s, there was general recognition by the American College of Surgeons, which set hospital standards, and by both the AMA and AHA that facilities for radiology were an accepted part of any well-founded hospital.[2] In all but a few instances, radiologists were compensated for their services through the hospital. For services to charity and other nonpaying patients, the choice was a salary or no payment. For other groups of patients, the hospital collected for x-ray services along with other billable services. The radiologist was compensated on the basis of a percentage of what was billed or collected, a salary, or—in some situations—a lease under which the hospital acted as billing agent.

In those circumstances, it was vexing to radiologists (but natural to others) that the public commonly regarded radiology as an institutional service. Because patients receiving x-ray procedures seldom encountered the radiologist, many were unaware that a physician other than their internist or surgeon was involved in the diagnostic process.

ISC vs. American Hospital Association

The day before its formal organization, the members of the ISC met with a delegation from the American Hospital Association. Along with differences over the status and compensation of radiologists, there were mutual concerns about how x-ray departments should be organized and managed. Even if most hospitals were still served by a single radiologist, the complexities of structure and supporting personnel reflected how far radiology had come from the basement storerooms which housed many early departments. The discussants agreed that a jointly drafted protocol for x-ray department organization would be of great use to hospitals.

Out of that discussion came a seven-point AHA statement that spelled out areas of agreement and disagreement.

> In view of the current discussions concerning the relationship of radiologists to hospitals and because of the desirability of protecting the public, maintaining radiological services of high efficiency, and of safeguarding the hospitals, the hospital radiologists and the interests of the nonhospital radiologist, the following basic principles are hereby approved by the Board of Trustees of the American Hospital Association.
>
> (1) The radiological service of the hospital shall be maintained primarily for the benefit of the sick.
>
> (2) Every hospital radiological department should be under the direction of a competent radiologist, preferably a diplomate of the American Board of Radiology or one who is working toward that objective. If, because of size or isolation, such arrangement is not feasible, some member of the general medical staff trained in radiology should be in charge and a consultation service arranged with a nearby radiologist.
>
> (3) The radiologist is entitled to recognition as a professional member of the medical staff and as head of a hospital department.
>
> (4) The preservation of the unity of the hospital and its component departments and activities is an essential administrative principle. This principle can be maintained without any infringement on professional rights or professional dignity.
>
> (5) Inasmuch as no one basis of financial arrangement between a hospital and its radiologist would seem to be applicable or suitable in all instances, that basis should be followed which would best meet the local situation. This may be on the basis of salary, commission or privilege rental, but in no instance should either the hospital or the radiologist exploit the other or the patient.
>
> (6) When an arrangement is effected whereby the radiologist of the hospital pays a rental for space and service, cares for nonpay patients, and in return retains all private fees collected, such contract should clearly cover the matter of depreciation of equipment, replacements and additions, should protect the radiologist against

excessive non-pay work and should take into consideration the 'goodwill' by virtue of which a large proportion of the paying clientele is attracted.

(7) The American Hospital Association views with disapproval the proposal that the actual cost of films and associated overhead be separated from the professional charges of the radiologist or that the responsibility of this department be divorced from the hospital. While in many instances this would be a financial relief to the hospitals, it would probably result in frequent omission of the radiological consultation with a specialist in radiology, would mean less efficient radiological service with potential legal complications, and would tend to create difficulties with national and other organizations requiring supervision of the radiological work by competent radiologists.[3]

Start with Half a Loaf

Although the ISC members agreed to the statement and thanked their hosts for it, the statement was issued unilaterally by the AHA and not jointly with the ISC or any or all of its sponsoring societies. Some of the points were vital. The radiologist was recognized as a member of the medical staff and as the director of a separate clinical department. The radiologists also liked the assertion that the technical components of the service should not be separated from the professional elements for billing purposes. However, even though they could be comforted with these points, they certainly were disappointed with the assertion that any financial relationship that a hospital chose to have with a radiologist would be acceptable to AHA as long as neither side exploited the other. In the absence of any definitions or clarifications of the terms, this area of frequent contention became the focus of the ISC's activities and those of the ACR for the next five decades.

As word of its presence spread, the mail and the telephone began to reach the ISC Chicago office with accounts of the problems radiologists had with their hospitals. Mac Cahal became the confidant of hundreds of radiologists, who sensed, for the first time, the availability of a structure which could help them with local problems. Many of them had made their $10 contributions; others knew that they supported the ISC through their dues to a supporting society. So they had nothing to lose and possibly something to gain by asking for help.

Thus, the two dimensions of the ISC efforts developed almost without design. The intent had been to negotiate with the national groups, the AMA, the AHA, the surgeons and the growing hospital insurance carriers. Soon Cahal was spending as much of his time attempting to troubleshoot problems for individual radiologists and local societies as he spent on the national scene. His frequent correspondence to his three bosses reflected the range of his interests and services.

Cahal stated much later that he felt that both of his disciplines, journalism and law, were utilized to the fullest in his new tasks.[4] He took over from Sam Donaldson the task of collecting laws and regulations affecting radiology. He built personal relationships with the senior staff at the AMA, the AHA, the surgeons and the health insurers. He began a stream of articles, legal briefs, monographs, letters to editors and memoranda, some of them for use by the ISC members and many under his own byline. Given the limitations of his own time and resources, he particularly sought out the staff of the AMA Bureau of Medical Economics, urging them to undertake studies of the status of radiology in hospitals. The AMA did help with the survey after radiologists had gained endorsement of the effort from the House of Delegates in the summer of 1938.[5]

For all of the concerns enunciated by the ISC about threats to radiologists from hospitals and insurers, it was observable by the mid-1930s that the incomes of radiologists had surpassed those of general practitioners and internists and were more comparable to those of surgeons.[6] Whether this occurred because of the common contractual relationships that most radiologists had with

their hospitals or despite them, the ISC feared that the price of relative prosperity could be a loss of status and independence, which would lead to the destruction of radiology as a medical specialty.

Letters to the ISC described situations in which radiologists who had built substantial hospital practices found themselves abruptly dismissed by the hospital. Allowing that some of those dismissals may have had good cause, the ISC was convinced that most of them resulted from the avarice of hospital administrators and boards, their desire to make their x-ray departments profit centers, and the insistence of the involved radiologists on maintaining professional standards.

Word of the ISC's function and early successes began to spread in medicine. In the summer of 1937, Cahal was contacted by A. A. Giordano, executive secretary of the American Society of Clinical Pathologists, whose members were encountering many of the same problems with hospitals. He proposed that the pathologists affiliate with the ISC, which would broaden its efforts to cover both specialties. Cahal was not encouraging. The ISC "plate was already too full," he wrote to his committee members. The merger was not accomplished.

Even before the ISC's organization, the AMA House of Delegates had been supportive of the position that radiologists were physicians and thus entitled to the same treatment by hospitals as other members of a medical staff. In 1934, the House of Delegates had designated the practice of hospitals soliciting referrals to their x-ray departments as "unethical and to the detriment and professional and financial loss of their staff roentgenologists, ... and which practice has been declared illegal in several states."[7]

The AMA repeated its point in 1936,[8] adding its recommendation "that all services connected with the practice of radiology be under the direct control and supervision of the medical profession, and that this same principle pertains to other technical and professional services."

Even though the AMA was supportive and the AHA had made its somewhat conciliatory statement in 1937, nothing seemed to change in most hospitals, according to the letters and complaints reaching the ISC. A controversy arose in Cleveland, Ohio, in 1938: The new Blue Cross plan proposed to separate its payment of technical x-ray charges to hospitals from professional fees to radiologists. The ISC supported Cleveland radiologists in resisting the split, arguing that such action would destroy radiology. In 1939, the Wisconsin Medical Society president proposed taking a position that hospital employment of radiologists was unethical and attempting sanctions against radiologists and hospitals that had such agreements. But the ISC blinked, fearing that many Wisconsin radiologists would refuse to risk their appointments in such an effort.

Telling the Story

By the summer of 1937, Cahal was in full cry as a propagandist, even if his message was a mixture of principles and practicality. For the ISC, he began work on what ultimately became an ACR publication, *A Manual of Desirable Standards for Hospital Radiological Departments*.[9]

"The majority of physicians appointed to charity hospitals are appointed on a salary basis and it is reasonable and equitable for the radiologists accepting such an appointment to be on a similar basis," he wrote. "In mixed hospitals, the radiologists should donate or be paid by the hospital for charity patients. They should be allowed to charge fees for paying patients, the same as other doctors. In private hospitals, the preferred basis is a radiology lease, with the rental not exceeding 40 to 50 percent of gross collections to cover space and equipment."

He quoted from the 1936 edition of the AMA's "Essentials for a Registered Hospital," section 7: "It shall not be the policy of the hospi-

tal to make a profit from the department of radiology." He also cited the 1937 AMA "Principles of Medical Ethics," section 4, article VI: "It is unprofessional for a physician to dispose of his professional attainments or services to any lay body, organization or group or individual ... under terms or conditions which permit a direct profit from the fees, salary or compensation received to accrue to the lay body employing him." At stake, of course, were the new revenues beginning to flow into hospitals from the Blue Cross plans and other hospital insurance programs.

Much of the thrust of the ISC efforts was directed at radiologists. Also in 1937, the ACR had started its placement service, with the concept that young radiologists could be steered to hospitals whose administrators would promise to offer an acceptable contract and away from those which were known or thought to be exploiting radiologists. While the placement service became a valuable part of ACR service to members, its effectiveness in setting standards was severely limited. Hospitals had many other ways to locate hungry radiologists besides the ACR's placement effort.

Quoting the Opposition

One of Cahal's favorite ploys in seeking help from organized medicine was to extract inflammatory quotations from hospital leaders. He quoted a 1937 AHA statement on "Hospital Benefits in Non-Profit Insurance Plans": "Certain professional services (such as roentgenology, anesthesia and pathology) have traditionally been provided through salary, commission and/or rental arrangements between physicians and hospitals. Fees for such services have been charged to patients by and through many of the leading hospitals in America, without loss of professional status of the physicians concerned. The public has come to regard the costs of professional and other services provided through the use of hospital-based facilities as part of the hospital bill."[10]

In an April 1938 letter to radiologist H. B. McEuen in Jacksonville, Florida, Cahal wrote: "The letter sent to members of the Duval County Medical Society by the St. Luke's Hospital receives my nomination for the Pulitzer prize for having reached a new high in fatuous inaccuracy and deliberate distortion. In almost every paragraph, one detects the sly and extortionate greed of a group of lay directors who want to put their hospital in the black regardless of its effects on the local medical profession."[11] The hospital's objectionable practice was a letter soliciting outpatient work for its x-ray department and the radiologists who staffed it. Presumably, Dr. McEuen was not on that hospital staff.

He also shared with his supporters an editorial from the July 1938 issue of *Hospital Management* magazine:

> We are more concerned with the argument which has arisen and is being maintained in the past few years with regard to the financial relation of the radiologist, the pathologist, and similar specialists to the hospital. These specialists have claimed that the hospital, in making a contract with them, is practicing medicine. They have overlooked the fact that, if their argument is sound, they are parties to the illegal act. They are free citizens who can refuse to accept the contracts proffered and, if they believe their assertion, they would be in better position, both financially and professionally, if they opened offices elsewhere. Nor would they be discriminated against. The radiologist ... has no more right to expect the hospital to furnish a department for his exclusive use than has a surgeon to expect the sole use of the operating room.[12]

Also in July 1938, the AHA Board of Trustees issued a new statement entitled "Principles of Relationships between Medical Practice and Hospital Care." Since the February 1937 statement about radiology, new language emphasizing the hospital's role had been added:

> Provision of medical services in hospitals is part of the responsibility of the hospital.... The performance of diagnostic and therapeutic procedures

by staff members constitutes the practice of medicine IN hospitals. It is not the practice of medicine BY hospitals.

The employment of a physician by a hospital is consistent with law and with professional ethics and does not imply that the hospital is engaged in the practice of medicine.

The financial arrangement between a hospital and a physician is not a determining factor in the ethics or legality of medical practice in hospitals.[13]

Whether or not the broadened statements of disagreement between hospitals and physicians would have reflected the state of things without the ISC, Cahal and his committee felt their cause well served by these exchanges.

Injustices in hospital arrangements provided the major theme. But closely related was the intent of the ISC to keep radiology fees out of hospital insurance contracts. Shortly after he was hired, Cahal was summoned to Philadelphia to help resist efforts by hospitals and insurance carriers to cover radiology as a hospital benefit. He was successful. A few months later, Cahal declared that since the ISC efforts began, only one new Blue Cross contract had been written with radiology included as a hospital service:

> This was a point of supreme importance to radiologists: Was their service a property of the hospital that could be sold by a third-party corporation on an annual premium basis, regardless of the wishes of the radiologist, or was it a part of medicine that should be practiced on a fee-for-service basis, like surgery and medicine?[14]

Risks in Winning

Because most hospital-based radiologists were paid through hospital collections, this principle was maintained at peril to the incomes of the involved radiologists. But the principle was served. Cahal credited the strong support of the AMA and local medical societies for successes in keeping radiology out of the hospital insurance contracts.

In the same report, Cahal also urged his listeners to undertake a stronger effort to educate the public about their role. "Every week I read about some individual who has been diagnosed by an x-ray machine. I see stories telling how someone was cured of cancer by radium. That's like saying appendicitis was cured by a knife. It wasn't; it was cured by a surgeon, and the cancer was cured by a radiologist."

The ISC also inherited the concerns of radiologists about the rental of radium to any physician, regardless of his qualifications to use it. Particularly in New York and California, the ISC raised objections to the activities of x-ray laboratories operated by laymen. Many such facilities were known or believed to be owned by physicians who profited from their own referrals of patients to them. The New York legislature was lobbied to pass legislation outlawing the lay laboratories and ending the problem in that state.

Beware of the New Deal

Shortly after he began, Cahal began writing to his constituents to warn them about New Deal initiatives in Washington. These included the founding of the National Cancer Institute, proposals to build federal- and state-supported cancer hospitals and the earliest political discussions about publicly supported health care programs. All of them were viewed by the AMA and by most of its members as unwelcome usurpations of the proper role of private physicians and existing hospitals.

Besides speeches by ISC members and their executive secretary, the ISC communicated with members of its sponsoring organizations through a series of reports carried by *Radiology* and the *American Journal of Roentgenology*. E. H. Skinner's report to the 1938 annual meeting of the American Roentgen Ray Society was printed in the October 1938 *AJR* and the same issue of *Ra-*

diology. In that report, he cited six points that represented the ISC's challenges:

> (1) The attitudes and practices of hospitals and the organized hospital world which tend to place radiology under the domination of a lay board of trustees, establishing it as a technical service to be rendered by hospitals instead of a professional service to be rendered by private physicians;
>
> (2) The attempts to define radiology as a hospital service by including it among the hospital benefits offered in group insurance plans;
>
> (3) The tendency for some hospitals to look upon the department of radiology as a legitimate source of revenue to pay losses sustained in other departments, thus depriving the radiologic department of a portion of its legitimate income;
>
> (4) The attempts to dismember radiology and consequently destroy the specialty by dividing it into technical and professional stages;
>
> (5) The increase in group and cooperative laboratories which supplant established and trained radiologists engaging in private practice;
>
> (6) The threat of competition by the state through free diagnosis and treatment of cancer, and general diagnostic centers, thereby discouraging private enterprise and individual initiative by radiologists.

ISC Practice Survey

On the basis of personal comments and letters from radiologists, the ISC was convinced that a harmful pattern existed across the country, with hospital boards and administrators conspiring to capture radiology as a hospital service. The ISC felt that a survey would document this undesirable situation and provide a stimulus for those who favored radiology as a physician service. As was his usual tactic, Cahal turned to the AMA and its Bureau of Health Economics for help. He knew that the AMA had data-collecting and analytical resources which the ISC could not command and that the parent body also had standing to give a report with its endorsement much more stature than the same product on the ISC letterhead. The AMA was hesitant to commit its resources and prestige to the task until Ed Skinner's resolution calling for AMA participation was passed by the AMA House of Delegates in May 1938.

The results of the survey ultimately were published in the *JAMA* in 1939. The survey went to 1,434 physicians identified by the AMA as radiologists, and 876 useful responses were analyzed. Of the respondents, 605 were ABR diplomates. More than three fourths practiced only radiology; four out of five were solo practitioners; most did both diagnostic and therapeutic procedures. More than 800 of the respondents held one or more hospital staff appointments, and 610 had private offices. Many respondents served more than one hospital. In 1,148 hospitals represented by the respondents, only they were privileged to interpret x-ray studies; in 102 others, other physicians were privileged. (This may well beg the definition of privileges, either as used by the surveyors or understood by the respondents. However, that was the reported result.)

Reflecting the penetration of x-ray diagnosis in clinical practice, respondents indicated that a third of all hospital admissions involved one or more x-ray services. The survey did not address the range of procedures or make any effort to assess their value in the management of the patients examined or treated.

On the economic issues which were the prime reason for the survey, a fourth of respondents had a formal hospital contract with an average duration of four years. Some 77 percent said that the hospital collected all bills on its billhead. Another 19 percent said that they sent their own bills and 4 percent said that both doctor and hospital sent bills. Hospitals covered by 84 percent of the respondents owned the x-ray equipment. A separate study by the AHA the same year brought a response that 94 percent of hospitals owned the x-ray equipment on their premises.

Just over a third of respondents (36.4 percent) said they were paid by their hospitals on a

salary basis. Of those who were full time in one hospital, 47 percent were salaried, and of those who were part time, 33 percent were salaried. Just under half (47.3 percent) were paid on the basis of a gross or net percentage of billings, and 1 in 10 said he had a lease. Gross arrangements ranged from 22 percent to 80 percent of billings; net compensation ranged from 33 percent to 60 percent. Both averaged 50 percent.

For the committee, the results confirmed their conviction that radiologists were treated differently than other physicians. From that conclusion, the ISC and the College had their mandate for change. The seeds were planted but grew slowly, not reaching bloom for a quarter century.

The ISC itself made a second survey of radiology fees. In the introduction, Cahal wrote about what a bad idea it was. "The publication of fee schedules, either by hospitals or radiologists, is universally condemned. The fee for radiologic examinations should be a fee for examination, it is said, and not for a certain number of films of specified size; it should vary as in other medical procedures, according to the condition and the patient's ability to pay."[15]

He went on to explain the difficulties of terminology and classification. "For instance, in listing the fees for examination of the extremities, the elbow is sometimes grouped under the same charge applied for the foot and hand, while in others it is included in another group representing a higher fee for the knee, shoulder, scapula and clavicle."

But he admitted to a growing need for such information by radiologists and, knowingly or not, provided a basis for the growing number of health insurers to develop national payment schedules for radiology services. The state liaison representatives were asked to collect radiology schedules from state societies, their own practices, or any other available source. Many supplied physician-generated schedules and also those from state workmen's compensation programs, welfare agencies and other public bodies, as well as a few private insurance plans. Some 21 states were represented in the final data, which were reported in two segments, one for the physician-generated values and the other from the allowed charges in the schedules created by payers. The survey covered 26 diagnostic procedures. In the final report, fees were averaged and rounded to multiples of $5. The highest fee was $50 for an encephalogram, and the lowest was $5 for a toe or finger. A complete GI series averaged $35.

In his 1940 report to the RSNA on the activities of the ISC, Lowell Goin summed up its projects and described the agreement for the ISC to be absorbed into the ACR early in 1941. "Some of the minor and seemingly insignificant details included in the continuous and sustained activity of your committee have, we believe, resulted in developments of far-reaching significance to the specialty of radiology and to its practitioners individually."[16]

His first cited achievement was "a cordial understanding of the principles advanced in your behalf by the ISC has been manifested by the AMA, the American College of Surgeons and other organizations whose understanding is essential to the accomplishment of our aims." He quoted from a 1940 pronouncement by the surgeons that "insofar as possible a third person should not enter into the financial relation between doctor and patient, and to this end hospitals should be discouraged from determining or collecting fees for doctors."[17]

He referred to the ACR *Manual of Desirable Standards for Hospital Radiological Departments*, which was endorsed by the AMA.

Dr. Goin also pointed to the ISC's warnings about federal initiatives on health that threatened private practice. "There are strong indications that the entrance of this country into a military emergency would result in a prompt assumption of the responsibilities for civilian medical care by the federal government." He was wrong, of course, on that prediction.

The ISC had represented the concerns of radiologists about mass chest x-ray survey programs for tuberculosis. And he noted that the ISC had fostered the creation of state and regional radiology societies to lead local efforts to enhance practice.

Merging the ISC into ACR

Dr. Goin's report also discussed the link between the ISC and the ACR.

> The ISC and the ACR have naturally merged their activities and interests as the College has taken over certain functions and responsibilities assumed by the ISC at the time of its birth. For some time it has been agreed by those most active in the work of the committee that the committee's program should logically be taken over by the College when it had a membership sufficiently large to assume the financial burden and to be truly representative of all American radiology. At the same time, we have urged that some machinery be retained to permit the other national societies to share in the direction of all projects pertaining to social problems and the economic welfare of radiology. The successes achieved by the ISC during the past few years are traceable to the fact that it was an agency which focused the unity and combined expression of all radiology.

Dr. Goin noted that the ACR constitution and bylaws had been amended to include appointees from each of the three scientific societies to the ACR Board of Chancellors. This was intended to continue the involvement of the societies in the areas which the ACR would take over from the ISC.

In an interview years later, Cahal recalled that negotiations leading up to Dr. Goin's pronouncement that the scientific societies had agreed to the ACR taking over the ISC function and support had been difficult, if ultimately successful.[18] Actually, Cahal had already taken responsibilities for many ACR functions. He was the only executive in the Chicago office shared by the ISC and the ACR. When Eugene Pendergrass became the ACR executive secretary in 1938, Cahal was designated as ACR assistant executive secretary. From his journalistic training, he offered assistance to the scientific societies to obtain press coverage for their annual meetings. With changes in the ACR structure and a much broadened membership, he felt that the future of radiology and certainly his own future would be well served by the absorption of the ISC into the ACR.

By 1940, W. Edward Chamberlain was in his fifth year as ACR board chairman and felt that he was nearing completion of the changes in the College, changes that he began in 1935. The ACR had decided to grow and had opened its ranks to all diplomates of the ABR. Its leaders believed that they had defined a mission and had created a structure to achieve the goals it defined for itself. The ISC was folded into the ACR and Mac Cahal became the first nonradiologist, paid executive secretary.

End Notes

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6. OW Linton, "Economics of radiologic practice," in *A History of the Radiological Sciences*, ed. BL McClennan (Reston, Virginia: Radiology Centennial, Inc., 1996), p. 488.
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15. InterSociety Committee, *The Business Side of Radiology*, September 1938.
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Chapter 4

The 1940s: Expanding Services for a Growing Profession

As the American College of Radiology began its third decade, it had changed, radiology had changed, medicine had begun to change, the country was changing, and across two oceans, a world war had begun. The changes in radiology were mostly growth and the refinement of equipment and techniques. Improved film, improved contrast, improved high-energy sources for radiation therapy, and improved residency programs all solidified the standing of the radiologist as a specialty physician. The most visible change in medicine was the beginning of a role for private health insurance carriers in the payment for services, plus the possibility that federal New Deal programs would extend into health service reimbursement. Hospitals were expanding their role, their size and their science, including radiology.

But for radiologists, some things seemed not to have changed at all. They still struggled for public recognition, for professional status, and for more independence from the hospitals in which most of them practiced. Thus, the issues which had led to the creation of the InterSociety Committee remained fundamental parts of the ACR agenda.

After five years as the first chairman of the Board of Chancellors, W. Edward Chamberlain gave his final report in that role to the February 1940 meeting. "I cannot conceal from myself or from you a certain amount of satisfaction in the progress that has been made during this period," he began.[1] He listed some of the changes in the College during the half decade. These included two new constitutions; the beginning of the Conference of Teachers of Clinical Radiology,

conducted annually with board meetings; the creation of the InterSociety Committee; the establishment of a College headquarters and a paid staff led by the executive secretary, Mac Cahal; the beginning of a placement bureau for radiologists, conducted by radiologist Sam Donaldson at the University of Michigan; the establishment of commissions on economics and hospital standards; the publication of the *Manual of Desirable Standards for Hospital Radiological Departments*; and, perhaps most important, opening membership to any diplomate of the American Board of Radiology.

With an eye to the printed version, he chided his readers on their failure to understand and comment on the changes. "There are, unfortunately (or perhaps fortunately, since opposition is a wonderful stimulus), a few radiologists who disapprove, willy-nilly, of anything and everything the American College of Radiology accomplishes. To these, the more successful a move, the more it is resented. Our answer should be to continue, in the future as in the recent past, a policy of activity."

The Problems Remaining

Dr. Chamberlain went on for another 25 pages to list the problems confronting radiology. They were familiar, but group hospitalization insurance had moved to the top of the list. He quoted an American Hospital Association spokesman, David B. Skillman, chairman of the trustees section, as saying in 1939 that hospitals should put physicians on salary as a way to combat socialized medicine.[2] Such a move would allow hospitals to make a global charge for all of the services delivered under their roofs, thus accommodating the new hospital insurance plans, Dr. Skillman argued.

On the existing status of radiology in hospitals, Dr. Chamberlain quoted Basil C. McLean, chairman of the AHA commission on hospital service:

> Occasional bickering is still heard about the inclusion of "medical service" as "hospital service" in contracts for hospital insurance. The improvement of the diagnostic aids and technical services of a medical nature in hospital departments of bacteriology, pathology, roentgenology, anesthesia, and physiotherapy during the past 30 years has been one of the most important factors in the conversion of hospitals from hotels for the sick to scientific institutions. The accepted practice in the majority of the better hospitals has been to make available the services of these departments as a part of hospital care. When analyzed, the fault finding seems to be directed against the method of payment for these services through the hospital and particularly against the full-time or salaried method of recompense which obtains in a majority of the better hospitals.[3]

He questioned the motives of hospital leaders.

> Could it be that there is an underlying motive—that group hospitalization is being used as a means toward the "institutionalization" of as many kinds of medical practice as possible, at the earliest possible moment? ... As to the attitude of the hospital (insurance) plan executives toward radiology and radiologists, we have a certain amount of evidence. They are almost 100 percent convinced that radiology should be and is so much an integral part of hospitalization that any attempt to keep it out of the insurance coverage is ridiculous, unwarranted, and foredoomed to failure.
>
> To sum up, the attitude of the majority of the hospital plan executives is this: We ought to be glad to be included in group hospitalization plans; we are going to be so included, no matter whether we like it or not; we are quite impotent, at least not very strong or important; and we have about as much chance of holding back their kind of group hospitalization as King Canute had of holding back the tides of the ocean.

He cited a series of resolutions and policy statements by the American Medical Association objecting to the inclusion of any physician service in the new hospital coverage plans. "Organized medicine's attitudes toward us are at least

as favorable as we deserve. Particularly is the great AMA our friend."[4]

Dr. Chamberlain also noted that some of the hospital care insurance plans in Michigan, California, New Jersey, West Virginia, and parts of Wisconsin had excluded radiology coverage as a consequence of the activities of the ISC. In some other states, the state medical society agreed to the inclusion of radiology services in the hospital plans.

Dividing the Radiology Charge

Dr. Chamberlain also spoke to another issue, the division of the technical and professional charge, which was to remain controversial for another 30 years. A few years earlier, the ISC had strongly opposed a proposal by Cleveland, Ohio, health insurers to pay the hospital for technical costs and to pay the professional fee to radiologists. "If it is limited to the method of keeping the books, it is hard to see what inherent harm there is in it. Every time a radiologist figures up his operating expenses at the end of a month, he is dividing his practice into technical and professional phases."

The more important issue is radiologist responsibility for the performance and interpretation of all procedures. He cited the ISC role in getting a stronger definition in the AMA document *Essentials of an Approved Hospital*: Section V RADIOLOGY 1. "The responsibility for all radiologic examinations must rest on the physician-radiologist who is head of the department. His findings and conclusions for all examinations should be placed in the patient's chart. Nothing in this provision should preclude additional study and interpretations by qualified attending physicians on the staff."[5]

After warning that the New Deal might still threaten private practice, he observed, "About all we can be sure of is that, gradually or not so gradually, federal bureaucracy is going to make life increasingly burdensome and less and less interesting for all physicians, and especially for radiologists."

He concluded that his five years had established the ACR role beyond challenge. "Let it be emphasized that our excuse for existence, our claim to the support of radiologists and sister organizations, is to be found not so much in what we have accomplished, as in the magnitude of the opportunity that lies before us—the urgency of the task that has been laid at our door."

His final comment was a warning against keeping the same people in leadership positions. Both George Pfahler and Arthur Christie had been chancellors since the ACR was founded and remained into the 1940s. Dr. Chamberlain was a founding member. So, having heard his warning, his colleagues promptly elected him president for 1941 and awarded him the College gold medal. He remained on the board as chairman of several different commissions for most of the next two decades.

More Members, More Dollars

One urgent problem for the ACR was relieved temporarily as the accession of new members also meant more dollars to spend on staff and programs. The total budget for the ACR and the ISC in 1940 was about $20,000, with the ISC accounting for almost $13,000 of that amount. In 1940, the ACR rolls topped 1,000, with 743 new members and a total of 316 fellows. Only fellows could vote or hold office under the new constitution. But the ACR was on its way to becoming more representative of the specialty.

The politics of absorbing the ISC mission, budget and staff into the expanded ACR structure are not described in the minutes. In part, the addition of chancellors designated by the scientific societies (ARRS, RSNA, ARS) provided those societies with a direct input to ACR policy and programs. The leadership of all of the radiology societies remained within a small group of men,

most of whom had held office in more than one society. Harry Garland of San Francisco had been a chancellor, vice president, and president of ACR and was returned to the board as the RSNA's designated chancellor. Ed Jenkinson of Chicago had been a chancellor and was treasurer and executive secretary of the ACR, and he now was the ARRS chancellor. F. W. O'Brien of Boston represented the ARS. All three were named to an expanded ISC/ACR Commission on Economics.

Besides its preoccupation with hospital status for radiologists, the College undertook other responsibilities. As a College staff member, Mac Cahal returned to the operation of press relations for the scientific society meetings. The ACR gained the support of the General Electric Company for the production of a movie about radiology, *Exploring with X-rays*, which was completed in 1941. In June 1940, the chancellors adopted a motion supporting the American war effort (which would not begin formally until December of the next year) and expressing concern about military needs for radiology services. The board agreed to a request to assist the federal Food and Drug Administration with labeling problems on x-ray equipment. It also expressed an opinion about the involvement of radiologists in pre-induction physical examinations of military draftees. Most physicians performed those examinations free and radiologists were urged to do likewise. Later, when the burden grew, the chancellors offered advice about how much to charge.

The new board chairman, Vincent Archer of Charlottesville, Virginia, named working groups to study the growing number of public health programs that made chest x-ray surveys to detect tuberculosis to develop manuals on x-ray department planning and another on radiology accounting.

Only a Third on Salary

In 1941, the ISC made a final report indicating that only about a third of hospital-based radiologists worked on a salary.[6] Many of those were in charity hospitals where few or none of the patients paid for services. In other hospitals, some 42 percent of those surveyed said that they rented space from the hospital; most of the others had a mixture of methods for payment, often involving a percentage of fees billed or a minimum plus percentage. In almost all instances, the hospital billed the patient or the health care insurer. Eight Blue Shield plans were operating to provide a basic medical payment coverage for services to hospitalized patients. Another 28 state medical societies had announced intentions to start Blue Shield plans. The ACR Commission on Legislation was told to ensure that radiology was covered as medical service, even if it meant a campaign to pull previous coverage out of Blue Cross plans in the same states.

The ACR constitution was revised to allow the appointment of state councilors. Earlier, the RSNA had created such representation and the ISC had named councilors from most states. The 1941 membership had expanded to 380 fellows, 893 members, and 26 honorary fellows for a total of 1,299. Members still were required to belong to the AMA and to their county medical society. But when the question arose about admitting black radiologists, then barred from many county medical societies, the ACR quietly took them in without county society membership.

The ACR offered professional liability insurance to its members through Lloyds of London, with an annual premium of $73 for $50,000 of coverage. In another recognition of change, the chancellors agreed to pay for air fares as an alternative to train travel.

The United States entered World War II on December 7, 1941, and radiologists joined their medical colleagues in calls to military service. The ACR board voted to waive the dues of any

radiologist on active duty who requested such a waiver. The College volunteered its services to the army surgeon general to help with radiology manpower problems. Not only was this potentially useful to the military, but it also helped improve the likelihood that a radiologist in the military service would be allowed to practice his specialty. Byrl Kirklin of the Mayo Clinic, secretary of the American Board of Radiology and 1943 president of ACR, was commissioned as the army consultant for radiology and continued most of his civilian responsibilities as well.

At the June 1942 meeting of the board, the College created the Committee on Radiologic Units, Standards and Protection to take over radiation concerns from committees of the ARRS and RSNA. The ACR also became a sponsor of the American Registry of X-ray Technologists, succeeding the RSNA in that responsibility. The 1942 membership list contained 1,400 names, 926 members, 448 fellows and 26 honorary fellows. About 150 ABR diplomates had not responded to an invitation to join.

Starting the Monthly *Bulletin*

Beginning in the 1930s, the ACR had published an annual report on the activities of the chancellors. Now, with a growing membership list, it was decided to begin a monthly *Bulletin* and to send it to all members. However, finances were still so precarious that some chancellors thought it too expensive. A proposal to sell advertising was rejected because it would represent competition with the two scientific journals, which relied upon such revenues. Instead, it was decided to start the *Bulletin* with a budget of $1,000 and seek a dues increase the next year. The chancellors heard, but did not act upon, a suggestion that the College should have its own representative in Washington. Also at the June annual meeting, the newly designated councilors were invited to have lunch with the chancellors, a tradition that continued for some years. Also, the board wrote successfully to the military Selective Service System asking for a deferment for Mac Cahal as a man "engaged in health and welfare services essential to the war effort."

In 1943, with the war effort dominating the national scene, the College plowed ahead on familiar themes. Ed Skinner of Kansas City reported success in persuading the Blue Cross and Blue Shield plans to honor bills submitted by hospitals in the name of radiologists. Dr. Pendergrass suggested that the ACR develop continuing medical education programs for radiologists in military service. Cahal was sent to Los Angeles to help a campaign to end acceptance of x-ray laboratories operated by laymen. The proposal to raise dues from $25 to $50 was a casualty of the war effort.

Several dimensions of the College's growth were reflected in Cahal's report to the June 1943 board meeting. "I decided one day to keep a record of everything that transpired in the office for the entire day. It happened to be May 13, a Thursday." In his morning mail were 29 groups of communiqués from members, officers and others, most of which required a reply, some of them long and complicated. "A hospital superintendent, a layman, wants to know what the College recommends as the proper financial relationship for a radiologist. That is the kind of letter we like to get; we give him a cordial and detailed answer and send along a copy of the *Manual of Desirable Standards*." There were eight requests for the ACR statement on department leases. "A member from Alabama sends in a long contract his attorney has drawn up for his hospital position and asks for our opinion. I tell him the College can't very well engage in the corporate practice of law while opposing the corporate practice of medicine, but give him comments of a general nature and emphasize the principles to be applied."

Some of the correspondence was heartening. "A letter from Dr. Earl D. Smith of Elmira, New York, reported that the material the College had sent him had been placed before his board of

trustees and that the information had influenced the board to the extent that he received a contract as in previous years with no limitations, whereas, the board had planned to put him on a salary basis."

In addition, there were telephone calls from other medical society executives, a lunch with AMA staff members, dictation of several letters and bulletins and a brief exchange with a young man who wanted to enroll in the College so he could become a radio actor. Then came the reading of journals and various reports. "And, as I go to sleep, I think about the member who recently charged that the College wasn't doing anything, and I say quietly to myself, 'Oh, hell!'"

The AMA Tries to Mediate

In April 1943, the American Medical Association Board of Trustees convened a session with representatives of the three national hospital associations and nine representatives of the ACR and the other national radiological societies.[7] The AMA had discussed radiologist relationships with the American Hospital Association at the end of 1942, concluding that there was no general agreement between the AHA and the ACR and that there were differences between the AHA, the Catholic Hospital Association, and the Protestant Hospital Association. The transcript of the discussion ran 80 pages. AMA representatives opened by saying that the House of Delegates repeatedly had taken positions against corporations practicing medicine and against the practice of hospitals selling the services of physicians. The issues were broader than the disputes about radiology, they said.

After an AMA spokesman had observed that the radiologist in the hospital is different from other physicians in requiring special equipment and personnel, Lowell Goin stated the ACR position: "All of radiology is a medical procedure which through circumstances, due to the fault of neither the hospital nor the radiologist, must be practiced in hospitals, though not exclusively hospitals. There is no way to avoid the practice of radiology in hospitals if we are properly to serve the public or if hospitals are to properly serve the public."

Hospital representatives countered that in providing x-ray facilities and personnel, they were providing at least elements of radiology and must be paid in some fashion. And, if the radiologist is salaried, the hospital is obligated to pay that salary, thus needing to bill for all of radiology, they added. If the radiologist is not salaried, said the Catholic Hospital Association spokesman, the Rev. Ambrose Schwitalla, he should send his own bill for professional services, with the hospital charging for its technical costs.

Rev. Schwitalla then proposed that the group adopt a statement calling for radiologists to renounce hospital salaries and for the AMA to refuse to recognize a training program in any hospital that hires radiologists. Dr. Goin regretted that he lacked the authority to enforce such a position on radiologists and expressed doubt that the ACR could accomplish it. Olin West, the AMA executive secretary, affirmed that the AMA could not enforce on its members a policy of avoiding salaries. The hospital representatives agreed that they could not compel their member hospitals to change if the medical societies could not enforce their position.

Ed Chamberlain proposed that a partial solution might be for hospitals to exclude any radiology charges from their global daily charges and for their billings for radiology to be made in the name of the radiologists. How the money would be divided between the radiologist and the hospital could then reflect the existing salary, lease or percentage contract. Edgar Blake, the Protestant Hospital Association representative, agreed that billing any services in the name of physicians would help hospitals to get away from blame for increasing costs of hospital care. Robin Buerki of the AHA raised the question of dividing the bill between the technical and professional elements.

The radiologists demurred. So it went for the rest of that day, and for another 25 years.

Greetings to Radiologists in Service

Later that year, the College sent its second New Year's greeting to its 300 members in military service. It concluded: "It might be a comforting thought for you to know that the College expects to be right here at the same old stand when you get back. When that happy day comes, the chief activity of the College will be in assisting radiologists to take up their old practices or relocate in new communities."[8]

If College members thought disputes with hospitals would be suspended in favor of the war effort, they were reminded otherwise when the ACR quoted from a speech by Arthur J. Altmeyer, chairman of the federal Social Security Board to the 1943 American Hospital Association convention:

"Those who would make of the hospital a building in which to furnish bed, board, nursing and only technical services, and who propose to separate professional services from hospital care are flying in the face of experience and progress. They would not merely stop the clock; they would turn it back. Their view cannot and should not prevail."[9]

With ACR leaders worrying about congressional proposals to expand the Public Health Service, to pay for cancer treatment in special government-operated hospitals, to expand tuberculosis programs and to generally intrude into health care insurance, this statement from a ranking federal official convinced the chancellors that their struggles must go on.

Gradually in 1943, the stresses of a nation at war began to slow down ACR activities. Travel was difficult and the 1943 convocation was canceled because many of the new fellows were in the military. Even so, College leaders like the president, Byrl Kirklin, and others took time from military duties, and Robert S. Stone of San Francisco managed to fit ACR committee assignments into his super-secret work on the development of an atomic bomb.

Cahal Leaves—And Returns

In the fall of 1943, Mac Cahal began a series of discussions with his chancellors that led to his resignation in November. At the root of Cahal's concern was the money problem which limited both his earning potential and the programs. He took a position at the Southwestern Medical Foundation in Dallas. When the InterSociety Committee was integrated into the ACR three years earlier, Cahal hoped that Eugene Pendergrass' efforts to combine the national radiology societies would succeed, providing a pool of talent and money with him as the manager of all of it. This was not how the situation had worked out, so, despite the board's decision to match the $12,000 the Dallas job would pay him, he went off.

He was not replaced immediately, and the headquarters office was left to the secretaries who had been Cahal's helpers. Cahal was kept in the circulation of correspondence and otherwise viewed by the board chairman, Lowell Goin, as only gone temporarily. So it was to be. By January 1944, Cahal was expressing in letters to Dr. Goin and other chancellors his desire to return. He had been deferred from military service on the basis of holding a position which contributed to the war effort. This was more demonstrably true in the Dallas job, which was a training facility for military physicians, than it was for the ACR. Part of his concern was that the needs of the military for manpower might lead to his induction if he returned to the ACR. However, the deferment was renewed and at the June 1944 meeting, he was formally rehired and put to work on the spot.

In June 1944, the College also addressed the issue of chest x-ray screening programs for tuberculosis detection. This was a major push by the US Public Health Service, together with local governments and private initiatives. Just how millions of asymptomatic Americans could be surveyed, by whom, by what protocols, and how the programs would be paid for were all unanswered questions. There were not enough radiologists to undertake millions of chest examinations in a clinical fashion, even if anyone had proposed that approach. However, some chancellors resisted on the premise that the proposed surveys were invasions of private practice.

Ed Chamberlain responded sharply. "This is too important. The human race has within its grasp the possibility of winning the age-long fight against the bacillus of tuberculosis because case finding by x-ray is the one essential thing in the program." Ross Golden of New York City, the retiring president, noted that opposition would be impolitic. Besides, he added, any suspicious survey finding would lead to a proper clinical chest x-ray examination, likely by a radiologist.

The ACR had already had discussions with the Public Health Service about the surveys and, with its endorsement, gained an opportunity to help set the standards for the survey examinations. In effect, the ACR recognized that tuberculosis was a public health problem, not one to be handled by private physicians.

"All of us are scared to death of the socialization of medicine," Dr. Chamberlain told the board. "But there is a place for the socialization of medicine, and one of those places is in the care of TB patients because they are going to be sick for an awfully long time, and a great many people are cared for by the state when they get it. A great many people are cared for by the state when they become insane, and medicine has already become socialized so far as insanity is concerned."

Winning the War

The military tide had turned favorably for the United States and its allies by 1944, but the nation's commitment resulted in cancellation of the 1944 national scientific radiology meetings after a combined ARRS-RSNA session in 1943. The ACR teachers conference also was dropped in 1944.

ACR finances improved marginally, due in part to limited activities. College income in 1944 amounted to $22,241, with expenses of $19,221; Cahal's $12,000 salary accounted for more than half of that total.

In 1945, the ACR took the lead in observing the 50th anniversary of Roentgen's discovery of x-rays, assisted by a $15,000 contribution from the X-ray Section of the National Electrical Manufacturers Association.

The second world war ended and military radiologists came home with the victorious troops. As they returned to civilian life, they were joined by hundreds of other physicians who had functioned as radiologists in the military and who then committed to the specialty. The American Board of Radiology granted one year of credit to any physician with military radiology experience and encouraged teaching programs to make space for the rush of new talent. The ACR, with the leadership of Eugene Pendergrass, organized short courses in Philadelphia and other cities to help potential radiologists (and potential ACR members) cram for their board examinations.

For the College, the issues were unchanged. Hospitals still sought to hire radiologists on salaries or other contracts under which the hospital collected all of the money for x-ray services. In the fall of 1945, the chancellors were concerned about a proposal from health insurance carriers in Connecticut to separate the technical and professional charges for radiology in hospitals, paying the technical element to the institution and the professional fee to the radiologist. The Col-

lege's conventional wisdom was that radiology was inseparable, even if it meant that the hospital captured the whole of reimbursement.

Even with a surge of new members, money remained a problem. George Pfahler, the first president, organized a campaign to encourage ACR fellows and members to make donations to the College, much as he and others had solicited money a decade earlier to set up the ISC. His efforts produced $15,000 in 1945, boosting College revenues to $37,154, and ultimately reached $30,000 before trailing off in 1946 and 1947. It made a critical difference as College efforts expanded along with everything else in a rush of postwar enthusiasm.

At its February 1946 meeting, the Board of Chancellors expelled a Los Angeles radiologist from membership for the unethical practice of accepting employment by a lay-owned x-ray laboratory in that city.

Early in 1946, an assistant executive secretary was authorized and Cahal hired Charles Nyberg of Chicago. The manufacturers made a donation of $3,600 to support public relations activities. Cahal reported that the ACR office had mailed more than 10,000 letters and other communications to members during the first half of 1946. These included a monthly newsletter, now on a regular schedule. In his annual report, Cahal noted that the development of Blue Shield plans for physician service coverage had begun to relieve some of the pressure for the coverage of radiology as part of hospital service under Blue Cross contracts. "In Wisconsin, Illinois, Indiana, New York and a few other states, definite agreement has been reached for transferring radiology from Blue Cross to medical service plans, thus designating this service as a part of medical care instead of including it among the hospital services under Blue Cross."

The founder of the ACR, Albert Soiland, died in 1946 on a visit to his native Norway.

Constitutional Changes

Changes in the constitution and bylaws in 1946 created the role of associate fellows in physics, raised the dues of radiologist members to $50 a year, reduced from seven to five years the minimum requirement for nomination for fellowship, and agreed to continue requiring membership in the AMA and its state and county societies for ACR membership.

The College held a special convocation at the second InterAmerican Congress of Radiology in November 1946 in Havana, Cuba, awarding five honorary fellowships to radiologists from Latin America. It agreed to become the US affiliate of the newly organized InterAmerican College of Radiology.

A greatly expanded Veterans Administration (VA) medical program for millions of demobilized soldiers and sailors involved building and staffing new VA hospitals and also contracting with civilian institutions for care. When Cahal complained for the ACR about the inclusion of radiology procedures as hospital service, the VA replied:

> It must be understood that these services are rendered by professional salaried personnel of the hospital staff or by professional personnel operating on a contractual basis, the costs of which have been included in the hospital's statement of reimbursable costs. In those cases where the professional services in question are rendered separate and apart from those contemplated in the hospital's statement of reimbursable costs, reimbursement will be made on a fee basis.[10]

Few if any radiologist-hospital contracts would have qualified for the VA offer, and the ACR still insisted that radiologic services could not be separated into professional and technical components.

At the February 1947 meeting, Arthur Christie asked the chancellors to provide $2,500 a year to support a new radiology program at the Armed Forces Institute of Pathology (AFIP) in Washington, with the ARRS and RSNA to give compara-

ble amounts. The idea was to use teaching materials from the AFIP's voluminous pathology files to develop a radiologic-pathologic correlation program. Since the AFIP was supported by the government, the money would be used to subsidize radiology fellows to work up the proposed teaching sets.

A complete description of the radiology program at the AFIP is found in chapter 14.

In 1947, the College structure included nine commissions and four independent committees. The commissions dealt with hospital standards, with education, with public relations, with legislation and public policy, with finance, with constitution and bylaws, with public health, with radiologic units, standards and protection, and with the Professional Bureau. The committees related to x-ray technologists, to international affairs, and to the College's relations with the American Board of Radiology and the American Registry of X-ray Technicians.

By the summer of 1947, the ACR had 535 fellows and 1,284 members, for a total of 1,817 out of the 2,198 living diplomates of the American Board of Radiology. Approximately 100 of the 381 eligible radiologists had been rejected by the chancellors, and the others had declined to join.

A Washington Presence for the College

That summer, the College sent Lowell Goin to Washington to testify before a Senate committee considering a bill to establish a broader federal presence in cancer care. He opposed federal payments for patient care, but supported the allocation of $10 million for research. In 1947, the National Cancer Institute was 10 years old and was still seeking a political base for a broader program. Other College leaders and Cahal were meeting frequently with Public Health Service and Veterans Administration leaders on issues of department planning and tuberculosis surveys.

The chancellors took disapproving note of several hospitals in Connecticut and Massachusetts that urged local physicians to refer outpatients to the hospitals for radiologic examinations rather than to private offices. Often, the study involved the same radiologist. By 1947, there was some health insurance coverage for the hospital-based procedure but none, as yet, for the same study performed in an office.

Cahal's assistant, Charles Nyberg, left and was succeeded by William C. Stronach, a young Chicago lawyer. By early 1948, Cahal was restless. He had been approached by a group of general physicians who were interested in starting a society of their own, now that most specialists were collecting in societies, colleges, and academies. Cahal had been given a five-year contract with expenses and retirement benefits. But he asked and was granted permission to help the generalists. A few months later, he resigned to help organize what became the American Academy of Family Practice. The ACR kept him on a consulting retainer for several more years. Bill Stronach, two years out of the army, one year out of law school, and less than a year at the ACR, became its executive secretary and kept the job until his death 34 years later.

Where Cahal had made an immediate impression as an advocate and polemicist, Bill Stronach was much quieter, less likely to dash off an angry letter to an editor whose publication had denigrated radiology, and less apt to lecture his leadership or to offer a provocative theory to challenge them. During his time in the army, he had decided that he did not wish to be a lawyer. However, with only one more year to go for a law degree, he finished at Northwestern University and saw an association job as a way to use his training without actually practicing law. As it happened, he developed an expertise in contracts and for many years spent much of his time consulting with members and analyzing hospi-

tal contract proposals. With Cahal still on call, the chancellors decided to go with Stronach, rather than recruiting a more senior executive. Thus, he had the time to develop professionally to meet the expanding responsibilities of a growing organization.

If the issues remained the same, there were signs of some progress. The ACR *Bulletin* for June 1948 reported that as of the previous year, 51 of 81 Blue Cross plans covered radiology services for hospital patients and 25 of 44 Blue Shield plans covered radiology, most commonly in the amount of $15 per year, regardless of the services actually performed. The National Association of Blue Shield Plans asked for a liaison committee from the ACR to advise it on coverage issues. Lowell Goin went back to Washington to tell the Senate that the nation's radiologists were opposed to compulsory health insurance. The bill to which he objected was well short of President Harry S Truman's proposal for a national health insurance program. But most physician groups worried that what the government paid for, it would somehow control.

In 1949, the AMA returned to the issue of hospitals practicing medicine, with a special report from a committee headed by Elmer Hess of Erie, Pennsylvania, its former president. The corporate practice of medicine by anyone other than a physician or group of physicians was, in fact, against the laws of most states and was regarded by the AMA as unethical. When the House of Delegates proposed to have the AMA sanction hospitals which violated its wishes, the AMA's lawyers persuaded them to back down, much to the regret of many radiologists. The American Hospital Association, some months later, adopted its own statement recognizing that while the AMA might have had good intentions, it confirmed the right of hospitals to hire doctors and, particularly, "that specialized and diagnostic services, such as radiology, pathology, anesthesiology, and physiatry, are vital to a high quality of patient care and are properly and customarily provided in a day of inpatient care."[11] A Texas attorney general's report concluded that charitable hospitals "would not lose tax-exempt status by compensating doctors in charge of anesthesiology, pathology, or radiology on a fee or income-sharing basis instead of a fixed salary, as the relationship of employer and employee will not thereby be destroyed."[12]

The ACR involved itself with the impact of radioisotopes on medical practice, taking note that reactor by-products, such as radioactive iodine and gold, which were becoming available from the Atomic Energy Commission, had the potential for much good if used by qualified physicians and much mischief if adopted by others. A College ad hoc committee to draft a statement included Stafford Warren of Los Angeles, who had been the senior radiologist on the Manhattan project (which built the atomic bomb); Robert Stone, who had been his deputy; Andrew Dowdy of Los Angeles, who also served on the bomb project; and Gene Pendergrass. They proposed that the American Board of Radiology consider offering a credential for the medical use of isotopes. "This is a new field and an internist, surgeon, gynecologist or any other physician who is willing to devote himself to the study of the possible benefits and known dangers of radioactive isotopes has more right to enter this field than a radiologist who does not exert himself," they cautioned.

As the decade ended, the ACR had achieved recognition as the national spokesman for radiology on practice issues. It was recognized by federal agencies, medical groups and hospital organizations as representing the majority of radiologists. With increased membership, it had gained a narrow financial comfort and could undertake the programs of its growing number of committees without having to ask first if a given task could be financed.

End Notes

1. "Chairman's Report," *ACR Bulletin*, 1940, p. 14.
2. DB Skillman, speech to American Hospital Association 1939 meeting; reported in *Modern Medicine* November 1939.
3. BC McLean, speech to American Hospital Association 1939 meeting; quoted in *Hospitals* January 1940.
4. Editorial, *JAMA* 111(9 July 1938):158.
5. "Essentials of an approved hospital," *JAMA* 112(27 May 1939):216.
6. *ACR Bulletin*, 1941.
7. Joint Committee of National Hospital Associations and Trustees, Proceedings, 11 April 1943; AMA (unpublished).
8. MF Cahal, "Letter to Members in Service," 8 November 1943.
9. AJ Altmeyer, speech to American Hospital Association 1943 meeting; quoted in *ACR Bulletin*, January 1944.
10. Quoted in MF Cahal. Report to Board of Chancellors, 7 February 1947.
11. "News Reports," *ACR Bulletin*, January 1949.
12. Attorney General Opinion, V-925, 8 October 1949.

Chapter 5

The 1950s: Postwar Optimism and a New Generation of Radiologists

The American College of Radiology, American medicine, and the nation all began the 1950s in the postwar optimism and prosperity that flowed out of the triumph over the Axis powers. The ranks of radiology were swelled by physicians who became acting radiologists in military service and elected to get formal training and certification for a civilian career in the specialty. A wave of hospital construction funded by the federal Hill-Burton subsidy program[1] provided practice opportunities for younger radiologists without threatening the exclusive contracts of senior specialists.

Besides growing in numbers, radiologists grew into new technologies that expanded their field and created ongoing turf struggles with other disciplines. Artificial isotopes, a peaceful by-product of the Manhattan project, began to find uses in medicine. Cobalt-60, with an energy of 1.3 to 1.6 million electron volts, gave radiation therapists more energy, better precision, and improved results. Other isotopes, notably iodine and radioactive gold, were used with crude linear scanners and to replace chemical tests for the function of organ systems. Fluoroscopy improved incredibly with the development of image intensifiers. These used electronics to amplify a weak x-ray signal, allowing fluoroscopy in lighted rooms and producing images bright enough to be photographed or to be recorded on movie film.

The membership of the College grew steadily as most of the new radiologists opted to join the ACR, along with the ARRS and the RSNA. The budget, based on their dues, grew comfortably. In 1950, the ACR had nine commissions (plus the Professional Bureau and several free-standing commit-

tees): Hospital Standards; Education; Public Relations; Finance; Constitution and Bylaws; Radiologic Units, Standards and Protection; Credentials; Legislation and Public Policy; and Public Health. Public Health had two busy committees relating to chest disease and cancer. Committees on International Relations, Medical Care Insurance, and liaison to the American Registry of X-ray Technologists and the American Board of Radiology involved several dozen radiologists.

Most state and regional radiology societies were related to the ACR by their nomination of a councilor, who then was appointed by the Board of Chancellors. Executive secretary Bill Stronach now had four assistants in the headquarters office on North Michigan Avenue in Chicago. But the core and strength of the College remained within the Board of Chancellors.

Most of the pioneers had passed out of the leadership by the 1950s. Sam Donaldson remained as director of the Professional Bureau, which he started in 1937. The Californians, Lowell Goin and Harry Garland, were active and would stay involved through the decade. So would Ed Chamberlain, whose five years as chairman a decade earlier had been so critical to the transformation of the College; his Philadelphia colleague Eugene Pendergrass—who developed most of the ACR educational efforts—also remained active. Ben Orndoff, Arthur Christie, George Pfahler, Tom Groover, Edwin Ernst, Hollis Potter, Ed Jenkinson, and others had given way to a newer generation.

In his 1950 annual report, Bill Stronach set the tone: "The past year saw the membership of the College reach a new high and the scope of College interests become more diversified. ... Some idea of the quickening in College activities can be gained from the fact that in 1946 nearly 60,000 pieces of mail emanated from the headquarters; during 1950 the figure was slightly over 100,000."

Constant Mission—Defend Radiology

The prime mission remained constant—to define and protect the specialty of radiology against all of its challengers. But now it had expanded into other programs. The ACR had taken the lead for radiology in public relations and had begun to involve companies which sold to radiologists. The Commission on Radiologic Units, Standards and Protection (CRUSP) took responsibility for the subjects in its title and developed relationships with the National Committee on Radiation Protection and Measurements, with the International Committee on Radiological Units and the International Committee on Radiological Protection. Ross Golden of New York City took the lead in international liaison, strengthening the ACR role with the InterAmerican College of Radiology and representing American radiologists as the international congresses of radiology resumed after World War II.

The College gingerly poked its toes into national politics, offering its opinion to Congress and to the Public Health Service on matters affecting radiology and some that did not. ACR joined other medical groups in opposing a bill to expand the Social Security system by adding compulsory medical insurance. The Brookings Institution, a Washington research group, asked the College's help on a medical manpower study that included radiology.

The struggle over the status of radiology in hospitals widened as Blue Cross plans continued to regard all of radiology as hospital service and some plans extended coverage to outpatient services. Almost all radiologists in hospitals functioned under contracts through which the hospital collected a total charge and shared it with the radiologist. In that sense, nothing had changed in 15 years. However, the College continued to insist that radiology was medical service, performed only by physicians, and not an element of

hospital service, whatever the method of payment by insurance plans or patients.

There were exceptions. In Kansas City, Missouri—where Edward Skinner of the ISC, and the 1951 ACR president, C. Edgar Virden, led the effort—the Blue Shield contract covered radiology, and bills were submitted in the radiologist's name, even if the hospital did the billing and collected the payment before dividing it with the radiologist. Some radiologists proposed that Blue Cross plans should pay only for emergency diagnostic procedures and for radiation treatment, leaving the radiologist to collect separately for routine diagnosis. But others expressed futile concern that hospitals could buy large quantities of film or contrast media more cheaply than they could purchase the same commodities for their own offices.

When Blue Cross plans began combining their forces to offer national contracts to large industries, most of the national packages covered radiology services as a hospital benefit and not at all for procedures in any other setting. By the 1950s, ACR councilors provided a steady stream of reports and complaints about health insurance proposals, allowing the College to register timely protests against those which ran contrary to the private practice of radiology. The ACR encouraged state societies to seek liaison relationships with the Blue Cross and Blue Shield plans serving their areas.

In other ways, the ACR cooperated with both the hospitals (in matters such as radiology department management and equipment standards) and the health insurers (on protocols and nomenclature). In 1950, the ACR responded to a request from the National Association of Blue Shield Plans for a standard radiology nomenclature that plans could require as a way of standardizing usage and making it possible to determine what procedures were the basis of a charge (whether within the hospital bill or otherwise).

Protecting the Nation's Feet

CRUSP became active in two areas. One was in denouncing the common practice of shoe stores using unshielded fluoroscopes to aid in fitting shoes. Over a decade, the College's efforts and the cooperation of associations of shoe manufacturers and merchants convinced most shoe stores to discard the machines. A yearly visit to a shoe store and fluoroscopic viewing may have been unlikely to be harmful to the average customer. But the shoe clerk who activated the unshielded x-ray unit for every customer could accumulate a significant dose.

The second area of radiation concern emerged from the news that the Union of Soviet Socialist Republics had developed its own atomic bomb. With the chill in relationships between the former World War II allies, containment of Russian aggression became fundamental American foreign policy. The College recognized that in most communities, the radiologist was the only person with any knowledge of ionizing radiation. Most radiologists knew that their knowledge of radiation protection, of traumatic radiation effects, and of medical procedures for handling radiation victims was inadequate.

Radiologists had been involved in the atom bomb project. Stafford Warren, previously the chief of radiology at the University of Rochester and later dean of medicine at the University of California in Los Angeles (UCLA), headed the medical section of the Manhattan Project. Also working in high echelons of the bomb project were Robert Stone, chief of radiology at the University of California in San Francisco; Hymer Friedell, later chairman of radiology at Case-Western Reserve in Cleveland; and Andrew Dowdy, the founding chairman of radiology at UCLA. So the College had expertise within its ranks.

The 1951 Teachers Conference was devoted to radiologic defense. Speakers included Norvin C. Kiefer, of the National Security Resources

Board; Brig. Gen James P. Cooney, a radiologist who was chief of the radiological branch of the Atomic Energy Commission; William Bale of the AEC's Division of Biology and Medicine; Col. Albert DeCoursey, director of the Armed Forces Institute of Pathology; Cmdr. Eugene Cronkite of the Naval Medical Research Institute; and William H. Sullivan, director of the Navy Radiological Defense Laboratory.

CRUSP chairman Robert R. Newell, chief of radiology at Stanford University, said in his introduction to the conference: "The radiological aspects of civil defense in the event of atomic attack are the legitimate concern of every radiologist."

Growth and Changes

In 1950, the ACR had 2,542 members, total revenues of $70,118, and expenses of $53,992; it added 171 new members, half as many as had joined in 1949.

The board voted to amend the constitution to add a chancellor to represent its Canadian members and to establish a formal liaison with the Canadian Association of Radiologists. Arthur Singleton of Toronto was the first Canadian chancellor. The board agreed after much deliberation to pay minimal travel expenses for College members working on committees. It began two book projects: a manual on radiologic ethics, economics, and administration and a primer on radiology department planning. For the ethics book, the chancellors turned to veterans Ed Chamberlain, Lowell Goin, and Sam Donaldson, matching them with three younger radiologists: J. E. Habbe of Milwaukee; E. P. McNamee of Cleveland; and Leo Rigler, the chief of radiology at the University of Minnesota, whose department was producing a whole generation of academic chiefs. The planning book was the product of Wendell G. Scott of St. Louis, who was on the Commission on Public Relations.

Dr. Scott was typical of ACR leaders in the 1950s. A native of Poplar Bluff, Missouri, he went to St. Louis for college and medical school at Washington University. After navy service in World War II, he returned to the faculty at Washington University's Mallinckrodt Institute of Radiology and began a private practice. He retained a clinical professorship and promptly got involved with the ACR and with the American Cancer Society. His flair for public relations and marketing led to his assignment as chairman of the ACR Commission on Public Relations, where he built cooperative efforts with many leading manufacturers. He also became editor of ACR and ACS publications and served as president of the American Cancer Society.

On the familiar subject of hospital relations, the ACR continued to urge the AMA to implement its 1949 report and House of Delegates action that declared that physicians accepting hospital salary employment were unethical. On advice of its lawyers, the AMA had backed away from imposing sanctions on any hospital that required its physicians to work on salary. The leadership of the American Hospital Association matched the level of the AMA rhetoric by stating repeatedly that hospitals could contract with physicians on any basis agreeable to the parties.

At their June 1951 meeting, the chancellors resolved: "That it is the considered opinion of the Board of Chancellors of the ACR that voluntary pre-payment medical care plans should render payments only to physicians and in no case to hospitals." There was no visible effect or even a response.

The ACR set up a liaison with the newly founded American College of Chest Physicians. Russell H. Morgan of Baltimore, chairman of the ACR Committee on Chest Disease, drafted recommendations for the safety of doctors and technicians using photofluoroscopic equipment for tuberculosis chest surveys. The two groups agreed that screening programs could be accom-

plished with the photofluorographic units but that clinical studies should be made only with fixed equipment and full-sized chest films.

Russell Morgan was to contribute unique leadership to the ACR and radiology for some 40 years. A Canadian, he was trained at Western Ontario before coming to Chicago, originally for a residency in pathology. Because he had a strong interest in physics and engineering, he changed to a radiology residency at the University of Chicago, where Paul C. Hodges was the chairman. Under Dr. Hodges' tutelage, he developed the first phototimer while still a resident. During World War II, he served in the Public Health Service (PHS), where he made contacts which led to his interest in tuberculosis control and radiation health science. Shortly after the war, he accepted the chair in radiology at Johns Hopkins University in Baltimore, where he remained the rest of his life. He also contributed theoretical work to the development of image intensification. The PHS contacts paid off as he became a consultant and stimulated the creation of the Bureau of Radiological Health. He hoped that the PHS would create an Institute of Radiological Science within the National Institutes of Health. However, the new agency worked with the Atomic Energy Commission on radiation protection programs. It later made common cause with the ACR on a series of physician education programs and then was merged into the Food and Drug Administration. After retiring as chairman, Dr. Morgan became dean of medicine and vice president for medical affairs at Johns Hopkins. His last organizational activities were as a member of the ACR Task Force on Pneumoconiosis.

At the request of the Food and Drug Administration, the College added a Committee on Drugs and New Devices, appending it to CRUSP. With the College's urging, councilors and other radiologists joined in inspecting x-ray technology schools, examining 242 institutions in 1950 and 1951 and approving 236 of them.

The chancellors viewed with some suspicion the adoption of a faculty billing plan at the Bowman-Gray School of Medicine in North Carolina. This plan allowed staff members, including radiologists, to bill their professional fees while the affiliated hospital billed technical charges. While it remained the College's position that the professional and technical elements of radiology were inseparable, others kept coming to the concept of separation as a solution to quarrels with hospitals.

Concern About Federal Health Proposals

In February 1952, the board reacted warily to language in a report on national health resources commissioned by President Harry S Truman. One recommendation was that the government should establish a series of diagnostic centers staffed by salaried physicians and supervised by the Veterans Administration. The possibility that such centers would restrict the performance of radiologic procedures to radiologists was overshadowed by the broader concern about government intrusion into medical practice.

The ACR Commission on Legislation and Public Policy was "concerned about the Federal Security Administration's plan to provide free hospitalization to persons over 65. We oppose this plan in toto as a backdoor approach to socialized medicine, and are particularly apprehensive that the legislative definition of 'hospitalization' adopted may include radiology."

At its September 1952 meeting, the board considered a proposal to acquire its own headquarters property, at the same time rejecting a suggestion from Washington radiologists that the headquarters be moved to the nation's capital. More practically, it agreed to investigate the development of a standardized radiology accounting system and authorized the engagement of a large accounting firm to assist with the project.

The fabric of College programs grew more complex. In 1953, the College developed a code of radiologic ethics specific to issues confronting its members and supplementary to the more general AMA code of medical ethics. It established a project to produce an index for diagnostic radiology. It agreed to be the sponsor for an Inter-American Congress of Radiology in April 1955 in Washington. Eugene Pendergrass served as secretary-general, with a budget of $10,000, plus what he could get from the scientific societies. The College agreed to resume talks with the American Hospital Association on topics of common interest—like planning, accounting, personnel—and possibly those on which long-standing disagreement continued. It joined the American College of Surgeons in starting a cancer staging and end result-reporting project. Theodore P. Eberhard, then of Philadelphia, represented the ACR. The College hired an assistant for Bill Stronach, a person with special skills in public relations. Hugh N. Jones, with a background in radio news, joined the staff and took on broad responsibilities.

Joint AMA-AHA Statement, Again

In 1953, the AMA and the AHA issued a joint statement on physician-hospital relationships in an effort to reduce the differences between them that had prompted the AMA's Hess Report four years earlier. It stated: "The medical profession and the hospitals recognize that certain medical services—such as anesthesiology, pathology, radiology, and physical medicine—are integral parts of the practice of medicine and of the services necessary for hospital patients. Physicians in these fields should have the professional status of other members of the medical staff."[2]

Renewing a tactic of the InterSociety Committee, radiologists in Illinois, West Virginia, Ohio, and California obtained rulings from those states' attorneys general that corporations—including hospital corporations—could not practice medicine.

But the issue was defined in an essay in the August 1953 *Bulletin* by a chancellor, Joshua C. Dickinson of Tampa. "Most of the economic differences that have arisen between hospitals and radiologists are basically due to the fact that the relationship of the radiologist to the hospital has differed from the relationship of the other members of the staff. Radiologists have insisted that they want the same relationship as the other members of the staff, but when the chips are down, do they?"[3]

At its December 1953 meeting, the AMA House of Delegates objected to provisions in a national health insurance plan between the Blue Cross Association and the Swift meat-packing company. In particular, their protest led to deletion of a phrase offering unlimited radiology coverage "when rendered by an employee of the hospital."

Some 2,500 copies of the College's *Planning Guide for Radiologic Installations* were sold in the first three months after publication, reported its editor, Wendell G. Scott. He also noted the beginnings of cooperative public relations efforts between the ACR and Eastman Kodak and the development of a series of institutional advertisements about radiology sponsored by General Electric X-ray in *Newsweek* magazine.

Councilors Grow More Important

The role of the councilors from the state societies gradually took on more substance. Originally, councilors were given the task of telling the board about problems in their areas. The board devoted efforts to planning a role for them in the 1954 annual meeting, which was moved from the AMA summer session to February in Chicago with the chancellors and the teachers' conference.

The scientific societies agreed that the ACR should take the lead (as though it had not already done so) on international relations. Besides the InterAmerican Congress of Radiology, already set for 1955, the ACR bid to sponsor the 1957 International Congress of Radiology, which was awarded to the Germans in Munich. The ACR joined the newly formed International Society of Radiology.

The perennial issue of the hospital practice of medicine reached the courts in Iowa.[4] The Iowa Hospital Association and several individual hospitals filed a suit against the Iowa attorney general, the Iowa State Medical Society, the Iowa State Board of Medical Examiners and several physicians to uphold the right of hospitals to employ physicians. After rejecting the hospitals' argument, the Iowa court directed the parties to work out an agreement.

The *ACR Bulletin* in a supplement to the April 1957 issue reprinted the Iowa court ruling and summarized its main points. "Under the 1956 agreement approved by the Iowa courts, pathology and radiology services were deemed to be 'medical services' performed under the direction and supervision of a physician. Although hospitals could own and operate pathology and radiology equipment and facilities, the hospitals were required to appoint physicians to direct the activities of the medical services. A physician could contract with a hospital under any reasonable compensation provision, so long as the relationship did not create an employer-employee status." But even with the statement of principle, hospitals went right on collecting global fees for radiology services performed by their radiologists. The ACR was not directly involved in the suit, but it did support its Iowa members. Harry Garland testified, and Bill Stronach consulted with attorneys for the physician side.

By 1954, the headquarters moved across the Chicago Loop to the Civic Opera House, where it remained for 32 years. Yielding to progress, the board approved $3,000 to buy air conditioners for the new quarters. With a 1954 budget which topped $100,000, it also moved to establish a pension plan for all seven of its employees. The ACR now had 3,390 members.

Pushing for Insurance Coverage

The College continued to work at gaining better radiology coverage from health insurers. Sometimes, the results were dramatically good. In his 1955 report for the Commission on Hospital Standards, Harry Garland reported, "During the past year some major insurance carriers have paid some claims for radiotherapy done in lieu of surgical procedures and at fees so enumerated under certain contracts. For example, radioiodine therapy for thyrotoxicosis has been recognized in lieu of subtotal thyroidectomy and the treatment of cancer by x-ray and/or radium in lieu of surgical excision has been recognized in some cases under pressure from the insured group. Equalization of coverage comes only from pressure by insured groups and this should be promoted." The next year, more than 20 Blue Shield plans offered coverage for radiation therapy, making it "as insurable as surgery." A problem in some plans was that they covered radiation instead of surgery, but did not cover combined treatment with both modalities.

In the same report Dr. Garland warned: "The practice of medicine is rapidly becoming collectivized under the pressure of union-labor welfare funds and social planners. Whether we like it or not, more and more medical benefits are being specified as to scope and nature."

The 1955 ACR budget was $123,799, with a deficit of almost $10,000 and a gain of almost 500 new members from the previous year, to a new total of 3,839.

Warren Furey of Chicago—a chancellor, chairman of the ACR liaison committee with the AHA, and a member of the AHA-AMA liaison committee—reported that the AHA-AMA com-

mittee adopted a recommendation "that the use of x-ray equipment in institutions shall be limited to members of the department of radiology and to members of the medical staff designated as competent by the radiologist in charge of the department."

Turf Problems with Isotopes

On a turf issue, Richard H. Chamberlain of Philadelphia, chairman of the Commission on Radiologic Units, Standards and Protection, expressed concern about "the rapid and progressive increase in the use of radioactive isotopes in clinical medicine." He stated, "the Board of Chancellors believes that the use of radioactive isotopes ... is part of the practice of radiology. ... The board believes that standards of training and of proficiency at comprehensive levels are properly the province of the American Board of Radiology." Sometime later, the ABR responded. But the use of isotopes remained open to physicians in many disciplines, so long as they could qualify for licensure by the Atomic Energy Commission.

The combined ACR-Eastman Kodak public relations effort resulted in an article in the *Readers Digest* early in 1955. The ACR liked it well enough to purchase 100,000 reprints for distribution. The College decided to begin its own publication for general audiences, a quarterly called *Your Radiologist*. The College also published its first general audience pamphlet, "X-rays Protect You," which it distributed widely and encouraged members to use with patients.

In 1955, the ACR returned to Washington to comment on a legislative proposal to create a health care coverage program for federal workers paid for by the government. This time, the College concentrated on matters pertaining to radiology rather than expressing philosophical opposition. In particular, the ACR wanted radiation therapy covered on the same basis as cancer surgery and office radiology covered as well as outpatient procedures.

Physician Education About Radiology

Late in 1955, radiologists were disturbed by a report on radiation safety prepared by an expert committee at the National Academy of Sciences. Members of the CRUSP believed that much of the report was too complex for most radiologists to understand and that the understandable elements suggested that most medical users of radiation were guilty of poor practice in minimizing doses to their patients and themselves.

The chancellors authorized the development of a substantial physician education program, targeted first at radiologists and then at other medical and dental radiation users. The College got its first major outside funding for this effort in a grant from the Rockefeller Foundation for a monograph, which was prepared by CRUSP. The publication was well received, and additional printings were necessary for distribution to all physicians and dentists. With help from Eastman Kodak and the Pan American Health Organization, a Spanish-language version was prepared. Then, the Rockefeller Foundation offered another $65,000 to make a movie on the subject. Slide sets using materials from the monograph and movie were prepared.

Also in 1955, the ACR amended its bylaws to admit radiation physicists certified by the ABR as associate members.

The next year, the College noted the death of George Pfahler, a pioneer radiologist and its first president. He left the College a bequest of $5,000. Bill Stronach became the executive director, a semantic promotion from executive secretary. The College's 1956 budget was $134,500, with a $2,000 surplus. Membership reached 4,304 members and fellows, an increase of 500 from the year before. The board decided against

starting a museum to collect historic objects about radiology. A new edition of its *Guide for the Conduct of Radiologists in Relationships with Institutions* was produced by the Commission on Hospital Standards. Much of its content reflected the strong positions advocated by Harry Garland, chairman of the commission.

A resolution from the Council presented by Charles L. Hinkel of Danville, Pennsylvania, its designated spokesman, asked why the College opposed radiologists working on salaries for hospitals but condoned radiologists working on salaries for other radiologists. Most radiology groups took in young radiologists on salary for a trial period before offering partnership and some kept junior members on salary for several years before offering or declining to offer partnership. The matter was referred to Dr. Garland's commission and not returned.

Preferred Relationships to Hospitals

In its 1957 report, the Commission on Hospital Standards listed, in its order of preference, the bases for radiologists to relate to hospitals.

1. Rental of space
2. Rental of space and equipment
3. Cost per case
4. Gross costs
5. Percentage of gross charges paid to hospital by radiologist
6. Percentage of net revenues paid to hospital by radiologist
7. Percentage of gross charges paid by hospital to radiologist
8. Percentage of net revenues paid by hospital to radiologist
9. Salary

Even so, leases were limited, and most radiology groups continued in hospital contracts by which the hospital collected a global fee and shared it with the radiologists on a percentage of gross billings or net collections. With the expansion of hospitals, the addition of new technology, the increased percentage of people covered by some form of health insurance, and an increasing interest in economics by many radiologists, their incomes rose comfortably year by year, even if their contract terms were less than ideal by ACR pronouncements.

If radiologists could not or would not get out of hospital contracts, the ACR hammered away at maintaining their professional status. One element was an effort to get the hospital to identify the professional status of the radiologists on its bill. Prior to this effort, most hospitals made no attempt to make patients aware that the line on their bill which read "x-ray" covered both hospital technical costs and the compensation of a specialist physician. The College suggested adding a phrase at the bottom of the bill to assert: "The charge for x-ray services includes the professional fee of Drs. White, Black, Green and Brown."

Radiology Relative Values

During 1957, the ACR devised its first relative value schedule for radiology services in response to a request from the Department of Defense, which needed such details for its payment program for civilian physician and hospital services to military personnel and their dependents. This program came to be called Civilian Health and Medical Program for the Uniformed Services (CHAMPUS).

"It is not a fee schedule, merely a compilation of relative unit values applicable only to routine diagnostic and therapeutic procedures for the average case. The schedule is subject to individual and regional variation according to differences in procedure and pertains to conditions as of January 1958, requiring appropriate revision

at regular intervals," wrote the College in its February 1958 transmittal letter to CHAMPUS.

At that busy winter 1957 meeting, the board also granted general approval to the draft of Principles of Radiologic Ethics that had been developed by a working group led by Webster Brown of Baltimore. It contained 13 points:

1. The primary duty of the radiologist is to secure the maximum benefit for the patient.
2. A radiologist shall not do or say anything which will undermine the confidence of the patient in his attending physician.
3. The radiologist should be ready to consult with any fellow physician on any matter in which he believes that he is competent.
4. It shall not be considered unethical to give an opinion to a physician on any films, regardless of their origin or quality, if it seems in the patient's best interest.
5. The radiologist shall not negotiate for a position as radiologist in a hospital, without notifying an incumbent radiologist concerning the proffered position and his interest in it.
6. A radiologist shall not displace, or replace, another radiologist without requesting assurance, preferably in writing, from a representative body of the medical staff that such action is in accordance with its wishes.
7. The radiologist shall not divide fees either directly, or by any subterfuge, nor shall the radiologist affiliate himself with any person or organization that does so.
8. The radiologist shall not associate himself in any fashion with any institution which permits medical practice by other than a physician.
9. The radiologist shall compete for referrals only on the basis of quality of service rendered to the patient.
10. The radiologist shall not directly, or by subterfuge, allow any person, hospital, corporation, or group to solicit referrals.
11. The radiologist should set his own fees.
12. The statement rendered for radiologic medical services shall name the radiologist.
13. The radiologist shall not call attention to his specialty, except in a manner approved by his local medical society.

Anti-Poaching Rules

To the chancellors, the most critical items were numbers 5 and 6 relating to the obligation not to "poach" on incumbents. In discussion, they cited instances in which a hospital administrator recruited a new radiologist without advising an incumbent that his days were numbered. Others cited instances in which administrators dismissed radiologists despite strong support from medical staffs. Earlier, the chancellors had discussed asking their colleagues in a western city to refrain from discussing coverage of a local hospital which ousted the incumbent. If the deposed radiologist claimed that his ousting resulted from his effort to obtain a contract in keeping with ACR pronouncements and that the new radiologist would accept less favorable terms, their first impulse was to help the ousted incumbent. But they quickly learned to ask the appropriate councilor to investigate the situation before accepting the complainer's version. Several charges of unethical conduct revolved around charges that a radiologist failed to respect the rights of the incumbent. As it happened, the time needed for the College to act often defeated any potential for keeping a radiologist in a hospital if the administration had decided to get rid of him.

At the end of 1957, the College had 4,620 members, yearly expenditures of $166,743, and a surplus for the year of $17,964.

In February 1958, the Council met as part of the annual meeting and elected D. Alan Sampson of Ardmore, Pennsylvania, as its chairman. The Council recommended to the board that meeting in the chill of Chicago in February was no way to attract attendance. The Council opposed splitting

the technical and professional charges for radiology. It also urged that it grow into a deliberative body not subject to appointment by the board.

In his report from the Commission on Hospital Standards, Harry Garland observed: "Many members of the public are aware that it is not in their interest for banks to practice law; only a few are aware of the fact that it is not in their interest for hospitals to practice medicine."

Ghost Readers in the Sky

The chancellors were concerned about observations from the Commission on Legislation and Public Policy about the spread of cooperative x-ray laboratories, "offices containing x-ray and pathology facilities owned jointly by physicians." The commission reported, "These organizations normally employ a radiologist on either a salary or percentage basis. The disposition of the profit varies. It is known that it is at times shared by the physician-owners on the basis either of the number of patients referred or the dollar value of the work referred."

The cooperative laboratory problem and the question of radiologists working for other physicians both arose from a survey made by the commission. "Almost half of the answers indicated that radiologists do routinely visit the offices of nonradiologist physicians for the purposes of interpreting films made in such offices. Where this occurs, usually the radiologist's name is not on the office door, the statement does not carry his name, and the patient is not made aware of the radiologist's charge."

"The financial relationship of the radiologist to a clinic or group is often different from that of other associated physicians of the same seniority." Beyond expressing its concern, the board took no action on any of the three points.

During 1958, the AHA again invited the ACR to resume a joint discussion of issues between them, this time in a recorded session that could be shared with both groups. The ACR named three chancellors—Harry Garland, Barton Young of Philadelphia, and Theodore J. Wachowski of Chicago—to participate. The ACR also accepted a second AHA invitation to talk about planning for hospital x-ray departments.

The College created the ACR Foundation in 1958. Also in 1958, board chairman Earle E. Barth of Chicago began the "Chairman's Memo," which still appears in the ACR monthly *Bulletin*. The Commission on Public Relations noted that more than 175,000 copies of "A Practical Manual on the Medical and Dental Use of X-rays with Control of Radiation Hazards" had been distributed to US physicians and dentists. The commission also announced completion of a movie, *First a Physician*, which depicted the role of the radiologist in patient care. The Dupont Company paid for its production.

The first business of the chancellors in their winter 1959 meeting was to pare expenses to eliminate a projected $23,000 deficit. After rejecting a proposal to trim the size of the board or to stop paying travel expenses for members, they agreed to a $50 assessment on the members. However, they were told that an assessment could only be made in connection with annual dues billings, not due until the end of the year, and that an increase in dues would take a year or more to accomplish. So they decided to ask each commission to be frugal and not spend all of its budgeted funds. Having tasted the benefits of $95,000 of Rockefeller Foundation money for the radiation education project, they suggested to the public relations chairman, Wendell Scott, that he find more outside funding. He replied that his commission already was getting help from General Electric, Eastman Kodak, and Dupont for public education projects.

Council Resolutions

The Council approved five resolutions at its own sessions. One called for the ACR to sponsor a seminar in Mexico the next year, after the 1960 annual meeting in New Orleans. Another stressed the importance of radiologists getting their names on hospital billheads and urged the College to ask the AMA to help improve its liaison to the Joint Commission on Accreditation of Hospitals. A third emphasized the need for training programs to include material about ethics for residents. The fourth asked for a study of ways to expand the Council into a delegate assembly. A ratio of one councilor for each hundred members plus any fraction in a state society was suggested as the basis for representation. The fifth resolution suggested that radiologists should be willing to ask their local colleagues for help with difficult cases.

Despite the budget crunch, the chancellors authorized $3,600 for the College to begin a systematic survey of radiology in health insurance plans. A consultant was hired for the task. Dr. Scott successfully asked the board to approve ACR cooperation with a study of the causes of death of radiologists being started by statisticians at the Johns Hopkins University School of Public Health and Hygiene.

The board voted to accept the recommendation of the ACR Judiciary Committee to drop from membership three members, including a chancellor, for accepting an "unethical contract" with a California hospital. The chancellor had sought a College reaction to the proposed contract and had decided to accept it even after being advised that it contained stipulations contrary to AMA and ACR ethical statements.

At the end of the 1950s, the ACR was an organization larger, more solvent, and more proficient in handling problems than at the opening of that decade. It was the specialty's voice on practice and economic matters. Participation in College activities had reached well beyond the members of the Board of Chancellors, who still held control. The increased strength of state societies and their willingness to relate to the ACR through councilors to a delegate body began to change the internal relationships that had governed the College in earlier decades.

End Notes

1. *Hospital Survey and Construction Act*, 24 USCS 219 (13 August 1946).
2. Letter, Edwin L. Crosby to William C. Stronach, 9 August 1953 (ACR files).
3. *ACR Bulletin*, August 1953.
4. *ACR Bulletin*, December 1956.

Chapter 6

The 1960s: Expanding the Mission

The American College of Radiology and its members entered the 1960s with the specialty and the organization in generally good shape. Few, if any, radiologists anticipated the extent of the changes in radiology which would occur in the next years or the challenges those changes would bring to their College. Technical breakthroughs in radiology were matched by legislative initiatives to reshape radiology practice.

College membership had doubled over the decade of the 1950s. By 1960, image intensifiers and cobalt-60 generators were changing the pattern of practice in community hospitals. Rectilinear isotope scanners were proliferating and would be succeeded by gamma cameras used with the ubiquitous isotope technetium-99^{m} in all of its chemical forms by the end of the 1960s. Ultrasound began to offer an alternative to other imaging modalities.

ACR programs that had begun in the 1950s in education, radiation protection, public relations, and government relations would grow robust in coping with the problems of the new decade.

Despite their growth in numbers, radiologists still were in short supply. New diplomates found it easy to affiliate with established groups or to find new hospitals in which to start their own groups. Despite the rhetoric from the ACR, most of these groups practiced in hospitals under exclusive contracts, with the hospital doing the billing. A majority of those contracts called for the radiologists to receive a percentage of the amount billed or collected, with the sharpest controversy relating to what should be an acceptable percentage.

The prevailing sentiment among the chancellors and College Council members was against splitting the technical and

professional components of radiology service, even for billing purposes. The ACR pushed for its members to get their names on the hospital bill. Almost 900 radiologists responded to a 1959 letter from the ACR asking about their names on the bill. Some 278 sent copies of the hospital billing form with their names on it, and another 552 sent copies of letters to their hospital administrator or board, requesting such identification.

The attitude of hospital leaders was reflected in an article in the March 1960 issue of *Modern Hospital*, in which several administrators criticized the ACR for sowing discontent among their radiologists. A survey by the magazine, quoted in the article, indicated that in responding hospitals, 11 percent of radiologists were on salary, 59 percent worked on a percentage of gross billing, 21 percent on a percentage of net collections, 3 percent on leases, and 6 percent on charges for each examination.

The Committee on Medical Care Insurance Plans and its chairman, D. Alan Sampson of Philadelphia, continued vigorous efforts to persuade health insurers to cover outpatient and private office radiology. The *ACR Bulletin* published frequent lists of insurers who expanded their coverage programs to pay at least some amount for office radiology. A 1961 report from the Health Insurance Institute claimed office radiology coverage for 32 million patients in commercial health insurance plans.[1]

Structural Growth

Two significant changes in the College marked the early 1960s. One was the growth of the College Council, with most states and large local societies sending representatives to the ACR annual meeting. Once there, they began to consider the business of the College, developing their own protocols and gradually asserting independence from the Board of Chancellors. The second was the expansion of the commissions and committees to involve hundreds of radiologists on dozens of committees, each with projects, budgets, and end products.

A few College leaders sensed that the mood of the country would lead to federal legislation for some kind of national health insurance—or at least some kind of hospital care insurance. Either way, radiology would be at risk in maintaining the professional status of the specialty. "Under various governmental hospitalization plans ... radiology can be expected to be treated as a professional, medical service only if radiologists render a bill for these medical services," wrote Earl E. Barth of Chicago in his 1960 board chairman's report. "Other branches of medicine have avoided this albatross of ethical-economic entanglement ... by clearly separating their fees from hospital charges. Heretofore, the best opinion in our specialty seems to be that it is not feasible for us—we want to be like other doctors, we insist, but we can't—or can we?"

Contrary to his usual pronouncements of opposition on the subject, the veteran chancellor Harry Garland of San Francisco wrote in the 1960 report of the Commission on Hospital Standards, "The prognosis is that radiology in the US will be engulfed by federal hospitalization schemes if we do not take the bold and unpopular step of 'technical-professional' division of the radiological fee." Even so, it worried Dr. Garland that a division for billing purposes would destroy the control of the radiologist over hospital departments.

In September 1960, Dr. Barth's successor as chairman—Arthur J. Present of Tucson, Arizona—appointed a committee to study fee separation. One suggestion was that the radiologist submit a global bill and pay a technical charge to the hospital. Dr. Present told the board at its February 1961 meeting that as a result of the ACR push, 69 percent of radiologists now had their names on the hospital billhead.

The avoidance of direct confrontation with hospitals over contracts prompted Harry Garland to begin his 1961 report of the Commission on

Hospital Standards with this quote from Lewis Carroll's "The Hunting of the Shark."

> When the sands are all dry, he is gay as a lark,
>
> And will talk in contemptuous tones of the shark;
>
> But when the tide rises and sharks are around,
>
> His voice has a timid and tremulous sound.[2]

Much earlier, the ACR had created a Commission on Technician Affairs to take over from the RSNA the radiology involvement in dealing with the American Registry of X-ray Technologists (ARXT) and other matters relating to those members of the radiology team. By the 1960s, ACR councilors were being asked to help inspect technician training schools. The chairman of the ACR commission, A. Bradley Soule of Burlington, Vermont, had become a father figure to many in the American Society of X-ray Technologists. The American Medical Association accredited the technology schools and the College found itself supporting improved prerequisites and standards over the objections of physicians who had x-ray units but did not want to pay for qualified people to operate them.

Also, as other hospital employees affiliated with unions early in the 1960s, there was discussion of technicians (or technologists, as they soon preferred to be called) unionizing. In New York and California, there were proposals to license x-ray technologists. In New York, only about 1,600 of an estimated 15,000 persons operating x-ray machines were certified by the ARXT. The New York Roentgen Society sought the College's help in drafting a clean licensure bill, which several years later became the nation's first technology licensing program. At first, the ACR opposed technologist licensure, but gradually softened its opposition and cooperated with chapters in seeking clean bills.

In 1960, Congress had passed the first version of a public-supported health insurance program,[3] which provided a maximum of six days of hospital coverage for indigent patients and involved radiology tangentially. When Democrats John F. Kennedy and Lyndon B. Johnson were elected president and vice president in 1960, with a strong majority of their own party in Congress, they were quick to state that an early objective was health care coverage, at least for the elderly and tied through the Social Security system. Representative Cecil King of California and Senator Clinton Anderson of New Mexico introduced the first of their annual bills, which led five years later to the programs called Medicare and Medicaid. In 1962 and 1963, ACR representatives testified against the King-Anderson bills and other bits of comparable legislation. However, the American Medical Association, which opposed the federal programs, assured the ACR and other societies that they would not pass.

The continuing congressional attention stimulated ACR discussions of the jeopardy to radiology from being regarded as a hospital service. The ACR special study committee reported late in 1960 that radiologists opposed billing their own professional fees by a two-to-one majority and that only 40 of 3,057 respondents asserted that they were sending their own bills for service to hospital patients.

Public Radiation Controls

The College responded to a federal initiative to establish state radiation control programs with more appreciation for the possible role of government agencies in making their practices safer. The Atomic Energy Act of 1946 had granted the Atomic Energy Commission (AEC) the responsibility for both promoting and regulating medical and other uses of reactor-created isotopes. Under that act and successors, the AEC established training and credentialing programs which addressed the safety of isotopes used in diagnosis and treatment of humans.

In the 1959 amendments to the AEC Act, Congress inserted provisions calling for the states to work with the AEC in setting up their

own radiation control programs. These programs were to go beyond the regulation of isotopes to require registration and state inspection of all sources of ionizing radiation used in medicine. A state that agreed to enforce the AEC standards could become an "agreement state" and regulate the users of isotopes, in effect acting for the AEC. Kentucky was the first to become an agreement state, with 29 others ultimately gaining that status.

The ACR, in statements to congressional committees, supported the state radiation source-registration requirement, while expressing reservations about state inspectors coming into x-ray departments and offices. The ACR was more emphatic about its opposition to state licensure for physicians to use x-rays. The College Commission on Public Health helped to develop model state legislative and regulatory language. College committees admitted that many physicians used x-rays unsafely, but they inherently resisted the notion of government inspections and controls.

In 1962, the College addressed what chancellors and councilors felt was a need to provide information about practice opportunities to radiology residents. Newton Hornick of Pittsburgh organized a one-day session with talks by local radiologists on various types of practices and with advice from an attorney on how to cope with the intricacies of contracts. Shortly afterward, David Carroll of Memphis arranged a College-sponsored program at the University of Tennessee. The cooperation of the ACR and local societies created a pattern that continued through the remainder of the century.

The Council—Soon to Be a Delegate Body

A maturing Council had created its pattern of meeting annually, under the leadership of George Cooper, Jr., of Charlottesville, Virginia. He began to talk of the Council becoming a delegate assembly with policy-making powers, rather than maintaining its earlier advisory relationship to the Board of Chancellors. The Council created a committee to study how to charter the state and local societies as chapters of the ACR.

While radiologists and hospital administrators disagreed with each other, the College and the American Hospital Association continued to work on a revision of the 1948 *Manual of Radiology Department Administration*. In November 1961, working groups from the two organizations drafted an eight-point statement of principles of relationships between hospitals and radiologists:

1. It is the joint obligation of radiologists and hospitals to assure the public of the professional competence of those appointed to practice radiology in the institution.
2. Radiology is the practice of medicine and requires the institutional availability of trained, qualified radiologists.
3. The radiology service provides diagnostic and therapeutic services to patients and also has duties to the hospital for teaching and medical committee participation.
4. Radiologists should be selected on the same basis as other hospital medical staff members, that is, on their qualifications and competence.
5. There should be enough radiologists appointed to carry the patient load. A reasonable workload for a diagnostic radiologist is 25 to 30 patients a day.
6. Fees charged for radiology service should cover the professional income to the radiologists, the technical charges incurred by the hospital, plus a margin for overhead. Fees may be set by the radiologists with approval by the hospital. They may be collected by either. The method of billing should identify the radiologists.
7. The income of the radiologists may be based upon a lease, percentage of gross billings,

cost per case or salary. All arrangements will be regarded as ethical.

8. The agreement between the radiologists and the hospital can be formal or as simple as a handshake.

The compromises embodied in these statements offended the hard-line proponents in both groups and resulted in no action by the board of either. Even so, the committee document nicely defined the relationships of most radiologists to their hospitals and approved of a variety of arrangements between them which reflected actual patterns. When the AHA delayed its approval of the text of the *Manual*, the ACR Board of Chancellors voted to publish it unilaterally if necessary.

In June 1964, the AMA House of Delegates formally reaffirmed its policy decisions of 1951 and 1952, known as the Hess Report, disapproving of hospital resale of physician services.[4] In the same month, the AHA Council on Professional Practice asserted that "hospitals and the community have an obligation to control the incomes of hospital-based physicians."[5]

Action Shifts to Congress

With the decisions shifting to the halls of Congress, the issues remained much as they had been in 1935, when the InterSociety Committee first was conceived to ward off hospital domination.

However, one of the leaders of that earlier fight dropped by his own hand from the new struggle. Harry Garland—past chancellor, president, gold medalist and defender of radiology—resigned from the College. In his role as elder statesman, Dr. Garland had proffered charges of unethical conduct against a California radiologist whose hospital contract was unethical in Dr. Garland's opinion. After investigation, the Judiciary Council and the Board of Chancellors declined to vote the censure. With his departure, the last of the powers from the 1930s vanished from the ACR structure.

In other areas of activity, the ACR continued to expand its services to its members and to medicine in general. A 1963 kit of materials on radiation emergencies prepared by the Committee on Radiologic Aspects of Disaster Planning won a prize for public service from the American Society of Association Executives. Efforts to generate a history of radiology—started by Earle Barth in 1958—got moving in 1963, when the Mallinckrodt Company offered to support the editorial production. A committee headed by John Gilmore of Chicago decided to hire leading science writers Ruth and Edward Brecher to do the task rather than relying upon the memories and good intentions of radiologists. *The Rays: A History of Radiology in North America* took six years to complete because of the death of one of the authors, Ruth Brecher.[6]

The ACR began a variety of efforts intended to attract medical students and young physicians into radiology. These included special radiology issues of magazines for students, materials for radiologists to use in teaching medical students, and a series of movies in which cinefluorography was used to teach normal anatomy. The effort was organized by Armand Brodeur of St. Louis and included more than 20 titles before it was concluded. Funding for the productions came from the scientific radiology societies and from a cross-section of leading x-ray suppliers. Some of the same companies also contributed to expanded public relations programs. In the 1950s, Eastman Kodak and General Electric had funded cooperative programs, and now several of their competitors developed materials. Notable among those efforts was production of a major film, *The Light in Shadows*, which was supported by Dupont and distributed widely for several years.

The Commission on Standards in Radiologic Practice hired an accounting firm to develop a standardized x-ray department accounting system. That effort failed after two years, when only a few practices were willing to participate. Still

another working group was created to consider ACR sponsorship of a series of tumor fascicles for radiology, paralleling the series of pathology fascicles prepared by the Armed Forces Institute of Pathology. At first, the cost estimate of $600,000 seemed to scuttle the project. However, the committee arranged to work with a commercial publisher, Yearbook, instead of the AFIP, with sales projected to offset some of the costs. Again, support was obtained from the ARRS, the RSNA, the American Cancer Society and, most significant, Eastman Kodak. Philip J. Hodes of Philadelphia was made editor-in-chief. Over a decade, the effort produced the *Atlas of Tumor Radiology*, 12 volumes, each dealing with x-ray manifestations of tumors of one organ system. These books were a standard reference until other imaging modalities began to displace film diagnosis.

Formal Recognition of Chapters

In 1963, the Board of Chancellors formally approved of charters for state chapters and formally approved of the Council as the delegate assembly of the College. The chapters were required to adopt model bylaws and to coalesce existing local societies into one state group. Most states already had one statewide society. But in California, New York, Pennsylvania, and Missouri, the societies based in major cities had to work out a formula for combining their interests and including radiologists in smaller communities before a chapter could be formed and begin to function. Many of the existing chapters had members who were not diplomates of the American Board of Radiology. A College bylaws amendment was created to grandfather those chapter members into the ACR. The first chapters to be chartered included Florida, Michigan, Texas, Maine, Kentucky, Washington, and Indiana.

By 1964, the Council had a full agenda at its annual meeting, reviewing the reports of the commissions and committees and considering resolutions proposed by chapters. The Council then designated four reference committees to screen the reports and resolutions and to provide any member of the College with an opportunity to comment on any topic on the agenda. Reference committee chairmen then attended the meeting of the chancellors to report on Council actions on items on the board agenda. The Council gained the right to elect a chancellor each year.

In 1963, the City of Chicago offered the College and other nonprofit medical groups an opportunity to obtain building sites at a nominal cost in an urban redevelopment area near the West Side Medical Center, which included the Cook County Hospital, the University of Illinois and Loyola University Medical Schools, and St. Luke-Presbyterian Hospital. The College treasurer, Fay H. Squire, who was the chief of radiology at St. Luke-Presbyterian, suggested that the ACR build a building and share it with the other national radiology societies. The structure also would contain a proposed radiology museum.

Like many urban hospital centers, the neighborhoods around the West Side complex had become a dangerous area. A building committee was appointed. However, Executive Director Bill Stronach dug in his heels against the move from Chicago's Loop area. A more substantive problem was that the College lacked the funds to build, even on donated land. Discussions of assessments and a poll of the board and Council failed to generate solid support. Three years later, Dr. Squire conceded and the College took additional space in the Civic Opera House to hold its expanded staff and the radiology museum. Two decades were to pass before the ACR acquired its own property, in a Washington, DC, suburb.

The Gas Tube Gang

The museum effort and the history-writing project both stemmed from the efforts of the Gas Tube Gang. This was a dwindling group of very senior radiologists dating from the early decades who met annually at the RSNA convention for fellowship. But by the 1960s, some of them became concerned the legacy of radiology—their legacy—would be lost with their deaths. So they got serious. Quickly, three leaders emerged: Ben Orndoff of Chicago, Edwin C. Ernst of St. Louis, and Walter Wasson of Denver. Drs. Orndoff and Ernst had been founding members of ACR. Age had not dulled their organizational skills. The Gas Tube Gang became the American Institute of Radiology. Robert Morrison of Rochester, New York, a retired Eastman Kodak executive, volunteered to become the curator of the radiology museum. A library began to grow along with the museum in the expanded College office. Preserving the history of radiology became a primary ACR responsibility.

Despite the continuing concentration on hospital relations by the Board of Chancellors, the activities of College commissions grew. The ACR began a practice accreditation program that involved detailed site visits by College-designated inspectors to investigate the effectiveness of a radiology group in a hospital. In some instances, an accreditation inspection was invoked by the radiologists to demonstrate their proficiency against local criticisms. Sometimes an inspection was requested by a medical staff or hospital board. The very first inspection, in 1964, was of the practice of a former chancellor. The inspectors found significant shortcomings and said so in their report. As a consequence, the radiologist was displaced from part of his practice. The program's integrity was established from the beginning.

ACR Gets into Mammography

Early in 1964 the ACR conducted a standardization conference on mammography and then established a committee to deal with that expanding modality. The Commission on Radiologic Units, Standards and Protection developed a study of the effects of radiation exposures on pregnant women, working with public health and scientific bodies. The Food and Drug Administration (FDA) turned to the College for advice on whether or not to allow the addition of tannic acid to barium enema preparations and whether or not to allow limited use of Thorotrast, an inherently radioactive contrast material for imaging the liver. The question was whether its use in patients with known malignancies was justified. The FDA ultimately banned the product.

The Committee on Medical Care Insurance Plans developed a professional component relative value schedule to accompany the global schedule developed by the College almost a decade earlier. The schedule was welcomed by most Blue Shield plans and commercial health insurers, as well as by federal coverage plans. The Public Health Service awarded the College $10,000 to develop a computer glossary of radiology terms, along with similar glossaries from other disciplines. "It was noted that a suitable glossary is necessary for cross-referencing of data between computers. The consensus was that computers will become of ever-increasing importance throughout medical practice," the chancellors predicted in 1965.

The role of radiation in treating cancers was recognized by creation of a separate Commission on Cancer, headed by Justin J. Stein of Los Angeles. Dr. Stein broadened the ACR participation in activities of the American Cancer Society (ACS) and encouraged the involvement of some of his therapeutic colleagues in relationships with the National Cancer Institute.

With help from the AMA Washington lobbying staff, ACR witnesses began testifying before congressional committees on legislation affecting radiology and radiation uses. When the College retained its own lobbyist early in 1965 to participate in the Medicare debate of that year, it also charged him with covering other congressional actions of concern, particularly relating to radiation safety and to support for radiology research and education.

The story of the College role in the enactment of Medicare in 1965 and its subsequent efforts to bring radiologists out of their hospital combined billing practices is related in chapter 7.

By the 1967 annual meeting, Ben Felson of Cincinnati, chairman of the Commission on Education, reported that the commission had 12 committees, all vigorously at work: the Committee on the Atlas of Tumor Radiology; a new Committee on Computer Applications; a Committee on Education in Diagnosis; a Committee on Education in Radiotherapy; a Committee on the Index for Roentgen Diagnosis; a new Committee on Mammography; a Committee on Nuclear Medicine; a new Committee on the Organization and Support of Teaching Departments; a Committee on Public Education (soon to become Audiovisual Productions); a Committee on Radiobiology; a committee offering College input to the InterSociety Committee for the American Registry of Radiologic Pathology; and the ACR representatives to the American Board of Radiology. Several of the activities were supported by sizeable outside funding from the national scientific societies, from industry and from Public Health Service agencies. Pushed by this outside funding, the College budget for 1968 was projected at $618,825, with an anticipated deficit of $6,425.

More Troubles with Isotopes

The role of isotopic medicine for diagnostic purposes became a matter of ACR concern because of the desire of some physicians to see nuclear medicine become a separate medical specialty, severing its ties to radiology and pathology. Beginning in the late 1940s, the availability of medically applicable by-product isotopes from the Atomic Energy Commission had attracted bright people from several disciplines. Some of the earliest tests replaced body chemical studies, which were performed by pathologists. Organ scanning seemed to offer added dimensions to x-ray studies.

The AEC and its agreement states required special licenses for isotope uses in medicine and established qualifications for preceptorships by which physicians might obtain licensure. The ACR encouraged the ABR to begin examining candidates in nuclear imaging. The American Board of Pathology (ABP) considered adding nuclear laboratory testing to its examination. The separatists went to the AMA to seek recognition as a separate discipline. The ACR established a committee that became the Commission on Nuclear Medicine.

The organizational result was that the AMA recognized a separate section for nuclear medicine. An American Board of Nuclear Medicine was created with the joint sponsorship of the existing boards of radiology, pathology, and internal medicine. The ABR continued to examine candidates in nuclear imaging and the ABP examined its candidates in isotopic laboratory testing. A majority of physicians holding AEC licensure were trained in radiology and certified by the ABR. The growth of three national nuclear medicine societies made an organizational home for those who plugged for a separate specialty.

Regulating X-Ray Equipment

Sometime in the mid-1960s, a leading television set manufacturer brought out a new color unit that unintentionally projected a beam of x-rays out of the bottom of the set. Pets sleeping in the warmth under the set lost hair. The resulting furor reached the 90th Congress, which resolved to protect the public against x-rays emanating from consumer products. In the course of public hearings, the issue was broadened from consumer products to include products which made x-rays on purpose—for use in medicine and in industry. Consumer advocates made sweeping accusations and the ACR responded to some of them.

The legislative result in 1968 was Public Law 90-602, which charged the Public Health Service with establishing performance standards for all x-ray generating devices, whatever the purpose of the device. The College's role in the legislation and in the regulatory climate to follow was more sophisticated than it might have been a decade earlier, when opposition to the thought of any public regulation still dominated most ACR positions. In this instance, the ACR managed to position itself as a body of experts on radiation use, experts who had much to contribute to public policy on that subject.

It was easy to condemn the marketing of any electronic consumer product which created totally unwanted radiation. With that posture established, the ACR could make suggestions about the language applying to medical x-ray machines which its expert committees thought would be helpful or minimally harmful. Thus, the bill required performance standards, leaving technical design specifications entirely to manufacturers. It gave the responsibility of implementing the law to the PHS Bureau of Radiological Health rather than to an agency unfamiliar with health issues. It also created the Technical Electronic Product Safety Standards Committee to advise the regulators. That group was structured so that radiologists, physicists, and manufacturers were guaranteed representation, along with state and federal regulators. In effect, College members and staff became close advisors to the PHS agency.

The Bureau of Radiological Health devoted its first efforts to setting standards for television sets and other consumer products. When it turned to medical x-ray units, the ACR had full access to its deliberations, and the resulting regulations generally won the approval of radiologists.

Who's in Charge? The Council!

The 1968 annual meeting in Chicago brought a dramatic change in the dynamics of the organization. The Council considered the reports of the commissions and committees, plus 24 resolutions from state chapters. Almost all of the states had chartered chapters and many councilors began to talk about the Council as being the representative body of the College, with the Board of Chancellors surrendering its policy-setting role. After a discussion in the board session, a senior chancellor, Stanley Wyman of Boston, was sent to explain to the Council that their ideas for change were not entirely welcome. Neal Yeomans, a councilor from Waycross, Georgia, responded. He acknowledged that all College members were indebted to members of the Board of Chancellors for their efforts. "But, doctor, we are the College!" he asserted. And so they were.

With vigorous programs going forward to help radiologists change their hospital practice status and the equally vigorous activities of most ACR commissions, the Council decided to have a midyear session with the chancellors during the convention of the American Roentgen Ray Society in New Orleans. Its most memorable action was passage of a resolution calling for bylaws amendments to transfer the policy-setting function of the ACR from the board to the Council.

The board concurred and directed that bylaws changes be drawn up for 1969 ratification.

At that same session of the Board of Chancellors, Richard Chamberlain of Philadelphia, vice president that year, proposed that the College open a Washington office to supplement the work of its consultant lobbyist. His argument was that the events of the previous four years had indicated that it was as important for the ACR to be able to work with the Public Health Service, the Social Security Administration, and other agencies that wrote regulations and enforced programs as it was to work with Congress. He proposed that Otha W. Linton, then the ACR director of public relations, be sent to Washington to open the new office.

On to Washington

The motion was deferred until the 1969 annual meeting. Then the board approved it and the Council endorsed the idea for a two-year trial period. The office opened in August 1969 with Linton and Bill Melton starting it. Within six months, the new office had attracted enough federal project funding to cover its costs, and there was never a question of closing it after the two-year trial.

In 1967, and again in 1969, the ACR responded to requests from the AMA to assist in the AMA's efforts to curb the growth of chiropractic by adopting statements supporting the AMA position. Since the AMA regarded chiropractic as a cult, it regarded as unethical any physician, including consultant radiologists, associating professionally with a chiropractor. Chiropractors were licensed to use x-rays. But many of them sought x-ray consultations, and the ACR position—consistent with that of the AMA—was that radiologists should not make such consultations. The College's 1969 resolution said "that the members of the ACR advise the people of the United States that they regard the use of radiation by chiropractors as unwarranted and without likelihood of significant medical gain." Nearly a decade later, that statement was enough to embroil the ACR in an expensive, and ultimately losing, defense of a massive lawsuit.

Since the College reorganized itself in the late 1930s to add a membership category to the original fellows, there had always been a distinction in dues between the two groups. The supporting argument had been that fellows were presumed to be more senior, established radiologists and thus able to pay higher dues. In 1966, the College eliminated the differential, setting dues for all radiologist members at $75. The ACR retained its historic requirement that ACR membership was open only to radiologists who were members of their county and state medical societies and the AMA, in addition to the limitation to diplomates of the ABR. When it added the requirement that to be a member of ACR a radiologist also had to belong to his state radiological society, the new requirement reflected the federal structure of the College. However, it worried the College's lawyer, Paul G. Gebhard, who suggested that the ACR eliminate its requirement for AMA membership. His suggestion was carried out in a further bylaws change, leaving only state radiology society membership as a requirement for ACR membership.

In 1970 the ACR was very different from what it had been a decade earlier. It had changed the practice of radiology and broken through the 40-year struggle with hospitals. It had created a series of commissions and committees that undertook substantive projects. It had expanded its financial base from dues to the sale of goods and services and the acceptance of federal grants and contracts. It had learned to relate to the federal government successfully, first by lobbying Congress and then by setting up its own staff to relate to the federal bureaucracy. Its membership and budget were bigger than ever. Radiology was thriving.

End Notes

1. Health Insurance Institute, press release; quoted in EE Barth, "Chairman's Report," *ACR Annual Report*, 1966.
2. CL Dodgson, "The Hunting of the Snark" (1876) quoted in The Concise Cambridge History of English Literature. (New York: MacMillan, 1944) p. 794.
3. Public Law 86-778, 1960.
4. *ACR Bulletin*, July 1964.
5. Ibid.
6. E & R Brecher. *The Rays: A History of Radiology in North America.* (Baltimore: Williams & Wilkins, 1969).

Chapter 7

ACR and Enactment of Medicare

The passage of legislation creating the Medicare program in 1965 changed the nation's expectations of health care in dramatic and ultimately costly ways. It also changed the compensation patterns of radiologists more than any other event in the history of the specialty, providing the leverage to wrest radiologists out of hospital compensation contracts and putting them on the same basis as their medical colleagues.

Enactment of Medicare was an easy winner in a liberal Congress primed to give the nation a large package of social reforms. The details of how radiology, anesthesiology, and pathology—all hospital-based specialties—would be covered turned into the most contentious element of the new program. Ultimately, the favorable resolution for radiology turned on a single vote in a congressional conference committee. Radiology was decreed to be a medical specialty and not a hospital service. And that made all the difference.

The role of the ACR in the political process—involving hundreds of radiologists, a new lobbyist, and the gritty determination of College leaders against the American Hospital Association and politicians, including President Lyndon B. Johnson—propelled the organization onto a new plane of effectiveness, prestige within medicine, and loyalty from thousands of members. It seemed clear that the College's effort had rescued the specialty from legislatively mandated segregation from the rest of medicine.

The Medicare program was a capstone of the Kennedy-Johnson Great Society effort and was 30 years in the making. One of the unrealized concepts in Franklin D. Roosevelt's New Deal was some form of government-sponsored health care. When the National Cancer Institute was

created in the 1930s, early proposals called for it to include government-subsidized hospitals and other facilities for treating cancer patients. From the beginnings of Blue Cross and Blue Shield plans in the 1930s, bills for federal health care payment programs began to appear in Congress. The most persistent of these was a series of measures sponsored annually in the 1940s by Senators James E. Murray of Montana and Robert F. Wagner of New York and by Representative John Dingell of Michigan. In 1950, President Harry S Truman included an appeal for a federally sponsored health care payment plan in his State of the Union message.

ACR leaders rallied behind the American Medical Association's strong opposition to any government proposal. Lowell S. Goin, the Los Angeles radiologist who sparked the InterSociety Committee in the 1930s, testified for the AMA on several occasions in the 1950s to argue that a government program was unneeded, undoubtedly inefficient, and would be harmful to the quality of patient care.[1] He usually managed to make the point that radiologists were physicians and not hospital employees, despite all appearances to the contrary.

In the final year of the Republican administration of President Dwight D. Eisenhower, the Democrat-controlled Congress passed the first piece of public-funded health care legislation.[2] Named for its principal sponsors, Senator Robert Kerr of Oklahoma and Representative Wilbur Mills of Arkansas, the bill provided federal funds to subsidize state plans to pay for hospital care. The details were left to the states, and the money was directed to pay for care to the poor. In some states, the most inclusive benefit was six days of hospital care. To the extent that physician services were covered at all, they were limited to care of hospitalized patients. Some states never implemented the program.

The Great Society Arrives

The 1960 presidential election brought into the White House Democrats John F. Kennedy of Massachusetts as president and Lyndon B. Johnson, the Senate majority leader from Texas, as vice president. The Democrats carried Congress by a strong margin, so the new president's promises to move on his Great Society program of social reforms gained strength.

In 1961, Representative Cecil King of California and Senator Clinton Anderson of New Mexico introduced their first bill calling for the creation of a federal program to pay for hospital care for the elderly. The new program would be an expansion of the Social Security program, administered by the same agency, and funded and controlled entirely by the federal government. Ominous to radiologists were provisions in each draft that regarded all of radiology as a hospital service.

President Kennedy had difficulties moving his reform legislation. On 21 November 1963, the day before Kennedy's death, the president of the ACR, David S. Carroll of Memphis, testified before the House Ways and Means Committee on the King-Anderson bill:

> Enactment of HR 3920 would, in our opinion, do irreparable damage to the medical specialty of radiology. The services rendered by radiologists in hospitals—to both inpatients and outpatients—are specifically included in the bill. The services of other physicians are specifically excluded. In the bill only a "hospital" can be designated as a "provider of services"; in this instance, a physician radiologist's service.[3]

He continued by summing up the status of radiologists in hospitals as developed in an ACR survey.

> The trend in radiologist-hospital arrangements has been away from salaried employment. In 1939, some 37 percent were salaried; in 1947, it was 32 percent; in 1960, it was down to 11 per-

cent. Twice as many radiologists now present bills to patients than was true five years ago.... Sixty percent of radiologists are in full- or part-time office practice. Some 25 to 30 percent of patients referred to private office radiologists are over 65. Many of these offices will close if those patients can obtain free care in a hospital.

Let My People Go

A few months later, in speeches to the 1964 ACR annual meeting, President Theodore J. Wachowski of Wheaton, Illinois, and incoming board chairman Wallace D. Buchanan of South Bend, Indiana, both emphasized the need for radiologists to change their relationships with hospitals. "We could be free of the business arrangements with the hospital and avoid entanglement by King-Anderson type legislation by means of the separation of the technical and professional portions of the fee to the patient," stressed Dr. Wachowski.

"As long as our relationship with patients and with the hospital is different from that of other physicians, we will continue to have trouble," warned Dr. Buchanan. "We must take steps toward extracting the professional fee from the total radiologic charge. The professional fee should be determined, charged, and collected by the radiologist and the hospital charge by the hospital.... The advantages of such a division are obvious. It is ethical, it places radiology in the same position as most of medicine and it divorces us financially from the hospital, thus permitting peace in the medical family."

Wallace Buchanan exerted a strong effect on ACR efforts to change the traditional concepts of radiology practice and also to undertake the vital legislative effort that changed the shape of the pending legislation. He began his career as a family doctor in a small Indiana town. During World War II, he was an acting military radiologist, and he earned his specialty credentials in a residency at Northwestern University's Wesley Memorial Hospital in Chicago. He gravitated to College committees on economics and hospital relations before joining the Board of Chancellors and rising to the chairmanship in the pivotal year of the Medicare struggles. He was president of the College and a gold medalist. He was one of the founders of the Radiology Business Managers Association. In his later years, he moved his practice from South Bend, Indiana, to Pompano Beach, Florida.

When Lyndon Johnson became president at John Kennedy's death in November 1963, he began to push Congress to enact the elements of the Great Society program, including a federal health insurance program for the elderly. When he was reelected for a term of his own in 1964, he emphasized his intent to get a health bill promptly. The King-Anderson bill was reintroduced on the opening day of Congress in January 1965. The influential chairman of the House Ways and Means Committee, Wilbur Mills, announced his willingness to put together a hospital care plan for the elderly. Again, in the King-Anderson bill, radiology was to be covered only as part of hospital care.

Inquiries to the AMA about what help could be expected in extricating radiology—along with pathology, anesthesiology, and physical medicine—from "hospital care" were discouraging. The AMA position was to oppose any federal health legislation. It could not negotiate the details of legislation it was committed to defeat.

In mid-January, Chairman Buchanan convened a session of the Executive Committee in Washington to consider the plight of radiology. They talked with AMA Washington representatives. James P. Steele of Yankton, South Dakota, chairman of the Council, brought in his senior senator, the stalwart conservative Karl Mundt. Sen. Mundt's candor was as chilling as the outside temperature. A hospital care bill for the elderly would pass in 1965, he told them, despite the opposition of the AMA and his own opposition

to it. It would be futile for the ACR to oppose the bill. The ACR's only chance to rescue radiology was to retain a proficient lobbyist and attempt to get the bill amended to exclude radiology and the other hospital-based physician groups from proposed hospital coverage.

The AMA representatives offered the names of several lobbyists whom they thought would be available and willing to take on the cause of radiology. A fortnight later, Dr. Buchanan and Bill Stronach returned to Washington to interview candidates.

When the Board of Chancellors convened in February at the 1965 annual meeting, Dr. Buchanan proposed that the College embrace the principle of separating the radiologist's professional fee from hospital charges and that it hire a lobbyist to attempt to persuade Congress to drop radiology from the pending legislation. The board (and later the Council) voted strongly to support both positions. A few days later, the ACR retained as its lobbyist JT Rutherford, a former Democratic Texas congressman and protegé of President Johnson.

The Powers That Be

There were several key players in the move for the hospital care bill, soon to be dubbed Medicare. One was President Johnson, who had said with all the force of his personality that there would be a Medicare bill in 1965. His surrogate was Wilbur Cohen, the undersecretary of the Department of Health, Education and Welfare (HEW) and the acknowledged draftsman of the King-Anderson bill. A third was Senator Paul Douglas of Illinois, chairman of the Senate Finance Committee. Ahead of the others was Wilbur Mills of Arkansas.

Arkansas radiologists, notably Joe Scruggs and Joe Calhoun of Little Rock, had already contacted Rep. Mills and had started a letter-writing effort.

College leaders and staff, primarily Bill Stronach and Otha Linton, got a crash course in how to influence Congress. The target group was the 25 members of the House Ways and Means Committee. As a proposed amendment to the Social Security Act, this program of government spending was technically regarded as a tax and thus, under the Constitution, had to start in that committee of the House. Its chairman, Wilbur Mills, was one of the most powerful members of Congress. After Rep. Mills had crafted language and gained consensus, draft legislation from the Ways and Means Committee was usually endorsed unanimously by committee members and brought to the House for a vote on a closed basis, meaning that it could not be amended and had to be voted for or against as proposed.

The ACR position was adopted by the board in February 1965. In brief, it was to get an amendment to the pending bill to exclude professional radiology services in hospitals from coverage. If not all radiology services could be excluded, then exclude outpatient radiology. If diagnosis could not be excluded, then exclude radiation therapy. In the same session, the College formally adopted a position encouraging its members to seek new contracts with hospitals to allow them to bill separately for their professional services. If that point was adopted by Congress, it would be possible for hospitals to be covered for their technical costs while leaving radiologists and their fees out of the program.

This was a difficult position to assert, in that very few radiologists were doing their own billing. Further, the exhortations of President Johnson and the mood of Congress were to make the benefits as broad as possible. Also, few members of Congress had any sense of the dynamics of physician-hospital relations. To the extent that they knew what a radiologist did in health care, there was no indication that radiologists were an exploited group.

Even so, with coaching from their new lobbyist, radiologists began refining their story and reaching the members of the Ways and

Means Committee with letters, telegrams, home visits, and occasional trips to Washington. Most radiologists accepted the ACR's assertions that the effort was crucial to their future as a medical specialty.

As the larger issues were joined, the AMA responded to criticism that it was negative by proposing a new dimension, Eldercare, which would pay some doctor bills. That version would have given physicians broad latitude to continue practicing as before, with the government program repaying patients for certain services. Rep. Mills promptly coopted the idea and added it as a separate program of physician service coverage to parallel the original hospital cost coverage provisions. The hospital program was styled as Part A and the added physician section, Part B.

The change greatly eased the difficulties for radiology. Instead of arguing that beneficiaries should be given no coverage for radiology, the argument shifted to placement. Congress was urged to define radiology as a physician service and cover it on the same basis as other physician services. In the same weeks, spokesmen for the American Hospital Association assured Congress that only a few radiologists wanted to be rescued from their exclusive hospital contracts. Johnson administration spokesmen also favored pulling physician services into the hospital financial package and some wanted to start with the four hospital-based specialties (radiology, anesthesiology, pathology, and physical medicine) as a model for capturing other disciplines.[4]

A second major change from the original King-Anderson language came when Rep. Mills turned to the 1960 Kerr-Mills bill, which had provided limited coverage for hospital care of indigents, and created a separate health care program, which came to be called Medicaid. This established a federal-state program for coverage of services to the medically indigent, a group who could be poor but not totally impoverished. The Medicaid coverage was to apply to both hospitals and physician care.

The Ways and Means Committee working draft of the bill in March reflected radiology as medical service. This prompted heightened hospital opposition and stirred the ACR to exhort its members to keep up support for the congressional committee version when it was reported to the whole House of Representatives. If the bill could be presented with the usual closed rule, it would not be subject to amendments. If the hospitals could insist on an open rule, they would have an opportunity to offer amendments, as would any other special interest group on any other part of the bill. Rep. Mills won his closed rule and the House passed a Medicare bill with radiology included as medical service.

The action then moved to the Senate, where Sen. Douglas amended the bill to put the hospital-based specialists under hospital coverage. HEW Secretary Anthony Celebrezze urged support of Sen. Douglas' position. "The House was mistaken," he wrote. "Our intent was to cover those physician services paid by or through the hospital and to pay as physicians only where the billing traditionally has been separate."[5]

The AMA, in a February special session of its House of Delegates, had voted to support the exclusion of all physician disciplines from Medicare coverage as hospital services. Following ACR action in February, the College of American Pathologists voted to support separate billing for technical and professional components of pathology services. The American Society of Anesthesiologists devoted strong efforts to demonstrating that only relatively few anesthesiologists had ever allowed the hospitals to combine and collect their fees.

In May, Jackson Livesay of Flint, Michigan, who had become chairman of the ACR Board of Chancellors in February, wrote in his monthly "Memo to the Membership," that "Within a matter of weeks now we will have gained federal recognition that the specialty of radiology is an inseparable part of medicine—or we will have seen the establishment of a federal precedent that it is hospital service."

The struggle was tighter than College leaders knew. Writing two decades later in the 20th anniversary issue of *Health Care Financing Review,* Wilbur Cohen described the problem from his viewpoint: "My view and that of my colleagues had been that these three specialties were traditionally hospital-based physicians who should be reimbursed under Part A as part of the hospital reimbursement and not in Part B as independent entrepreneurs."[6]

He described an early meeting with Rep. Mills in his office. "When I entered the office, I found Mills with a radiologist from Little Rock, Arkansas, who was quietly telling Mills he was not an employee of the hospital and did not want to be." At President Johnson's direction, Cohen attempted to get Rep. Mills' position changed before the bill was sent to the House floor. "Mr. Mills was absolutely opposed to changing his decision. He would not even meet with us about it."

In March, the Tennessee Medical Association (TMA) passed a resolution declaring that its members should end percentage contracts with hospitals or else face charges of unethical conduct. "The percentage contracts are unethical in that, in the view of the TMA, they represent a splitting of fees and they are illegal in that they permit the resale of physician services by a corporation for its profit in violation of state regulations against corporate practice."[7]

In May, Senator Douglas allowed an amendment in the Senate Finance Committee to allow payments by Medicare either to hospitals or to the hospital-based physician, according to the agreement between them. "The bill will thus preserve complete governmental neutrality as between salaried and percentage compensation of these hospital specialists. It will cover equally all of the forms of practice typical of most of the specialties. It will exclude, however, the majority of anesthesiologists and the occasional pathologist, radiologist, and physiatrist who prefer to work as independent practitioners and to render their own bills directly to their patients, and will remit the services in such cases to coverage under the supplementary health insurance bill," wrote Alanson W. Wilcox, then HEW general counsel, to his former employers at the American Hospital Association.[8]

Not so, responded Robert B. Throckmorton, the AMA general counsel, who argued that the Douglas amendment "would enable hospitals by federal law to bring almost insurmountable pressures to bear upon physicians to provide their services as a hospital service and to have the hospital bill the patient for the medical services thus provided."[9]

The Senate passed its version with 513 significant differences from the House version. Different versions from the two chambers are common, and congressional rules provide a mechanism for their resolution in a conference in which negotiators for each chamber attempt to reach agreement. Equal numbers of senators and representatives serve on the conference committee. So on any point, at least one member of a conference team must side with the other team.

The House conferees were led by Rep. Mills and the Senate group by Sen. Douglas. To attain the House version on radiology, it was necessary for one Senate conferee to be persuaded to vote against the Senate version. At the same time, it was necessary for Rep. Mills to hold all of his conferees on that point. With President Johnson, HEW Secretary Celebrezze, Undersecretary Wilbur Cohen, the American Hospital Association, the American Federation of Labor, and others all urging support for the Senate version, the task for radiology was daunting.

But the College found its man. A Shreveport, Louisiana, radiologist, Wynton Carroll, was treating the mother of his senator, Russell Long, for cancer. Dr. Carroll knew the senator well enough to get his attention and to persuade him that radiologists should be treated the same as other physicians in the new Medicare proposal.

Radiology Is Medicine

"Radiologists were granted the right to have their services to patients classified by the government as medical practice for beneficiaries of the new Medicare program in the final bill signed into law July 31 by President Johnson," read the opening sentence of the lead article in the August 1965 ACR *Bulletin*.

A few weeks later, College leaders visited Rep. Mills to thank him for his support. He cautioned them that a much bigger job was still ahead in changing the practice of radiology to match the provisions in the new law. If radiologists did not mean it when they said that the wanted to be independent of hospitals, amendments could put them back into the hospital section. He further reminded his visitors that the administrative team that would put Medicare into effect would be led by Wilbur Cohen and by Robert Ball, the Social Security administrator, who was also outspoken in opposing the radiology viewpoint. Soberly, ACR President Wallace D. Buchanan and Board Chairman Jackson Livesay promised that the College would live up to his hopes and his faith.

When the chancellors convened early in October 1965 for their midyear meeting in Washington, they reflected the urgency that Wilbur Mills had stated. Separate billing and independent practice in hospitals became College policy. An extensive program to help radiologists make the necessary changes was approved. JT Rutherford was kept on retainer to guard the legislative victory.

The Chancellors invited Wilbur Cohen to lunch with them. He accepted and brought along the team which would implement the Medicare program. Cohen noted that the ACR was the first medical group to stop denouncing him and ask for a meeting. ACR President Buchanan acknowledged that the College was aware that Cohen had opposed the radiology position. Cohen admitted that the administration had preferred to see radiologists remain in hospital compensation contracts. But he pledged to implement the law as written and asked that the ACR assist the new Bureau of Health Insurance in preparing the regulations and carrier instructions to put the radiology provisions into effect when Medicare began in July 1966.

That meeting was the beginning of a relationship between Medicare administrators and the College which was to lead to a gradual change in the attitude of the administrators and to changes in the law and regulations, which made the program more favorable to radiologists.

While College leaders were trying to figure out what happens next in Washington after Congress passes a bill, they had the immediate problem of helping radiologists to make the changes in their relationships with hospitals which the ACR urged and the Medicare legislation seemed to require.

Some radiologists had private offices and thus some experience in billing patients. Many other groups practiced entirely in hospitals and had no business experience at all. The hospital had set the fees, billed them, collected what it could, and then remitted the agreed salary, percentage, or other income to the radiologists. In many situations, the hospital paid a fixed monthly draw and settled accounts at the end of the year.

The Wisconsin chapter was the first of many state groups to pass a resolution calling upon radiology groups to begin billing patients by January 1966. With encouragement from the ACR, the AMA and many state medical societies, other radiology groups took the same action during the fall of 1965.

Some hospitals honored radiologists' requests to change their contracts. Some of those hospitals offered to do the separate billing for their radiologists at a price. The ACR cautioned against letting hospitals serve as billing agents. But some radiology groups found this to be the quickest and easiest change.

Radiologists found new friends: billing agencies, billing equipment suppliers, management consultants, accountants, and lawyers. Soon the ACR was warning its members against accepting simple solutions. A billing program for a pediatric practice with repeat billing to a relatively small group of patients did not function well for a radiology practice with single bills to many more patients.

In the fall of 1965, the College began to assemble materials for radiologists. It joined the College of American Pathologists in hiring a management consulting group to develop sample protocols. But billing for radiology and for pathology required different approaches. The ACR produced a kit of materials and sent thousands of copies to practice groups. It produced a short movie to explain what the Medicare law contained and how radiologists should respond. It organized a workshop on separate billing at the end of the 1965 convention of the Radiological Society of North America. More than 1,000 radiologists and newly hired business managers attended. Any radiologist with billing experience was sought as a speaker by state and local groups.

Some hospitals resisted requests by their radiologists for a contract change. Some radiology groups appealed to their staff colleagues and won their point; others were dismissed from their appointments. One of these was Jerral Miller of Dallas, 1966 chairman of the Board of Chancellors. He was the chief of radiology at Baylor University Hospital in Dallas, and his administrator, Boone Powell, was president of the American Hospital Association. Dr. Miller argued that he had to set a model for other radiologists. Powell felt that his resistance would be a model for hospitals. Soon Dr. Miller was the chief radiologist at another Dallas hospital. In a few years, the radiologists at Baylor began to bill for their professional services.

In October, the AMA House of Delegates met in a special session to assess the impact of Medicare. Support for the three hospital-based groups was strong. "Hospital-based medical specialists are engaged in the practice of medicine. The fees for the services of such specialists should be established, billed and collected by the medical specialists in the same manner as are the fees of other physicians."[10]

The American Hospital Association advised its members in December 1965 to maintain their previous relationships with hospital-based physicians, implying that if the physician groups were not able to persuade their members to make the change, a congressional amendment would shortly eliminate the mandate for separate billing. "From the association's discussions with agencies concerned with administration of the Medicare law and with its own legal counsel, it [the AHA] believes that the legislation permits the continuation of present arrangements with hospital-based specialists. To restate this for emphasis, PL 89-97 does not require a change in existing contracts or other arrangements."[11]

When the ACR talked with the Medicare administrative team and got a look at proposed regulations, it appeared that the AHA statement was generally correct. The Social Security Administration planned to maintain the status quo as much as possible, despite the congressional mandate to the contrary. The federal draft went on to direct its new carriers and intermediaries to distinguish between the patient services performed by radiologists and their administrative services to hospitals, such as management, education, and research.[12]

The government listed eight principles applicable to hospital-based specialist reimbursement for Medicare:

1. The Medicare program will not attempt to determine physician-hospital relationships.
2. A separation of the reimbursement of hospital-based physicians must be made to distinguish between patient care, payable through Part B, and administrative and other responsibilities to the hospital, payable under Part A.

3. Physician services are defined as an identifiable service requiring performance by a physician in person which contributes to the diagnosis of the condition of the patient or contributes to the treatment of such patient.
4. The Medicare program will allow physicians and hospitals to make their own allocations between patient care and administration. However, it will be skeptical of any allocation that reflects only patient services.
5. The determination of reasonable fees for patient services will be derived from current incomes of radiologists from that portion of their hospital payment which is allocated to patient services.
6. Medicare payments to physicians with hospital leases will reflect the expenses incurred by the leasing physicians, as well as the professional service determination.
7. Hospitals and physicians will be required to document and retain records of the basis of their allocations of income to physicians.
8. Physicians may set their fees on any basis they choose, disregarding their previous division of the total fee set by the hospital.

Those principles were sufficiently tangled that the ACR asked for both explanation and alteration. The introductions at the chancellors' luncheon in the fall gave the College access to the Medicare administrators. But it was clear that the administrators' sentiments were with the hospitals and that they were skeptical that the ACR could bring about the changes it had espoused.

Though its main emphasis was on the coverage of radiology in Medicare, the College joined other medical groups in urging that the new federal program rely upon existing Blue Shield and Blue Cross programs, rather than creating a massive federal bureaucracy to deal with patients, doctors, hospitals, and other health providers. The program established a series of intermediaries for Part A and carriers for Part B to handle patient claims and make reimbursement. Most of the designations of both carriers and intermediaries were Blue Shield and Blue Cross plans. But the growing strength of commercial health insurers resulted in some of them being awarded contracts for states or metropolitan regions. In some areas, the intermediary and the carrier were the same organization; in others, they were different. At the start of Medicare, the intermediaries and carriers were told to use their own procedures, except where Medicare instructions were explicit. From the beginning, Medicare looked like the private programs of its representatives and sometimes quite unlike the Medicare provisions of the carrier in the adjoining state or area. The ACR and its chapters learned quickly that they had to understand and deal with national policies and also with the carrier insurance company's version of those policies.

A few Part A intermediaries, notably the ones in New York City and Pittsburgh, opposed radiologists billing separately from hospitals and refused to recognize such billing for some years.

Despite the obstacles, radiology groups by the hundreds began to get out of their hospital contracts and start sending bills to patients. By April 1966, some 44 state radiology societies had resolved that their members would change to independent practice. The Oregon Radiologic Society established a central billing cooperative, which soon served most of its members. The ACR kept up a steady stream of encouragement and added to its bank of information about how to establish a viable radiology billing operation. Some groups chose to engage billing services. Others decided to hire their own business manager, with a strong emphasis on billing skills.

When the Medicare program started in July 1966, the carriers and intermediaries basically paid whatever bills from doctors or hospitals they received. The sorting process was secondary to getting the program started with a maximum of patient satisfaction.

To the surprise of many hospital administrators, an independent group of radiologists proved to be more profitable than the same ones had been in the previous contract. The difference

came from the new interest by the radiologists in capturing charges for all services delivered. Some radiologists continued to rely on hospital records for their charge base, but insisted that the hospital do a better job. Other groups put their own clerks in place and shared the improved patient information with the hospital. But some administrators continued to concur with the position of the AHA that hospital-based physicians should be tied financially to the hospital, with the hospital firmly in charge and collecting the money. The Catholic Hospital Association broke ranks with the AHA in a June 1966 statement approving fee-for-service by radiologists but opposing leases.

A question had arisen about the status of radiologists on hospital staffs if they broke away from contracts. Even if radiologists now rejected the notion of sharing revenue with the hospital, most of them accepted the reality that exclusive contracts had served incumbent groups well in other respects. Further, most radiology groups accepted responsibilities for department management, which were greater than those in most other clinical departments.

At the fall 1966 meeting of the Board of Chancellors, a resolution calling for radiologists to drop exclusive contracts and accept open staff, if other departments were also open, was passed and dutifully reported to the members. The ACR Council indicated its support for the premise in a mail survey.

In an editorial in the November 1966 *ACR Bulletin*, President Jackson Livesay wrote, "As a matter of principle, the ACR supports an open staff in voluntary hospital departments with privileges recommended by the medical staff and granted by the hospital board of trustees on the same basis as those granted to other members of the staff in their own area of competence."[13]

However, to the surprise of College leaders, the issue of open staff never was significant. Many radiology groups amended their professional service contracts to drop out the money clauses and left the remainder intact. Others were offered new contracts by hospitals guaranteeing exclusive practice in return for the radiologists agreeing to provide total coverage, to accept all referrals, and to continue their historic obligations to manage the department. It may be fair to observe that in the mid-1960s, radiologists remained in relatively short supply, new diplomates had no difficulty finding spots in existing practices or starting their own groups in suburban and small-town hospitals. Few unemployed radiologists looked to supplant vulnerable incumbents.

While Medicare and its rules were the focus of the push for separate billing, the College also made a strong effort to gain acceptance by the National Association of Blue Shield Plans and the Health Insurance Council. The change met some resistance from Blue Cross plans, which had priced hospital care plans to include radiologist compensation. The commercial plans had little difficulty with the concept or with the mechanics of change, because they never had based their coverage on any separation of doctors and hospitals.

Any program as large and complex as Medicare was sure to turn up problems as it was implemented: In 1967, Congress was asked to pass a series of technical amendments to remove the administrative difficulties. The American Hospital Association and its champion, Sen. Paul Douglas, took that occasion to reopen the matter of hospital-based physician payment. They argued that the earlier definition as physician service had been an error and that the efforts of some doctors to make a change were disruptive and would add unnecessary costs to the Medicare program.

At one point, Congress considered creating a new Part C, which would apply only to hospital-based physicians, separating them both from hospital services in Part A and physician services in Part B. Rep. Mills remained steadfast to his promise to the radiologists. The final resolution was a compromise. Hospital-based physician services to inpatients were declared a hospital Part A service. The same services to outpatients

were declared to be physician Part B services. However, radiologists would be allowed to send their bills to Part B carriers for all services to Medicare patients, with the carrier and the Part A intermediary working out a suitable transfer of funds to cover such bills. One other element which benefited radiologists was that Part A services were not subject to the 20 percent co-insurance factor imposed in Part B on other physician services.

The 1967 Medicare amendments were the last legislative effort by the AHA to overturn the right of hospital-based physicians to bill separately from their hospitals as a matter of law. Many hospitals, some hospital chains and some health insurers continued to resist the change.

In April 1967, the *ACR Bulletin* reported an ACR survey indicating that two-thirds of radiologists in voluntary hospitals were doing their own patient billing, based upon 2,232 of 3,094 responses. The survey was not sophisticated enough to identify radiology groups. However, it did indicate that radiologists were moving strongly to independent billing in hospitals. A separate survey by the AHA, reported in the May *ACR Bulletin*, revealed substantial agreement with the results of the ACR survey. Many of the nation's leading academic programs were among the early groups to commit to separate billing. What happened to the money collected in the tangled web of relationships between medical schools and teaching hospitals proved too complex even for Medicare to work through. But where other members of the teaching faculty billed patients, soon the radiologists did as well. Medicare payment of these bills amounted to a new flow of money into the departmental kitty or the faculty practice plan.

From the time the Bureau of Health Insurance (BHI) had issued regulations for Medicare requiring an allocation of radiologist income, and thus fees between patient service and hospital support activities, the ACR had argued that in most community hospitals the only source of revenue to radiologists had always been solely from patient fees, with hospitals more likely to take money out of departmental revenues than they were to put more in from other sources.

In March 1970, Thomas Tierney, director of the BHI, wrote to the ACR:

> We are inclined to agree ... that there should not be a Part A allocation for services which direct billing physicians generally perform without compensation from the hospital; direct billing physicians are, in effect, compensated for these activities through income generated from their fees.
>
> We also propose to issue instructions stating that where a former hospital-based physician bills and collects charges from a majority of non-Medicare patients for a period of at least 12 months, "customary" charges recognized under the Medicare program would be the schedule of charges most frequently collected during this period.[14]

Thus, the College's efforts had brought Medicare recognition of radiologists' right to bill on essentially the same basis as other physicians. The ACR continued to work with Medicare administrators through its new Washington office in efforts to make radiology coverage work effectively. Because of the latitude given to the Medicare carriers and intermediaries, the national administrators only learned of problems when an organization like ACR could document them. Just as the College earlier had helped radiologists with hospital contracts, it now helped them solve billing problems with the Medicare program.

By 1970, the patterns of Medicare coverage were well established and the premise that radiologists could bill patients for their services to hospital patients was accepted. College expert committees were well versed in Medicare procedures. Otha Linton in the Washington office had built close working ties with Medicare administrators.

For many radiologists, the struggles to convert out of compensation contracts continued for as long as the next 15 years. But the College could settle into a steady pull on the issue of in-

dependent practice, rather than the full-scale effort which consumed a major part of ACR resources for six years. The College had lived up to Wilbur Mills' expectations and had kept the promises it had made to Wilbur Cohen to cooperate with the program. The College's relationships with Medicare would continue to be productive during the next quarter century.

End Notes

1. LS Goin, testimony before Senate Finance Committee, 7 November 1955.
2. PL 86-778, 1960.
3. *ACR Bulletin*, December 1963.
4. WJ Cohen, *Health Care Financing Review*, 1985 annual supplement (Washington, DC: US Department of Health, Education and Welfare, 1985), pp. 3-11.
5. *ACR Bulletin*, May 1965.
6. Cohen, *Health Care Financing Review.*
7. *ACR Bulletin*, May 1965.
8. *ACR Bulletin*, July 1965.
9. *ACR Bulletin*, July 1965.
10. AMA House of Delegates, Proceedings, 22 October 1965.
11. AHA Medicare *Bulletin #7*, 9 December 1965.
12. Bureau of Health Insurance, draft regulations, January 1965; quoted in *ACR Bulletin*, February 1965.
13. *ACR Bulletin*, November 1966.
14. T Tierney, quoted in *ACR Bulletin*, April 1969.

Chapter 8

The 1970s: A Decade of Struggles

In the 1970s, the ACR became a more complex organization than the one which so confidently tackled and narrowly solved the political problems of the preceding decade. As a result of the growth of the Council and the chapter system, the primacy of the Board of Chancellors diminished. The board still ran the College, but the Council made its policies without challenge. Hundreds of radiologists and physicists now served on active College committees and in the hierarchies of the chapters. Similarly, the College staff had grown in numbers and in specific expertise. In 1969, the ACR supplemented its consultant lobbyist in Washington with a staff presence to deal with the federal bureaucracy and to obtain government funding for an increasing array of educational and research activities.

If the purpose of the ACR was to respond to the needs of the specialty, growth was essential and inescapable. Diagnostic ultrasound became part of the imaging technology of radiologists and of other disciplines, much as isotope studies followed a similar path a decade earlier. The most spectacular display at the 1972 Radiological Society of North America convention was a British device called a computerized axial tomograph, which made cross-sectional images of the head with the aid of a complex computer program. Radiation oncologists had embraced computer methods for dose planning and to drive the linear accelerators, which offered multimillion-volt energies.

The numbers of radiologists grew apace. The American Board of Radiology would shortly recognize the separation of diagnosis and therapy by dropping its examination in general radiology. Training programs adjusted, using the added curriculum time to teach the new imaging technologies. The programs were 85 percent filled in 1969, according to the Residency Review Committee for Radiology.

The business side of radiology also grew. Radiology practices hired business managers and began looking for opportunities to establish their own imaging facilities outside of hospitals. The College staff intervened on billing problems with Medicare carriers and private health insurance companies, both to define policy and to solve difficulties for individual practices.

A few years into the decade, the ACR found itself in legal and regulatory proceedings which challenged its historic support of medical ethics and the rights of contracting.[1] Much of this activity arose from a Supreme Court decision holding that professional people and their associations were liable to antitrust restrictions.[2] In 1977, the ACR's only mandatory assessment produced a legal fund, which proved vital to the defense of past and intended ACR economic activities.

Education and Research Grow

The College's own educational and research efforts, after growth spurts in the 1960s, expanded tremendously, fueled by the ACR's willingness and ability to tap Public Health Service and other federal funding sources. When the ACR decided to produce the *Atlas of Tumor Radiology* in the 1960s, it sought a commercial publisher. When it began a second series of books and monographs in the 1970s, it acquired the staff talent to be its own publisher.

Early in the decade, the ACR initiated three educational projects that were to have lasting impacts on the specialty. These were the viewbox teaching seminars developed in connection with the ACR contract with the National Institute for Occupational Safety and Health; the teaching syllabi in the Continuing Education and Self-Evaluation series, which now number about 40 volumes; and the Radiology Learning Laboratory, which provides a basic study reference of several thousand proven cases for use by medical students and residents. In addition, with the American Roentgen Ray Society and the RSNA, the ACR expanded its support for the American Registry of Radiologic Pathology at the Armed Forces Institute of Pathology (AFIP). During this period, the College also became the administrative base for the activities of the Radiation Therapy Oncology Group, which had begun to develop definitive studies of patterns of radiation treatment for various cancers.

A more detailed accounting of these projects is contained in chapters 10 to 14.

A major ongoing effort by ACR committees and staff in the early 1970s was supporting the struggles of radiologists to gain independent practice status in their hospitals. After 1967, the American Hospital Association stopped legislative efforts to recapture radiology and the other hospital-based specialties, but the local battles continued. Several hospital organizations encouraged their institutions to resist allowing radiologists to separate their finances. So did a few health insurance companies. Since some of these companies functioned as Medicare carriers, they created an awkward situation by paying radiologists for services to Medicare beneficiaries while refusing to pay the same radiologists for the same services to other patients. Despite this opposition, informal College surveys reflected a widespread change to independent practice.

The perennial issue of radiology by radiologists remained on the ACR agenda. The ACR was relatively successful in staking out ultrasound and computed tomography as radiology. For much of the decade, the Joint Commission on Accreditation of Hospitals imposed a policy on its participating institutions that called for the interpretation of all imaging procedures by the designated radiologist. The College was less successful in drying up the performance of routine x-ray procedures by other physicians in their offices. A study by a team at the University of California in San Francisco (UCSF) indicated that primary physicians with their own x-ray units required five times as many imaging procedures for an elderly population as did others in the same community who referred their patients to radiologists.[3]

The first edge of a movement toward managed care arose in 1970, when an experimental federal grant program provided seed money for a new concept called health maintenance organizations. Elliott Richardson, then Secretary of HEW, suggested that Medicare and other health coverage programs could save money by contracting with such organizations for a capitated rate for patients and families.[4] Senator Wallace F. Bennett of Utah proposed a federally mandated program of physician peer review, which he pushed and the AMA resisted for the next several years. With Senator Bennett's encouragement, the ACR began to develop standards for radiology referrals, an effort that later spawned significant College programs. A third federal cost-cutting effort affecting the practice of radiology came from federal initiatives for community health planning. This limited the ability of hospitals to acquire new facilities and equipment, such as computed tomographic (CT) scanners, without gaining the approval of local or state health planning agencies. The ACR grew adept at showing radiologists how to prepare "certificate of need" applications for new equipment and facilities.

Medicare: A Bonanza

Despite the concerns of the AMA and of many physicians that Medicare would be harmful to medicine, the program proved to be a bonanza to most health providers. When the Medicare program was enacted in 1965, the nation was spending $49 billion a year on all health services. The Medicare program, covering about a tenth of the population, paid out $5.7 billion in the first two years. The average payment for a radiology service was $14.51, compared with the average for a physician service of $11.39, reduced to $11.07 by the deductible and co-insurance requirements.

The College achieved one of its many accommodations from Medicare in its 1969 promulgation of special rules for the compensation of teaching physicians. In one of its first efforts at cost containment, the Medicare program attempted to stifle the process of medical faculties charging for services actually performed entirely by residents and other trainees. The Medicare proposal called for paying under the Part B physician plan only for those medically indicated services performed for an eligible patient by the physician doing the billing and having an identifiable physician-patient relationship. That last requirement was ill-suited to radiology, where the diagnostic radiologist seldom had any ongoing involvement with individual patients. College arguments on that point were persuasive. In Intermediary Letter 3-72 from the Bureau of Health Insurance, the Medicare program clarified that the radiologist could be paid for participating with the trainee in interpretation of medical images. The broader teaching physician payment regulations were never implemented in the face of belated but vigorous opposition from teaching hospitals and—even more telling—the inability of the Medicare program and its carriers to find any common pattern of physician compensation in medical schools and teaching hospitals.

The War on Cancer

In 1970, the ACR became involved in proposals for the federal government to make a massive new commitment to a "war against cancer." Some enthusiasts likened their proposal to the government's Manhattan Project during World War II, in which scientists were brought together at great cost to develop the atomic bomb. The increased prevalence of cancer should be countered by a focus of effort on gaining new knowledge about causes, as well as better applications of existing knowledge to treatment, they argued. The American Cancer Society (ACS) led the push, abetted by Mary Lasker, a New York City philanthropist with strong political ties in both major parties.

At first, the administration of President Richard M. Nixon resisted. But as public pressures grew, Nixon appointed a task group to frame a national effort. Two radiologists were named to the group. One was Wendell G. Scott of St. Louis, a former chancellor now rising through the leadership of the ACS. The other was Henry Kaplan, chairman of radiology at Stanford University and a leading researcher on Hodgkin's disease and other malignancies. One problem for the ACR was that the two disagreed on how to build the new federal structure. The ACS and Dr. Scott contended that cancer was so important that it should have an independent federal agency reporting directly to the president and bypassing existing health and research agencies. Dr. Kaplan argued that any new effort on cancer should remain part of the biological sciences which were supported within the National Cancer Institute (NCI) and that a new agency would be wasteful and redundant.

When the proposals were embodied in legislative language, the result was that substantial increases in funding were given to the NCI, along with a bypass budget authority. This allowed the director of the NCI to offer his proposals directly to the president, without the review and approval of the National Institutes of Health or the Department of Health, Education and Welfare.

ACR committees and staff contributed position papers and data to the staff of the working groups and the congressional committees. Then the ACR turned to an effort to get radiologists appointed to the new advisory committees created for the program, gaining the placement of radiologists William Powers of St. Louis and Kenneth L. Krabbenhoft of Detroit to the original National Cancer Advisory Board.

Whither Nuclear Medicine?

A chronic political problem relating to the status of nuclear medicine demanded ACR attention in the early 1970s. Radiologists were involved in developing medical uses of artificial isotopes. But so were other physicians. In 1946, the first Atomic Energy Act created the federal Atomic Energy Commission, giving it authority to encourage the use of isotopes in medicine, to supply the isotopes, and to devise a method of credentialing medical users. The Society of Nuclear Medicine was created as an organizational center for physicians, scientists, suppliers, and technologists who were interested in medical uses of isotopes. The availability of cobalt-60, an isotope with an energy of 1.3 million electron volts, dramatically improved radiation treatment of cancers. Basically, only radiologists provided radiation treatment with teletherapy sources, so there was little political dispute about that. But when the gamma camera was developed in the mid-1960s, coupled with various chemical forms of technetium-99^{m}, nuclear imaging took a great stride into new areas and attracted new practitioners.

The ACR position was that medical use of radiation from any source was a natural and proper part of the specialty of radiology. This view was disputed by pathologists, internists, some radiologists, and others who used diagnostic isotopes

for imaging and analytical procedures and who resented what they regarded as a radiological preemption of their area.

By the 1970s, preceptorship programs prepared most physicians for qualification for AEC licensure. The American Board of Radiology had made a modest effort to offer a medallion to its diplomates who took a separate examination. But proponents of nuclear medicine as a separate discipline pushed for residency training and a separate board of nuclear medicine. The issue was taken to the American Medical Association, whose Council on Medical Education controlled such credentialing mechanisms.

By then, an ACR Committee on Nuclear Medicine within the Commission on Education had grown into a separate Commission on Nuclear Medicine and its chairman sat on the Board of Chancellors. Despite ACR objections, the AMA approved the creation of a conjoint American Board of Nuclear Medicine in 1971. The conjoint nature was a concession to the American Board of Radiology and the American Board of Pathology, both of which already examined candidates on isotope uses and would continue to do so, and to the American Board of Internal Medicine, whose diplomates in several subspecialty areas like cardiology and nephrology were experimenting with isotopes.

How Much Growth Is Good?

The expansion of diagnostic radiology had come partly from the introduction of new technology and partly from the widened availability of basic radiology procedures. As Medicare and the growth of private health insurance plans contributed to the growth of demand, young physicians flocked into radiology and found a demand for their services that seemed to grow of itself.

However, critics of medicine (and some within the discipline) began to question whether unlimited growth and unlimited spending were justified by improved patient results. That question was applied to radiology in terms of the value of x-ray procedures to patient outcomes and to spending.

In part as a result of population screening of Americans with chest x-rays to detect tuberculosis, the spread of that disease was arrested and new drugs allowed cures. By the early 1970s, the ACR joined the American College of Chest Physicians, the National Tuberculosis Association and the PHS Centers for Disease Control to recommend stopping population screening for most Americans. Only target groups of recent immigrants continued to produce unsuspected cases of tuberculosis from x-ray screening programs. The ACR and its allies also questioned the need for continued screening of health workers and for routine admission chest x-rays for hospitalized patients. In that instance, the involved organizations cooperated to reduce the use of x-ray procedures and associated costs.

However, the broader question of clinically requested imaging examinations also demanded attention. Writing in the February 1972 issue of *Radiology*, Russell H. Morgan of Baltimore, chief of radiology at Johns Hopkins University and an ACR gold medalist, challenged the presumption that more x-rays were better:

> We radiologists have generally assumed that all radiologic procedures are of clinical benefit, favorably influencing the clinical course of the individuals on whom they have been performed, and that all examinations are valuable, regardless of cost. Recent studies have shown that these assumptions are all too often unfounded and that there is urgent need for research critically evaluating the clinical benefits of radiologic procedures and the conditions under which they may be optimally applied.

Small studies by Leon Phillips and by John Loop and Russell Bell at the University of Washington in Seattle indicated the feasibility of some techniques for studying what radiologists quickly termed the efficacy of their examinations.[5] The ACR created a Committee on Efficacy Studies within the Commission on Public

Health, naming Lee Lusted of the University of Chicago, a radiologist and noted scholar of decision theory, as its chairman.

In his presidential address in 1972, Robert W. McConnell, then of Dallas, Texas, stated the case for an efficacy study by radiologists.

> Ponder the significance of an efficacy study. Efficacy, let us say, is the assessment of the clinical significance of our examinations on the medical care of the patient. How did our findings contribute to his care? Were they the crucial factor, a significant factor, a marginal factor, or a waste of our time and the patient's money? The answer, obviously, must depend upon each patient, each study.

College leaders and staff drafted a proposal for an extensive study and obtained a funding commitment from the Health Services and Research Administration of the Public Health Service. Dr. Lusted created a committee that included radiologists, epidemiologists, statisticians, and clinicians. Clinical and statistical protocols were proposed and debated. The x-ray skull series on trauma patients admitted to emergency services was selected as a test procedure, to build on John Loop's earlier paper on that subject.

The protocol required the requesting physician to complete a form at the time of referral indicating his reason and his expectation of imaging findings pertinent to his patient management decisions. Some radiologists argued that the referring physician was not the best judge of the value of x-ray procedures. Dr. Lusted argued that the referring physician was the only judge, in that he was the only recipient of the information and was or was not influenced by the radiologist's report.

The project continued for more than a decade, producing a stream of papers and reports.[6] It bogged down in difficulties in maintaining the cooperation of clinicians and in statistical quarrels among its consultants. However, it was a pioneering study and influenced several other parallel efforts. One such was on the efficacy of nuclear imaging procedures, organized by Eugene L. Saenger of Cincinnati for the Society of Nuclear Medicine. The consensus among College leaders is that the concept was ahead of its time in terms of general medical acceptance.

Spreading Out to Many Activities

While the ACR focused on larger themes, it had grown to the point that it was able to address myriad other activities at the same time. New committees to deal with malpractice, with emergency radiology, with technologist licensure and with specific education efforts were formed. Joseph D. Calhoun of Little Rock, Arkansas, a past ACR president, became the first radiologist to serve as a commissioner of the Joint Commission on Accreditation of Hospitals, representing the AMA. An editor, Earle V. Hart, was added to the Washington office staff to handle production of the Continuing Education and Self-Evaluation series. The board agreed to limit its members to two consecutive three-year terms, with the same time limit for councilors. For the first time, in 1972, the ACR got more revenue from its federal grants and contracts than it did from dues and the sale of its products to members.

Harold Schwinger, in his second tour on the board, reported activity with the AMA Coded Procedural Terminology project and continuing discussions with Blue Cross and Blue Shield plans on radiology billing.

Dr. Schwinger was a solo practitioner from Brooklyn who had come into College activities through the Committee on Medical Care Insurance Plans in the mid 1950s and who remained active until shortly before his death in 1995. After serving on the board in the 1960s, he returned as an alternate councilor from his local chapter. The next year, he served as vice president and then was reelected as a chancellor, serving again on committees dealing with reimbursement and hospital relations. He became

chairman of the board in 1977, serving two and a half years, and became president in 1979. He continued to be active on other committees, becoming an expert on medical malpractice issues. He received a gold medal in 1984. Besides his private office, Dr. Schwinger served as radiologist to a series of small Brooklyn hospitals. Such was his devotion to the College that he would close his practice if the ACR asked him to travel and he could not obtain temporary coverage.

Space-Age Technology

As the National Aeronautics and Space Administration (NASA) began to scale back in 1971 after a series of missions to land men on the moon, the ACR Washington office learned that the agency wanted to transfer space mission-generated technology to uses in industry and medicine. These contacts led to a series of seminars and informal meetings in which radiologists and physicists met with space scientists who had worked on imaging techniques, computer applications, telemetry, and life support systems. With the CT scanner opening the way for computer-enhanced imaging, radiologists were eager to adapt space technology. The scientists and industries which had supported the moon missions were even more eager to develop new markets for their ideas, once NASA reduced its spending for their products.

The relationship between the College and the National Institute for Occupational Safety and Health (NIOSH), which had created the black lung seminars, opened the way for a contract for the ACR to look at the use of x-rays in another industrial application, the spinal examinations which some industries used to screen candidates for jobs involving heavy lifting or climbing. The ACR invited the American Academy of Orthopedic Surgeons and the American Occupational Medical Association to join in a NIOSH-funded meeting to prepare national standards for preemployment spinal x-ray screening. Arthur J. Present of Tucson, Arizona, a past chairman and president, headed the ACR committee. The resulting transcript served for two decades as the basis for national and professional policy documents about spine screening with x-rays. Radiologists felt that the inability to demonstrate soft tissue changes on x-rays limited their applicability, while the orthopedists and industrial physicians wanted all the support and help they could get in making employment or disability decisions.

In 1971, the ACR staff took over management of the annual meeting of the American Roentgen Ray Society. The next year, with Earle Hart on the staff, the ACR discussed becoming publisher of the ARRS *American Journal of Roentgenology*, but no agreement could be reached. The ACR staff numbered 31, with 22 in Chicago and 9 in Washington, plus lawyers, lobbyists and employees at the Armed Forces Institute of Pathology and the Council of Medical Specialty Societies who were carried by the ACR for those organizations.

A Plan to Have a Plan

Early in the 1970s, ACR leaders began to talk of a need for someone, probably the College, to look at and attempt to plan for the future of the specialty and its organizations. James P. Steele of Yankton, South Dakota, a chancellor and past councilor, prompted Seymour F. Ochsner of New Orleans to propose a College planning effort in his 1971 report as chairman of the Board of Chancellors. But two younger leaders—John H. Harris, Jr., of Carlisle, Pennsylvania, and later Houston, and William E. Jobe of Denver—seized the idea and built it into a major College effort. They were supported primarily by Robert W. Harrington, a clinical psychologist who joined the Washington ACR staff in 1971. Their efforts continued for more than a decade, involving hun-

dreds of radiologists in dozens of meetings and conference calls and producing exhaustive analyses of ACR structures and programs.

In January 1973, for example, four panels —dealing with national health insurance; accreditation, continuing education, and self-evaluation; peer review and efficacy studies; and manpower—occupied the board members for most of their winter session. While the product of these sessions was never finalized, the leadership commitment prepared the College to cope with major issues that affected radiology and the ACR in that decade.

In terms of the College's own planning, the working groups over several years evolved a matrix of goals, objectives, and projects into which all ACR operations could be organized. This listing remained in the official digest of College actions for more than two decades. However, with the annual change in leadership and the arrival of new challenges, the enthusiasm for planning and cataloging diminished and the planning groups were allowed to dissolve in the mid-1980s.

A Moving Proposal

Coincident with the planning came the suggestion that with the inexorably growing impact of federal health policy on radiology and on all of medicine, the College should shift its emphasis from the environs of the AMA in Chicago to the environs of the Congress in Washington. A special board panel on office consolidation recommended that the major administrative function be shifted by 1975, leaving only a small office in Chicago.

"We believe that in the long range the decisions that will be important to radiology will be made increasingly in Washington both by legislative and executive bodies; location of the principal College office in Washington will produce more opportunities to shape decisions and to provide more knowledgeable responses to problems," the committee concluded. The Board of Chancellors approved the recommendation at its April 1973 meeting and directed the committee and staff to begin planning for the move. The Council concurred. At the time, the ACR had 27 employees in Chicago and 14 in Washington.

It was not in his nature to refuse a directive from the board, but Executive Director Bill Stronach was a native Chicagoan who did not want to relocate. A decade earlier he had resisted moving 20 blocks across Chicago. This time, he moved slowly to carry out the mission. A year later the target date for the move was set back to 1977. Then it was canceled. More than a decade later, in 1985, after Stronach's death, the move took place, for the same reasons accepted by the board in 1973.

Enough Radiologists, at Last

In 1973, the ACR seemed to note the arrival of a remarkable circumstance to which pioneer radiologists had aspired for the preceding 70 years. Board Chairman Robert E. Wise of Boston stated it in his "Memo to the Membership" in the June *ACR Bulletin:*

> It has taken us a decade to build our specialty up to the point where we can contemplate providing the radiologic services needed by the American people. This puts us in a position to assert that radiology should be done by radiologists where we are available to do it. And now we can say that most American communities can have access to a radiologist's service on some reasonably convenient basis.[7]

His assertion did not cause a shutdown of the thousands of x-ray and ultrasound imaging systems owned and used by physicians in other disciplines. But it did reflect a new certainty in many of the ACR's postures for radiology. Harold Schwinger, representing the College at a national Blue Cross conference, proposed that the plans could save significant amounts of money by paying only for imaging procedures referred to radiologists. Not surprisingly, the

American Society for Internal Medicine disagreed and Blue Cross declined to test Dr. Schwinger's premise.

In his two years as chairman of the board, Dr. Wise pushed for the completion of the changeover by radiologists from hospital contracts to independent practice. He cited changes in laws and regulations that favored the change. In California, the state radiological society had been successful in promoting a 1973 law that prohibited state agencies or health insurance carriers from requiring combined billing by hospitals and physicians.

"Once the College had gained the basic right in the Medicare law for radiology to be categorized as physician services, we were made aware that in the long run, the actions of radiologists would have more credence than their protestations.... When the profits vanish, so do most of the other reasons for hospitals to hold onto contract practice. In fact, for teaching institutions, other pressures from government programs now make it overtly desirable for full-time clinical faculty to be cast loose from hospital and academic financial shackles," Dr. Wise wrote in that same "Memo."

There was dissent. As quoted in the September 1973 *ACR Bulletin,* Pennsylvania health insurance commissioner William J. Sheppard promised that his agency "will explore every avenue open to us to preclude such direct billing, which is unnecessarily and exorbitantly expensive and inefficient."[8] His preference was that radiologists be paid through hospital contracts, which would be subject to review by his agency. Within a few years, all of the avenues open to Commissioner Sheppard proved to no avail against the movement of Pennsylvania radiologists out of hospital contracts.

Ultrasound Payment by Medicare

Also in 1973, the ACR was successful in persuading the Medicare program to begin paying for diagnostic ultrasound examinations. With the cooperation of the American Institute of Ultrasound in Medicine, the American College of Cardiology, and other groups representing physicians who used ultrasound, the College convinced the Medicare administrators that most uses of ultrasound were no longer experimental. Ultrasound was covered under the radiology section of the AMA's Coded Procedural Terminology classification, and physicians performing ultrasound examinations on hospitalized Medicare beneficiaries were paid 100 percent of their allowable fees rather than the 80 percent allowed for other physician services.

Shortly thereafter, a group of cardiologists headed vocally by Harvey Feigenberg of the University of Indiana protested against the Medicare requirement that they bill echocardiography procedures as radiology. Their protests were not stilled when they were shown that they gained 20 percent of their fee thereby. The Medicare program obliged them by agreeing to change its protocols, but in so doing, it offended radiologists by asserting that no ultrasound procedures would be regarded as part of radiology. Some Medicare carriers began denying ultrasound claims by radiologists. It took several years, but radiology won the third round when Congress wrote language into the 1982 and 1983 Medicare reform bills explicitly listing ultrasound as a radiology service.

Proving Competence

If Robert Wise could assert a national sufficiency of radiologists, others within radiology raised questions about their competence. The American Board of Radiology announced that it had appointed committees to look into the possibility of requiring radiologists to become recertified at some point during their careers. Preliminary though it was, the announcement caused a shock wave among radiologists. Many, in letters and Council resolutions, called upon the ACR to demand that the ABR drop the subject.

This led to a series of discussions between representatives of the ABR and leaders of the ACR, which had the effect of persuading the ABR to delay any consideration of recertification for two decades. The discussions also provided the board of radiology with an opportunity to use the ACR Council as a sounding board for other ideas and concepts. At any given time, trustees of the ABR also might be leaders of the ACR, ARRS, or RSNA. The discussions were usually amicable, if occasionally heated on certain points.

The ACR chapter system was pronounced complete in 1973 with the chartering of a group in Alaska. By then, several national radiology subspecialty groups had sought and been granted seats in the Council. The recognition of the College as radiology's problem-solving arena would have pleased the founders, who foresaw that role for it, even in 1923.

Antitrust Law Applies to Doctors

After notable success in dealing with such federal agencies as the Medicare Bureau and the Public Health Service, the ACR encountered the Federal Trade Commission (FTC), which made a vigorous objection to its publication of relative value scales (RVSs). The FTC and the Justice Department had both begun to investigate the practices of professional societies after the Supreme Court in 1975 ruled in *Goldfarb v. Virginia State Bar* that professional people and their societies were liable for antitrust violations. The FTC had a broader mandate in its enabling legislation and moved more quickly than its rival, the Justice Department. The College was served with a demand that it produce every document and record of its activities on relative values since it began its efforts 20 years earlier. The agency was unpersuaded by the information that the College and other societies had responded to requests from CHAMPUS and later Medicare and that the scale was almost universally accepted by health insurers. It was equally unmoved by assertions that the College had refrained from recommending a dollar conversion factor, leaving that decision to each practice group.

However, the dilemma was serious. The loss of an antitrust lawsuit leaves the loser subject to damages fixed by the court and automatically trebled. It also leaves the court record open to anyone who may wish to use its contents to file civil antitrust suits. In the instances of action by the Federal Trade Commission, the public record of an adverse finding has the same dire effect. In a nonlegalistic sense, many regarded the levying of an accusation of antitrust violation by either the Justice Department or the FTC as placing the burden of proving innocence on the accused. Thus, to uphold its good motives, the College would have to place its entire resources at risk. Did the benefits of the radiology RVS to radiologists warrant such risk?

As an opening response, the ACR withdrew its relative value scale in the fall of 1975, pending resolution of the complaint. The issue was resolved for the ACR a year later when it accepted a permanent consent decree from the FTC against any further action on relative values except for the right to collect data for the Medicare program but not to share that data with anyone, including its members.[9]

Isotopes Aloft

By now, the College related to a wide array of federal agencies, including the Federal Aviation Administration. In 1974, after an isotope spill on a Delta Airlines flight, unions for airline pilots and stewardesses objected to working on passenger flights carrying shipments of radioactive isotopes. Both medical isotopes and industrial sources were shipped routinely by air, particularly the short-lived molybdenum-technetium generators. Most American communities served by passenger flights were not served by air freight. The flight crews were concerned about the dangers in a spill of a liquid source, as well as about their own chronic exposure from isotopes in the cargo hold. They were not persuaded by demonstrations that the shipping containers were essentially leakproof and crashproof.

On this issue, the ACR worked closely with the American College of Nuclear Physicians and the Society of Nuclear Medicine, which shared a Washington lobbyist. Much of the persuasion came from Captain William Briner, a retired PHS pharmacist and amateur pilot, who was able to relate to the airline pilots. Ultimately, the unions retreated when they were convinced that the cosmic radiation at jet-flight altitudes produced more radiation exposure than any shielded isotope container. A convenient paragraph in a broad congressional action mandated the continued shipment of medical isotopes while allowing the airlines to reject shipments of industrial isotopes.

Health Planning Requirements

The ACR was concerned when a few states began to enact health planning legislation which required hospitals to justify their need for spending for new facilities or expensive equipment. This was locked into a federal planning proposal which made it mandatory for all of the states to establish state and local health planning agencies with jurisdiction over any hospital spending above $400,000. The price of CT scanners, angiographic suites, and linear accelerators all exceeded that arbitrary mark. A few states sought to extend jurisdiction for health planning to physicians' offices, but most stayed only with hospitals.

That restriction had the immediate impact of obligating radiologists to learn how to cope with health planning. "A certificate of need for equipment will be granted only when the weight of the paper in the application equals the weight of the equipment being sought," one wag noted with some accuracy. Indeed, many health planners announced their intent to prevent the spread of CT scanners as the first test of planning effectiveness.

Soon, the simplest way to get a CT scanner in a community was to put it somewhere besides the local hospital. The splitting of fine legal distinctions about what constituted a hospital created its own cottage industry of consultants, lawyers, regulators, and researchers. The ACR developed a national registry of CT scanners, which was for some years the basic resource for anyone interested in the subject. An entirely unintended result of the planning legislation was to prompt the growth of imaging centers, surgicenters, radiation therapy centers, and other technology-intensive health facilities outside of acute-care hospitals. Some health planners faced the awkward situation of having to ignore the presence of private CT scanners in a community in determining whether the town hospital needed one.

When President Ronald Reagan took office in 1981, one of his announced changes was the elimination of a federal requirement for health planning and certificates of need. However, some states chose to retain the program. To the rueful surprise of many hospital administrators, their efforts to justify acquisitions for the planners proved valuable, even without a legal requirement.

By the time the federal planning effort ran down, CT scanners were regarded as state-of-the-art imaging for primary applications. Scanners had passed through four generations, becoming faster and cheaper. The lessons learned in coping with planning requirements were applied promptly by all concerned to acquisition of magnetic resonance generators.

The Chiropractors Sue Medicine

A second impact of the Supreme Court decision applying antitrust law to professional societies came in a carefully constructed lawsuit on behalf of five chiropractors against the AMA and more than 20 other medical and hospital groups, including the ACR.[10] The suit alleged that the medical organizations had conspired to destroy chiropractic and, in particular, had imposed prohibitions on physicians relating professionally to chiropractors. It alleged further that the efforts of the AMA Committee on Quackery were directed at discrediting chiropractic and that the AMA Code of Medical Ethics had been accepted and embraced by most of the other medical groups named as defendants.

The ACR's involvement stemmed from its response to urging from the AMA to adopt policy statements opposing chiropractic. In 1973, the Council had adopted a statement to the effect that the ACR regarded it as unlikely that patients would benefit from chiropractors using x-rays.[11] That was enough to start a decade of litigation for the College.

Once the suit was filed, the plaintiffs subpoenaed records from all of the defendant societies. The College files on the subject were sparse, but the AMA had retained all of the records of its Committee on Quackery, which contained documentation of AMA efforts to do just what the complaint alleged. AMA lawyers promptly urged the AMA to eliminate the section of its code of ethics forbidding association with nonscientific practitioners and braced for the worst. The AMA offered to assume the defense for the other medical groups. But the ACR and almost all of the other defendants chose to conduct their own legal defense.

Some of the defendants promptly sought to be released from the suit and were allowed out by the plaintiff's attorney on a variety of agreements and payments of damages. When the ACR and others learned that the AMA was discussing a possible ground for settling the suit, four specialty groups—the ACR, the American College of Surgeons, the American Academy of Orthopedic Surgeons, and the American College of Physicians—sought an injunction to forbid the AMA Board of Trustees to pursue a settlement without policy instruction from the AMA House of Delegates. The House, in a fiercely contested session, voted to support the trustees' discretion in conducting the suit. However, the chiropractors showed no intent of letting their biggest fish off the hook.

When the case finally came to trial in the US District Court in Chicago, the first issue was whether the judge would allow any defense. Some antitrust violations are held to be so obvious that no argument of extenuating circumstances or motives is allowed. However, a judge has the option of allowing defendants to offer what is termed a "rule of reason" defense, by arguing that their position was in the public interest. The judge in this case allowed the defendants to present their arguments before the jury; the jury essentially accepted the medical groups' arguments, finding them innocent.

The jury verdict was appealed and overturned on a technicality. That sent it back to the Chicago district court and a new judge. The chiropractors amended their suit, waiving their original claim of $10 million damages, thus eliminating a jury and seeking injunctive relief to stop the remaining medical society defendants from continuing any action prejudicial to profes-

sional relationships between their members and chiropractors.

Radiologists were key defendants. A decision requiring them to accept chiropractic referrals would have the effect of giving the chiropractors access to hospitals when those were the site of radiology practice. However, the ACR stood fast against any settlement until the district court judge advised the litigants that she was prepared to find against the medical groups and suggested that they work out some settlement. The surgeons and radiologists accepted that advice and worked out deals. For the payment of $200,000 and a statement saying that the College would make no recommendation to its members about relationships with chiropractors, it was released from the suit.

Part of the statement read as follows:

> ACR declares that, except as provided by law, there are and should be no ethical or collective impediments to interprofessional association and cooperation between doctors of chiropractic and medical radiologists in any setting where such association may occur, such as in a hospital, private practice, research, education, care of a patient or other legal arrangement. Individual choice by a radiologist voluntarily to associate professionally or otherwise cooperate with a doctor of chiropractic should be governed only by legal restrictions, if any, and by the radiologist's personal judgment as to what is in the best interest of a patient or patients.[12]

Fourteen years and $1.5 million after the suit was filed, the ACR was finished with it.

Proving Continuing Competence

In the middle of the decade, issues relating to initiatives by the American Board of Radiology continued to appear on the agenda of the ACR Council. Like most other medical societies, the ACR had been impressed by a threat from Sen. Edward Kennedy of Massachusetts to enact a federal law requiring physician recredentialing or proof of continuing competence if the medical profession did not respond. With the AMA leading the way, medicine responded with an elaborate program to credential continuing medical education (CME) activities. The ACR obtained a franchise from the AMA to grant CME credit to radiology courses. The RSNA did the same, as did most state medical societies, medical schools, and even large hospitals. In 1974, the College joined many other societies in making participation in CME a requirement for membership. Some states amended their medical practice acts to the same end. The most common requirement was for 150 hours of approved CME activities over a three-year period.

Discussions between ACR and ABR representatives and among academic radiologists raised questions about the validity of recognizing attendance at a course or reading a book for CME credit unless the activity included a test of the student's learning. To some extent, these concerns were reflected in the design of the ACR's own teaching programs described in chapters 13 and 14. Significant to the role of the ACR was the willingness of the ABR to appear at Council meetings to present its opinions and to take note of ACR resolutions in reaching its own decisions, even while stressing its independence of the College and its other sponsors.

Besides CME and the possibility of some type of examinations for radiologists, the other method proposed for measuring the continuing competence of a radiologist was a practice audit. A decade earlier, the ACR had begun a program of practice surveys. In that scheme, the ACR chose radiologists as inspectors to look at a practice and make judgments and recommendations about its effectiveness. The program was complex and relatively expensive, and the ACR often did no more than a dozen inspections a year. A practice audit focused on the work of a practice group. The virtue of the approach was that the audit could review the actual performance of each radiologist. Thus, it was argued that general radiologists should not be tested on the details of

neuroradiology or interventional procedures, but rather on their normal range of practice; academic specialists would be held to the fine details of their subspecialty. The details and costs precluded any serious development of this approach for another decade.

While the College had devoted a major effort to helping still more radiologists switch to independent practice in hospitals, it also had devoted effort to persuading health insurers to cover office radiology. John W. Travis of Topeka, Kansas, chairman of the Commission on Radiologic Practice, told the 1977 annual meeting that an ACR survey of Blue Shield plans indicated that almost all of them covered office diagnostic radiology and that a majority of them paid for outpatient or office therapy as well. The inherent dilemma for the insurers—and for radiologists—was that the plans had no way of distinguishing between bills from radiologists and bills from other physicians for radiological services.

Even though Bob Wise had claimed that radiologists now could do all of the needed radiology, the ACR hesitated to mount an attack on other physicians. As one chancellor observed, internists who took a few chest films sent all their other imaging problems to radiologists. Besides, as another noted, there were many more "other" physicians than there were radiologists. ACR pronouncements emphasized that radiologists did it better on the basis of demonstrated training and equipment. In addition, the College was busy in these years emphasizing that radiologists wanted to be treated for compensation purposes the same as other physicians—none of whom had exclusive hospital franchises or legal protections from each other.

The Holy Cross Victory

At the end of 1976, the Maryland Health Services Cost Review Commission (HSCRC), which had been created to regulate hospital costs in the state, sent a directive to the Holy Cross Hospital in the Washington suburb of Silver Spring. The hospital was told to reduce the compensation of radiologists and pathologists because the commission had concluded that these physician services were part of the hospital, thus subject to the commission's review. That review had determined that the costs were unacceptably high.

Edward Soma, chief of radiology at Holy Cross, and his counterpart in pathology brought suit challenging the commission's authority. His independent practice was well established, his fees were accepted by health insurers, and the hospital's billing for him was on a clearly and contractually defined agency basis, he argued. The commission contended that the hospital's billing was enough to establish its jurisdiction.

When a county-level court ruled against him, Dr. Soma asked the Maryland chapter and the ACR to join him in an appeal. Both did, providing direct help to his attorneys and agreeing to pay part of the bill. The state court of appeals reversed the trial court and directed a new trial. The second trial turned on the question of whether in 1971, when the state commission was created, the legislature assumed that radiologists and pathologists were so much a part of hospital structures and finances that the legislature, without specifically saying so, could have intended for them to be included.

After extensive testimony, Montgomery County Judge Philip Fairbanks concluded:

> Accordingly, hospital-based radiologists and pathologists and presumably all other hospital-oriented physicians have a choice. If they wish to escape state regulation of their fees, they can bill patients directly, deal with third-party payers themselves, accept a lesser percentage of payment from these agencies and assume bad debt risks. On the other hand, they can allow hospitals to include their professional fees as costs of the hospital with the economic and administrative advantages to them attendant on such an arrangement. If they choose the latter alternative,

> their fees then become subject to HSCRC jurisdiction because they are included within the "total costs of the hospital" as that term was understood in the health care field in 1971 when the [Maryland] law was enacted.[13]

The participation of the College with a chapter and a group of members in a lawsuit determined to have significance to the specialty was repeated from time to time. In some cases, the ACR contributed part of legal costs. In others, ACR lawyers prepared "friend of the court" briefs for appeals.

College Financial Problems

The growth of the College's activities and its rapid involvement with federal grants and contracts presented problems, because the ACR had not developed the fiscal expertise to control costs and deal with overhead rates. The ACR had taken on Rey Brown's x-ray learning laboratory project in a San Francisco area office building and the Radiation Therapy Oncology Group projects in Philadelphia, adding income, but also adding responsibilities and costs. Treasurer Newton Hornick of Pittsburgh announced to the 1977 annual meeting that the ACR had a 1976 deficit of $340,000 on income of $4.8 million and expenses of $5.2 million. If that trend was not reversed, the ACR would exhaust its reserves and be bankrupt in two years, he warned. Some of the expenses were for legal fees and other unanticipated spending. But Dr. Hornick was more concerned that the ACR needed to improve its financial management. Changing to a more sophisticated accounting firm was one prompt step. Tight controls on commission and committee spending in 1977 and a slight improvement in the College's audited federal overhead rate helped turn the corner, and the ACR finished that year with a small surplus of $35,000. But financial control deficiencies were to persist for a decade before being brought under control.

Another aspect of the College's money problems arose from adoption of the requirement that a radiologist had to join a state chapter before becoming eligible for ACR membership. Previously, every new diplomate of the ABR had received an invitation to join the ACR and most did so, some allegedly in the belief that it was compulsory. But with some chapters taking in new members only once a year and others failing to advise the ACR when they did accept new members, the ACR lost its historic edge and the percentage of young radiologists joining the College dropped. It took several years of tuning the system before College leaders were convinced that the ACR was not losing members on the basis of the state membership requirement.

Radiologists lost ground in their efforts to dominate hospital practice when the Joint Commission on Accreditation of Hospitals reversed its requirement that all films on hospital patients be interpreted by a radiologist. As quoted in the February 1978 *ACR Bulletin*, "the [JCAH] standards do not require that all x-rays be read by a radiologist, but they do require that the exercise of radiology privileges be limited to practitioners whose qualifications therefor have been established through the (hospital's) credentialing process."[14]

Local credentialing prevailed in most small hospitals, with orthopedists and others routinely reading studies on their own patients. This was unavoidable when radiologists were in short supply. But to have the JCAH lower its requirement at a time when ACR manpower studies were demonstrating that radiologists were now in adequate supply was disappointing. The ACR was not a sponsor of the JCAH, and the JCAH decision never was reversed.

Fine Tuning Medicare Regulations

Because the Medicare program was a massive and evolving concept, there was need for constant effort to define, alter, and expand on how it was supposed to work. Usually, this was done by

its administrators in regulations and in various communications to the carriers and intermediaries. The ACR had worked for modifications in many of these communications and had generated others to make a point desired by radiologists. As a federal program, Medicare requires annual authorizations from Congress. Every lobbyist who had a health-related client was poised with suggested changes each time a congressional committee considered legislation.

If the American Hospital Association had given up its efforts to recapture radiology, others continued to chew on the idea. The list included some health economists, insurance companies, and members of congressional staffs.

In 1975, the ACR approached Senator Herman Talmadge of Georgia, chairman of the Health Subcommittee of the Senate Finance Committee, to suggest legislative language to confirm the status of radiologists as physicians, separate and apart from hospital services. A comparable approach was made to Representative Paul Rogers of Florida, then chairman of the Health Subcommittee of the House Commerce Committee, which shared jurisdiction over Medicare.

Both were receptive. In a speech in the summer of 1975, as quoted in the *ACR Bulletin*, for January 1976, Sen. Talmadge outlined draft legislation "intended at least to be applicable to pathologists, radiologists and anesthesiologists, and that any payment to these individuals under Medicare and Medicaid will in the future be restricted to only two methods: (1) by fee for service for professional services performed directly by the physicians and (2) by a salary for administration of the respective departments, based on what comparable salaried department administrators receive for their time and work."[15]

That spring, the ACR board chairman, John M. Dennis of Baltimore, wrote to Rep. Rogers asking for equal treatment for radiology: "The historic circumstances which once gave cause to some to regard radiologists differently from other physicians have essentially disappeared. Radiology should be included under and defined as physician service, requiring no further codification or special consideration."

As it often does, Congress went through several sessions authorizing Medicare spending without addressing the issue or the problems of hospital-based specialists. Radiologists were disconcerted to find in President Jimmy Carter's 1979 budget message a proposal for legislation to "remedy abuses" in hospital-based physician compensation. The message was mixed, proposing to limit reimbursement to physician services to patients, restricting the 100 percent coverage in the law to those physicians who accepted assignment of benefits, and ending any payment under percentage contracts or leases. "Radiology, pathology, and anesthesiology services and the services of a physician where patients are found to be essentially chosen by or through an institution rather than by the individual patient would be reimbursable to the institution."[16]

Later that year, Senator Edward M. Kennedy of Massachusetts offered legislation to put "payments to physicians under contract with the provider, payments to all radiologists and pathologists providing services in a hospital ... in the provider [hospital] budget."[17]

The issue dragged on for three more years, keeping the College and everyone else involved in a continuing state of apprehension until it was resolved favorably (to the ACR's view) in 1982 and 1983 legislation.

Climb to the Summit

By 1978, the ACR had been involved for several years in a series of planning activities. While College leaders believed themselves to be carrying out its historic mandate, the protracted discussions with the American Board of Radiology prompted a question about whether the other national societies were comfortable about ACR leadership in some areas or, to the contrary, felt

that the College was intruding on their prerogatives. John Harris, who had been leading the planning effort, suggested that the ACR find out the sentiments of the other societies.

Because of some personality conflicts, questions were raised about whether the other national societies would respond to a College initiative. To avert that concern, a group of senior radiologists who had been active in the leadership of several societies were persuaded to extend the invitation to all of the groups, indicating that they had asked the ACR staff to attend to the logistics.

The first radiology summit, as the meeting was called, was held August 26-28, 1978, in Colorado Springs, Colorado. Forty people, representing 13 major radiology societies, attended. The agenda asked the participants to address several of the major problems confronting radiology and to strive for a consensus on how to respond to them. An unstated, but equally important, part of the agenda was to provide an opportunity for the participants to know each other and to gain a better sense of the roles of the various organizations.

Though formal votes were avoided, two conclusions were expressed by the group. One was that the exercise had been beneficial and should be continued on an annual basis. The second was that the ACR was recognized by the other societies as having a leadership role in coping with the socioeconomic issues affecting the specialty and that the ACR Council, where most of the societies had representatives, had become the forum for discussing these issues. It was agreed, also, that the College should continue arranging and staffing the summit meetings, that the ACR should make more vigorous efforts to communicate with the other national societies about political and economic issues, and that August meetings should be situated in resort areas, such as the Colorado Springs site chosen for the first one.

Two years later, when John Harris became chairman of the Board of Chancellors, he built on the summit structure by creating the ACR Intersociety Commission. Like other ACR commissions, its chairman would serve as a chancellor.

How Many Radiologists?

For much of the decade, the ACR had conducted a series of manpower studies, via a special committee led by Paul A. Riemenschneider of Santa Barbara, California, a former ACR president. The College studies were coincident with the work of a Graduate Medical Education National Advisory Committee (GMENAC) created by the federal Department of Health and Human Services to look at national medical staffing needs. The College's studies had been the basis of Bob Wise's assertion that the nation's radiologists could do all of the nation's radiology.

The GMENAC panel noted in a 1979 report that radiologists (defined as ABR diplomates) had increased from 8,786 in 1963 to 16,769 in 1976. They accounted for 4.9 percent of the physician workforce. The number of annual resident slots (for both diagnosis and therapy) rose from 674 in 1960 to 1,207 in 1970. GMENAC predicted that the nation would have, but would not need, some 27,050 radiologists by 1990.

The ACR was quick to point out that GMENAC had failed to distinguish between diagnostic and therapeutic radiologists and had based its calculations only on projections of diagnostic studies. The College noted that any demand estimate for radiologist needs must take into account the volume of imaging procedures performed by other physicians and the impact of new technology, such as computed tomography. Though GMENAC agreed to review the ACR's claims, the conclusion of a projected radiology surplus was quoted and misquoted from the panel's original report for many years.

As the College neared the end of the decade, one of the rocks in its foundation began to crumble. Bill Stronach, its executive director, began to show signs of the malignant disease that would

kill him two years later. As his health waned, he had not been able to cope with the financial and other problems which impinged on the College administration. While the College had received dedicated service from Stronach and from most of its expanded staff, the management mechanisms had not kept pace with the College's growth. As ACR leaders contemplated the achievements of the 1970s and the pace of change in medicine around them, they knew that they must also contemplate a change in the basic structure of their organization.

End Notes

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Chapter 9

The ACR's Role in the Development of Mammography

The American College of Radiology significantly shaped the growth and acceptance of mammography. Conversely, the College's activities regarding mammography did much to reshape the ACR. It happened like this.

Only a few years after x-rays came into medical practice, some radiologists attempted to produce useful images of the female breast, with little success.[1] Surgical removal of the breast provided a cure for some women whose tumors were detected and removed before metastases spread malignant cells to other parts of the body. However, detection of a lump, either by the woman herself or by her doctor, usually revealed a well-advanced problem. Most breast lumps are not malignant, but few surgeons were able or willing to predict by palpation which ones were benign and which were not.

In the mid-1950s, enough interest in the problem of early detection and identification was manifest to prompt radiologists to return to the challenge of a usable technique for mammography. At M. D. Anderson Hospital in Houston, one of the nation's leading cancer institutes, Gilbert Fletcher, then the chief of radiology, suggested strongly to Robert L. Egan, one of his residents, that Egan attempt to develop a reproducible technique for mammography.[2] In a matter of some months, Dr. Egan had created a mammography technique which used industrial x-ray film with a low-kilovoltage, high-milliamperage technique to produce diagnostic images and only occasionally blew out the x-ray tube.

But while Dr. Egan made the technical breakthrough, the larger problem was convincing surgeons, gynecologists, pathologists and other radiologists that mammography had something to contribute to their care of breast cancer patients. This was where the development of mammography began to

differ from the introduction of most new techniques. Most commonly, new procedures either are developed and described by one or more investigators and gradually adopted by others or are rejected and forgotten. But the development of mammography quickly took on political overtones.

Bob Egan had difficulty persuading anyone at M. D. Anderson until Edgar White, the chief surgeon, told his colleagues that he found x-ray location and definition of breast lesions very helpful. R. Lee Clark, the canny surgeon who was the first full-time director of the M. D. Anderson hospital, asked the Texas Department of Health to look into the new technique. The state agency contacted the federal Public Health Service Cancer Control Program. Its director, Lewis C. Robbins, traveled to Houston and was converted to immediate advocacy. Shortly thereafter, Drs. Clark and Robbins had convinced others at the National Cancer Institute and the American Cancer Society that the Egan technique was worth supporting.

A blue-ribbon committee representing all the players was put together to make recommendations. Named by the PHS were radiologists Thomas Carlile of Seattle, Wendell G. Scott of St. Louis, Eugene P. Pendergrass of Philadelphia, James Cooney of New York, and Theodore Hilbish, chief of diagnostic radiology at the National Institutes of Health in Bethesda, Maryland. Dr. Cooney was a vice president for medical affairs of the American Cancer Society. Drs. Scott, Carlile, and Pendergrass were all active in the ACS and each would serve as its president. Dr. Scott was a chancellor and chairman of public relations for the ACR. Dr. Pendergrass was a past chancellor, chairman of the board, and president of the ACR.

Out of their review came a PHS contract for $38,000 to M. D. Anderson to develop a reproducibility study to determine whether other radiologists and technologists could be taught to use the Egan technique. Dr. Robbins assigned his statistician, Harvey Geller, and a project director, William K. Melton, to work with the Texas team.

In the same time interval, Phillip J. Hodes, chief of radiology at Jefferson Medical College in Philadelphia, described Bob Egan's work to a medical meeting attended by science writers. That generated the first national attention to a possibly valid mammography technique and helped attract medical attention, as well.

First Egan Publication in 1960

Dr. Egan's first paper[3] was published in 1960. Within a year, 24 radiologists selected by the PHS advisory group had spent a week at M. D. Anderson, along with chosen technologists, learning to make and interpret mammograms using the Egan technique. The test was judged successful by the ACS and the PHS, and additional funding was provided to train other radiologists. By this time, Drs. Scott and Pendergrass were convinced that the ACR should play a role in the proliferation and acceptance of mammography.

The first ACR effort was a 1962 mailing to all its members of a special article about mammography, with funding from the Cancer Control Program (CCP) to pay the postage.[4] A steady flow of radiologists made their way to Houston. When Bob Egan moved first to Indianapolis and then to Emory University in Atlanta, he set up a new training program to supplement the continuing sessions in Houston.

In 1964, with interest in mammography growing, the CCP asked the College to organize a seminar to look at the technical factors involved in mammography and to make recommendations for standardization. With some hesitation, College leaders accepted the challenge and $25,000 of government money to carry it out. The ACR declined to ask for overhead funds, not yet having learned the benefits of that element of federal financing. Arthur J. Present of Tucson, Arizona,

a past board chairman, headed the ACR committee. The session drew more than 150 radiologists, physicists, technologists, manufacturers, and others to Philadelphia in February 1965.

Shortly thereafter, Wendell Scott was named to head a new ACR committee on mammography. In 1966, Dr. Scott and the ACR committee were involved in efforts with the ACS to persuade the Xerox Company to manufacture a medical xerographic unit. The interest in xerography followed the work of John Wolfe, a Detroit radiologist whose efforts with early Xerox equipment demonstrated the edge enhancement effect, which many radiologists felt provided clearer images than x-ray film. The effort was successful, and xeromammography provided an alternative to film until the early 1990s.

Annual Mammography Conferences

In 1967, the ACR took over management of the annual mammography conferences that Bob Egan had started at M. D. Anderson in 1960. The early conferences had involved only those radiologists and other physicians who were involved in the training programs. Soon, the ACR expanded the conferences to any physician interested in learning about mammography, as well as those already involved in demonstration projects. Without conducting or subsidizing research, the ACR came to have a central role in the standardization and promotion of mammography. This role grew in 1967 when Bill Melton left the CCP and joined the College staff, bringing with him the ability to attract federal funds for mammography and other programs.

Mammography proponents soon raised the question of its value in screening asymptomatic women to detect nonpalpable breast cancers. In 1963, a team at the Health Insurance Plan (HIP) of New York began a classic controlled study of the impact of mammography as a screening technique.[5] The results were positive, indicating a 50-percent decrease in mortality from breast cancer for women over the age of 50 who had screening mammograms, by contrast with a control group who received no screening mammograms. Later follow-up on the HIP study group began to indicate positive benefits from screening women in the 40-to-50 age group.

By 1972, the ACS and National Cancer Institute, strongly encouraged by the ACR committee, decided to create a nationwide mammography screening project, the Breast Cancer Detection Demonstration Project (BCDDP). The principal objective was to determine whether asymptomatic women could be persuaded to obtain mammograms without the direct referral of their physicians. Public education efforts by ACS local societies were directed to women who had some cause, such as family experience or other predisposing factors, to be concerned about breast cancer. Soon, 27 centers had been funded to provide free annual mammograms to as many as 10,000 women for five years. All the centers also offered a physical examination. Some of them added the experimental technique of breast thermography to their mammograms, until that technique was seen to be unhelpful. Because the original intent had been to test the acceptability of screening mammography, rather than its medical validity, there were no control groups, an omission that led to early controversies. The 27 centers ultimately screened 282,000 women, finding 2,567 breast cancers. Of those, 41 percent could not be found by physical examination and were detected entirely from the mammograms.

Screening May Cause Cancer?

However, in 1976, a Public Health Service physician, John C. Bailar, III, then editor of the *Journal of the National Cancer Institute*, wrote an article claiming that the radiation exposure involved in mammographic screening likely induced more breast cancers than occurred naturally.[6] The article attracted widespread attention and created resistance to mammography, both for screening and among women whose doctors sought confirmation of palpable masses.

The furor was heightened a year later when the National Institutes of Health sponsored its first clinical consensus conference on mammography. Among others, Richard G. Lester, then of Houston, who was Wendell Scott's successor as chairman of the ACR Committee on Mammography, pointed out that Dr. Bailar's charges represented his opinion, rather than the product of any new investigations. Dr. Bailar repeated his charges and most of the widespread press coverage focused on the dangers, rather than the benefits, of mammography. Efforts by the ACS, the ACR, and others to draw distinctions between screening and clinical mammography were initially unavailing.

Shortly, Dupont and then Eastman Kodak, the major suppliers of medical x-ray film, each produced new mammography films that relied on intensifying screens to reduce the need for radiation to less than a tenth of what had been needed for the older films. This improvement gave mammography proponents an argument that they had solved the problem raised by John Bailar. However, a survey by the American Cancer Society indicated that most physicians still hesitated to refer patients for screening or clinical mammography, in large part because of patient resistance.[7]

First ACR Screening Guidelines

Running against the tide, the ACR issued a series of guidelines on mammography in 1976. They asserted that the clinical value of mammography for symptomatic women was unchallenged. Asymptomatic women, particularly those with predisposing factors, should have a baseline mammogram sometime between their 35th and 40th years, then mammograms and physical examinations in the decade of their forties and annual mammograms at 50 and beyond.

The support for mammography began to grow when Arthur H. Holleb of New York City, ACR vice president for medical affairs, and Gerald D. Dodd of Houston, who was active in both the ACS and the ACR leadership, persuaded the ACS to make breast cancer a multiyear focus for its public and professional education programs.

Because it was a cosponsor of the 1977 NIH consensus conference on screening mammography, the ACS concurred in the conference recommendation to begin mammography screening for asymptomatic women at age 50.

In 1980, the ACS issued an independent guideline urging women to obtain a baseline mammogram between the ages of 35 and 40 and, depending upon findings from that examination, to get biennial mammograms from 40 to 50 and annual ones after that. The ACS also urged women to do regular breast self-examination and to see their physicians. The new element was regular mammography for asymptomatic women.[8]

Even though physicians perceived the difference between clinically indicated mammograms for women with detected problems and the broader screening concepts, most of their patients did not. The ACR and the ACS fretted that women with family histories of breast cancer and those with other high-risk indicators were still avoiding mammograms and that many physicians made little effort to overcome their reluctance.

This perception led to a statement by the ACS that radiologists should change their traditional referral pattern and begin to accept women making their own appointments for mammograms without a physician's intervention. The ACS further suggested that radiologists should create mammographic facilities separate from their clinical work and should offer screening mammograms at reduced prices. Going still further, the ACS asked the ACR to develop a program to identify and accredit competent mammography facilities to which the ACS and its local societies could send women.

With these developments, much of the impetus for mammography acceptance moved from the ACR and other medical groups to the ACS and to a growing number of women's organizations. Soon, television newscasters developed special programs on breast cancer, with announcers (usually women) looking intently into the camera and urging viewers to get mammograms from facilities approved by the American College of Radiology.

The College supported the ACS recommendation and many radiology groups responded. Within their decisions was the acceptance of basic changes in their own concepts of the practice of radiology.

A decision to accept patients without a physician referral created a new responsibility for radiologists. In clinical situations, a radiologist receives a patient from another physician and reports the imaging findings to that physician. Since the radiologic finding is only part of the total diagnostic effort in most cases, the patient's physician can integrate all available information before reaching a conclusion. And because the physician has a relationship with the patient, at least in most practices, he can accommodate to the patient's psychological state in communicating. Ordinarily, the radiologist had no role in the final diagnosis or in its communication to the patient.

A Vital Changed Relationship

For self-referred mammography patients, that relationship changed. Although the radiologist almost always asked the patient for the name of her physician, there was a direct responsibility to advise the patient of the interpretation. There was a further need to communicate results to the patient in a manner that prompted action on positive or suspicious findings without creating panic. If a subsequent biopsy failed to confirm malignant changes, there was also a need to recognize that "cancerophobic" patients might sue for undue pain and suffering.

Even so, many radiology groups decided to set up clinics for unreferred mammograms. Some did so by designating certain hours or days for screening, separate from appointments for clinically referred procedures. Some developed separate offices or waiting areas so that screening patients were segregated from ill patients.

There were false starts. In some communities, ACS volunteers and hospital auxiliaries announced breast-screening days with free mammograms without consulting the radiologists whose services were to be donated. The more critical problem was in deciding to set up a mammography facility which would draw a steady flow of patients, rather than a yearly splash followed by nothing. However, with the news and television people plugging mammography, the demand grew. And with the recommendation by the ACS and the ACR for biennial or annual examinations, the demand steadied.

The issue of charges for screening also raised problems. With community leaders endorsing mammography programs, it was difficult for a radiology group to decline to conduct screening at a reduced fee. Part of the difficulty stemmed from the reality that a clinical mammogram and a screening mammogram were basically the same service. The differences in follow-up and supplementary views in a clinical procedure were not perceptible to women or to

critics. The College continued to urge its members to begin screening programs. Because of the publicity, millions of people became aware of the identity of radiologists as physicians with an important role in disease detection.

Mammography Facility Accreditation

In asking the ACR to develop an accreditation program for mammography facilities, the ACS had anticipated that a variety of entrepreneurs would climb on the mammography bandwagon. Indeed, some of the same television personalities who embraced the idea of screening began to feature horror stories about poor procedures and fatally missed diagnoses. As soon as the ACR agreed to develop a voluntary accreditation program, the ACS and its allies began to urge women to insist that they be examined in ACR-approved facilities.

The beginning of the ACR program involved several problems. For decades, the ACR had a relatively small practice accreditation program. This involved on-site visits from two radiologist-inspectors who interviewed physicians, administrators, technologists, and others before writing a report on the general operation of the inspected facility. Fewer than 100 inspections a year were made in response to requests from radiologists or hospitals.

Such an intensive, on-site approach would not work for the thousands of facilities expected to apply for ACR accreditation. Dr. Dodd became the chairman of a special College task force on mammography, which worked out the program. Radiologists Tearle Meyer of Columbus, Ohio, and Harold Lasky of Chicago were part of the planning team.

The initial emphasis was on the technical quality of the mammography facility. Studies by the PHS Center for Devices and Radiological Health and others had indicated a wide variance in technique and image quality.[9]

The decision was to use a voluntary program in which facilities would make regular mammograms and phantom exposures to be sent to the ACR for review and criticism. Physicist Raymond T. Tanner of the University of Tennessee in Memphis and then University of Colorado physicist R. Edward Hendrick of Denver led the subcommittee that developed the technical specifications and review protocols. The ACR expanded its staff to handle the flow of applications and reviews. Mammography facilities were located and owned variously. The ACR decreed that for its program, facility supervision had to be by a physician with demonstrated competence in mammography, radiographers had to receive special training and identified physics consultation had to be available. These requirements instantly became a national standard.

The general enthusiasm for mammographic screening and the stated policy of urging significant reductions from the charges for clinical studies muted a few complaints that acceptance of the ACR standards assured that only radiologists would perform mammograms.

Joint Screening Policy

Just as the accreditation program was getting started, Dr. Dodd and the ACR task force invited 12 other national medical and scientific societies to meet for the purpose of developing a common policy statement on mammographic screening. The participants were the American Cancer Society, the National Cancer Institute, the American Medical Association, the American Society of Internal Medicine, the American College of Physicians, the American College of Surgeons, the American College of Obstetricians and Gynecologists, the American Academy of Family Practice, the National Medical Association, the American Osteopathic College of Radiology, the

American Society of Therapeutic Radiology and Oncology, the American Association of Women in Radiology, and the ACR.

All of the participants concurred on recommending screening for women at age 50. The original New York City study by the Health Insurance Plan, which showed strong benefits for women over 50, had been confirmed by other studies. Late analysis was beginning to suggest benefits for women under 50. However, the American College of Physicians declined to accept screening of asymptomatic women at age 40. The American College of Obstetricians and Gynecologists subsequently issued a statement paralleling the majority of other participants.

The American Board of Radiology began examining candidates in diagnostic radiology on mammography in a limited fashion in 1980. Thus, all younger radiologists had some instruction in the technique. Health insurers added specific coverage for screening procedures. Several states made such coverage mandatory. Michigan, with the prompting of the state radiology society, made participation in the ACR mammography accreditation program mandatory for facilities in that state.

In the ACR accreditation program, about a third of facilities were rejected on technical grounds from their initial submissions. Most of those rejected were able to correct their defects and qualify upon resubmission. A few chose to stop offering mammograms. Some facilities that claimed ACR accreditation without having it were threatened with legal action. The approvals were for only three years, to accommodate to the reality of changes in people and equipment.

"Increasingly, ACR accreditation is being recognized by radiologists as a means of quality improvement. The ability to compare one's own mammographic practice with a national standard, while not always a pleasant experience at the time, offers the opportunity to validate the superior aspects of one's practice and to identify areas that need improvement," wrote Robert McLelland, then chairman of the ACR mammography task force, in 1991.[10]

Breast Screening in Medicare

The ACR program emerged in a timely fashion for political developments that led to mammography being written into federal law. In 1988, Congress enacted the first major expansion in the Medicare program, the so-called catastrophic amendments. Included in additions to the program was coverage for screening mammography. Medicare had covered clinical mammograms from the beginning of the program. The congressional action was the first coverage for a screening procedure, a mammogram every two years for any Medicare beneficiary, including younger women covered by Medicare because of various kinds of disability. The congressional language, with some help from the ACR, was specific in authorizing the Health Care Financing Administration (HCFA), which manages the Medicare program, to set standards for its coverage of the procedure.

On the basis of its long relationship with the ACR, HCFA turned to the College for help in drafting appropriate regulations. The Food and Drug Administration's Center for Devices and Radiological Health was brought in for technical expertise, and the state radiation control programs were mandated for on-site inspections of facilities. But the basic framework of Medicare requirements was taken directly from the ACR mammography accreditation program.

A year later, Congress repealed the catastrophic amendments after groups of the elderly objected to paying its costs, and the mammography coverage was lost. Then, in 1990, largely at the initiative of Senator Barbara Mikulski of Maryland, mammography screening benefits were restored as a Medicare benefit on the same terms contained in the earlier statute.[11] The benefit began in 1992. The need to combine federal

and state programs with the ACR standards resulted in some facilities submitting to several inspections. State programs benefited from a second piece of federal legislation, which authorized the PHS Centers for Disease Control to spend $29 million on mammography quality assurance and on new programs to pay for mammograms for needy women.[12]

The congressional action provided a standard for mammography for Medicare beneficiaries that did not apply to any other group. Because it reflected the ACR voluntary guidelines and because state radiation programs already required periodic inspection of all medical x-ray facilities, the federal action was a statement of principle. However, that situation soon changed.

In 1991, Washington Senator Brock Adams and Colorado Representative Patricia Schroeder sponsored a bill to set federal standards for all mammography for all women. Their argument was that breast cancer will not be conquered until all American women have access to reliable early detection and that the ACR program, while admirable, was voluntary. Although the ACR had not prompted introduction of the bill, it quickly endorsed it and urged the incorporation of the existing standards which had been developed by the College. The American Cancer Society also endorsed the proposal.

The Medicare Quality Standards Act of 1992 was signed by President George Bush in October of that year, to take effect in October 1994. The FDA Center for Devices and Radiological Health (CDRH) was directed to establish regulatory controls needed to implement the federal standard. Language in the bill and its legislative history authorized the CDRH to contract with the ACR for application of its accreditation program to the new requirements. Thus, the ACR facility requirements gained the force of law for every health facility in the country offering mammograms to any patient.

The CDRH subsequently authorized state radiation programs in California, Iowa, and Arkansas to accredit facilities, provided that they used the ACR specifications. The College expanded its capacity to accredit x-ray facilities, since any facility not accredited by October 1994 would be unable to continue performing mammograms after that. By the deadline, most of the 11,000 mammography facilities in the country had been accredited by the FDA based upon the ACR effort.

When to Start Screening

While mammography was written into federal policy, its value as a screening technique came under further attack. A large Canadian study raised questions about the validity of screening women younger than 50.[13] Though the ACR and others challenged its methods and conclusions, the furor prompted the National Institutes of Health to convene a consensus session on screening mammography early in 1993.[14] The consensus group recommended that the National Cancer Institute revoke its endorsement of screening mammograms for women between the ages of 40 and 50. It did. The American Cancer Society, the American Medical Association, the ACR, and other groups objected. The director of the NCI, Samuel Broder, was summoned to congressional hearings to defend his actions. A spate of new studies was begun to analyze the patient experience of millions of women who were getting mammograms under various programs.

In 1997, a new NIH consensus conference was held, and new reports in scientific journals seemed to demonstrate the value of screening for women in their 40s.[15] The panel recommended against changing the NCI position. In a public comment session, vigorous objections from radiologists and statisticians prompted the NCI Director, Richard Klausner, to reject his expert panel's advice. A US Senate resolution the next week endorsed earlier screening. Early in April, the NCI formally amended its stance and again recommended screening mammography for women in their forties.

In less than 40 years, mammography became a significant part of radiology. Radiologists performing mammography gained more public attention than they had attracted for any other part of their activities. Mammography was a fundamental part of a drive in the late 1980s and 1990s for women's health issues. Unlike many other advances in radiology, which were shared with other disciplines, the College's actions guaranteed that mammography was to be performed under federal statutes only by radiologists. The ACR had exerted its political muscle in a scientific cause with good practical results for the discipline.

End Notes

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13. AB Miller, CJ Baines, T To, and C Wall, "Canadian national breast cancer screening study: Breast cancer detection and death rates among women ages 40-49 years," *Can Med Assoc J* 147(1992):1429-1432.
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Special Section

Projects— An Introductory Summary

As the ACR grew in the second half of the century, its mandate to accept challenges broadened. College committees proposed some new projects, and others were brought to the ACR by members and by federal agencies. The broadest example of a project thrust upon the College is the extensive mammography effort described in chapter 9.

Five other projects have stood the tests of time and value to radiologists and exemplify the College's growth into areas of needs and opportunities:

1. the Task Force on Pneumoconiosis and its development of the test-teach-test format of viewbox seminars;
2. the Radiation Therapy Oncology Group, the Patterns of Care Study, and other investigations of the uses of radiation in the treatment of cancer;
3. the Radiologic Learning Laboratory, with its series of film and electronic teaching files;
4. the Continuing Education and Self-Evaluation series of syllabi, now numbering more than 40 volumes; and
5. the development of resident instruction courses on radiologic-pathologic correlation by the American Registry of Radiologic Pathology of the Armed Forces Institute of Pathology.

These efforts involved a combination of volunteers and staff. Each one required the College to stretch itself, to seek new staff with distinctive talents, to work with other organizations and other funding sources, and to make a commitment for added service to its members and their medical colleagues. Here are their stories.

Chapter 10

The Task Force on Pneumoconiosis

Few radiologists paid more than casual attention to news stories about the enactment of the Coal Mine Health and Safety Act of 1969 and President Richard M. Nixon's signature on it on December 30 of that year.[1] Most of those stories failed to disclose that two of the four elements of the law relied on the interpretation of chest x-rays to determine the extent of coal miner respiratory disability, often called black lung.

Given the extent of coal and other hard-rock mining in the US, it seems strange that in 1969 radiologists and other physicians knew so little about silicosis, coal workers' pneumoconiosis, asbestosis, and other dust-retention diseases. Certainly, pulmonologists and radiologists in Great Britain, Germany, and the Republic of South Africa were well ahead of their American colleagues in scholarly papers, public health programs, and international collaborative efforts.

Among radiologists, there were four significant exceptions to the general indifference to these respiratory diseases. They were members of the Public Health Service Panel of Radiologists. Beginning in the late 1940s, Eugene P. Pendergrass of Philadelphia, chairman of radiology at the University of Pennsylvania, had earned much of his reputation as a chest radiologist dealing with studies of the miners, quarry workers, foundrymen, and others in industries in Pennsylvania. He became a consultant to the Public Health Service and shortly brought three other chest radiologists to join him on a panel: Benjamin Felson of Cincinnati, chief of radiology at the University of Cincinnati; George Jacobson of Los Angeles, chairman of radiology at the University of Southern California; and Leonard J. Bristol of Saranac Lake, New York, chief radiologist at the Trudeau Sanitarium. They had some involvement in the work of committees of the Union Interna-

tional Contre Cancer (UICC) and the International Labor Office (ILO), which had devised a standard classification of chest films for use in describing the extent of mineral dust in a worker's lungs. Their advice influenced the Public Health Service and the writers of the 1969 law to include the use of the ILO system in the programs created for American miners.

At the 1969 RSNA meeting, Dr. Jacobson told College representatives about the bill awaiting the president's signature. In the ensuing discussion, he suggested that the ACR should offer to help with the x-ray programs specified in the bill. He estimated that examinations of 150,000 underground coal miners would be involved in the mandated program, observing that he and the other PHS panelists could not interpret that volume of films on top of their normal duties. The ACR wrote a letter to Robert Finch, secretary of HEW, offering to help implement the two x-ray segments of the law. In response, the ACR was invited to a January meeting where planning for implementation began. The task was assigned to a small Public Health Service agency, the National Institute for Occupational Safety and Health (NIOSH). At the end of the session, Marcus Key, NIOSH director, asked the ACR to submit a proposal to educate radiologists and other physicians about the x-ray requirements in the law.

Chest X-Rays Required by Law

In brief, those requirements were for the use of chest x-rays of active underground coal miners to determine the existence and extent of retained coal dust in their lungs and, from that, the miners' current or potential respiratory impairment. Another section of the bill set up a federal workmen's compensation program for former miners, the black lung benefits provision. In both programs, the law specified that the determinant of respiratory impairment was a chest x-ray film, interpreted and scored according to the ILO classification system. The only compulsory feature in the law required coal mine operators to arrange for chest films for their miners in facilities acceptable to the miners. There was no obligation for the miners to get the chest films and no obligation for any physician or medical facility to provide the examinations. The government needed somebody who could spread the word about the medical aspects and persuade radiologists and other physicians to participate. It also needed help in drawing up the specifications for the miner examination program and the black lung benefits program.

By its interest and availability, the ACR became the principal contractor and consultant to NIOSH on the whole program, in a relationship that has lasted to this writing under a series of contracts and agreements. In return, the College derived a series of benefits for radiology, including the use of teaching techniques developed for this program, extensive radiography quality assurance materials, business for its film-copying facility, and international recognition as a leader in the radiologic aspect of occupational health.

The ACR's first action was to create the Task Force on Pneumoconiosis (TFP). The four members of the PHS radiology panel were the nexus of the task force. They added Russell H. Morgan, retired chief of radiology, dean of medicine and vice president of Johns Hopkins University in Baltimore. Edgar L. Dessen, a radiologist from Hazleton, Pennsylvania, in the anthracite coal region, was named as chairman. Ben Felson brought Jerome F. Wiot from his program in Cincinnati, and George Jacobson added E. Nicholas Sargent from the University of Southern California. Dr. Felson headed the working committee on educational techniques, Dr. Jacobson the group on quality assurance, and Paul A. Jones of Zanesville, Ohio, a committee to select participants in planned activities. Liaison representatives from the American Medical Association, the American College of Chest Physicians, the College of American Pathologists, the American Osteo-

pathic College of Radiology, and the American Society of Radiologic Technologists were added. Otha Linton had the staff lead, together with Bill Melton in the Washington office and a new hire, Maureen Trautz, a former grade school master teacher, who helped to develop the educational aspects.

Educating American Physicians

The task force designed a seminar to acquaint radiologists and other physicians with the requirements in the act and to train them in the use of the ILO system for classifying their findings. For several years, NIOSH and its radiology panel had been conducting a survey of coal miners. They recognized that the quality of chest radiography in the mining areas was marginal, at best. So the task force recommended to NIOSH that it set standards for film quality, and ACR was asked to devise the standards for proposed regulations.

There was need for haste. The first round of examinations had to begin in 1970. The ACR proposal was submitted in February 1970, approved in April, and the seminar scheduled for June. Task force members felt that the traditional approach of showing slides would not be adequate to teach this hands-on skill. Every participant needed direct involvement in actually doing what was being taught. Thus evolved the "viewbox seminars." Each participant had a viewbox and a set of teaching films. Participants looked at a few films, attempted to classify them, and were then critiqued. Classifications were made using the ILO system and its reporting forms. The completed forms were collected and scored, giving the faculty a way to measure the learning gain. Fortunately, there was demonstrable learning.

The logistics were unlike any previous course. The Eastman Kodak Company had just developed a rapid-copy film and offered to produce 100 sets of teaching films as a test. The College borrowed 100 viewboxes, and the Mayflower hotel electrician in Washington, DC, spliced up a rig to connect them. A package of reprints, scoring sheets, copies of the law, and draft regulations was prepared. Six weeks before the mid-June date, announcements were sent to some 3,000 radiologists and pulmonologists in coal-mining states. The 200 spaces in the course were fully subscribed, with almost 100 applicants turned away. Two participants shared each viewbox and film set, which set up a consulting situation very familiar to most radiologists and enhanced the learning process. Besides the teaching sessions, lectures on the program, on pathologic correlations, on clinical correlations, and on the importance of good film quality rounded out the program.[2]

Enthusiasm for Viewbox Seminars

The format was received enthusiastically. Participants did the exercises, argued with the faculty about their classifications, stayed over breaks to study the materials, and wrote rave reviews on their critique sheets. At the end of the session, Marcus Key, the NIOSH director, asked the ACR to do at least five more seminars in 1970. The task force accepted the challenge and its contract was expanded.

For purposes of the active miner program and the black lung benefits portion, the federal agencies were interested only in the presence of coal workers' pneumoconiosis (CWP). Any other findings were not of consequence. However, the ACR urged strongly that the program require participating physicians to report all medically significant findings, arguing that these periodic examinations might be the only opportunity to pick up an early lung cancer, active tuberculosis, or other significant pathology. The suggestion was accepted and a program to report clinical findings to miners and their physicians

was devised. As for the findings of CWP, the tension between the miners and the mine operators was such that NIOSH chose to receive the x-rays and readings in confidence and then communicate those with an actionable level of CWP to the miner and the mine operator.

NIOSH provided its protocols and the task force's consultative services to the Social Security Administration and the US Department of Labor, which had responsibility for administering the black lung benefits program and for determining which claimants were eligible for compensation.

The first round of miner examinations started in the fall of 1970 and ended the next year, with 65,000 miners participating. At the end of the round, the task force reviewed the x-ray reports to study the incidental findings. Approximately 10 percent of the reports had such findings. The ACR sent a survey to those miners and to their physicians, asking what medical action resulted from the findings. About a third of the physicians responded that they were unaware of the problem identified in the x-ray reading. Several miners wrote letters expressing gratitude for the detection of lung cancers and other serious problems.[3]

During 1970, NIOSH expanded the ACR contract to cover educational activities beyond the viewbox seminars. These included production and distribution of a short movie explaining the program, development of a home-study syllabus based upon seminar materials, preparation of an exhibit on chest radiographic technique, six seminars on technique for technologists, a special seminar for medical school teachers, miniseminars for physicians at US Steel and separately for the United Mine Workers of America, modified seminars at the annual American Medical Association Conference on Occupational Health, quality assurance programs in conjunction with film companies and state radiological health agencies, distribution of thousands of reprints, home study kits and test materials, development of a chest phantom to test x-ray machine exposures, development of the B-reader test, and separate seminars for administrative law judges and other lawyers.

Broadening the Mission

After the spurt of seminars in 1970 to train physicians for the first round of active miner examinations, the TFP slowed down, presenting 14 full seminars, plus smaller demonstrations and technologist seminars, and developing other materials. To provide physics expertise, the task force had added E. Dale Trout, retired from General Electric and a ranking professor at Oregon State University, and Kurt Rossman, recently retired from Eastman Kodak and a professor of physics at the University of Chicago. The development of the phantom was done by Dr. Trout under a separate contract.[4] Likewise, the development of the B-reader examination was achieved under a separate contract by Russell Morgan at Johns Hopkins University and validated by the task force.

One immediate result of the TFP efforts was a notable improvement in the quality of the films submitted to the NIOSH survey programs. In the first round, NIOSH expert reviewers had rejected a third of the films as unreadable on the first pass. Three years later, in the second round, the participating facilities had reduced the unreadable rate to less than 5 percent. That was credited to the educational efforts by the TFP, Eastman Kodak, and Dupont through their technical representatives, to the Trout phantom, to the seminars for technologists, and to the task force's success in calling attention to the problem—and offering solutions.

The black lung benefits program, which was to provide money to retired miners and their dependents from a fund levied on mine operators, proved a more difficult task for the federal agencies than did physician education, where the ACR effectively took the lead. Mine operators routinely challenged the disability claims. The

only evidence recognized in the law was the chest x-ray. Since widows and dependents of dead miners could make claims but had to produce a valid x-ray study to support them, many claims were denied without review.

Legal Amendments Favor Miner Claimants

With the leadership of Representative Carl Perkins, whose eastern Kentucky district included coal mines, Congress amended the law in 1972 to allow introduction of other medical evidence and to give the miners or their survivors a larger presumption of harm related to time as underground workers. The ACR testified in favor of most of the changes, noting that good medical practice involved the use of any available information. In addition, the ACR noted that while the properly performed chest x-ray was the best and most objective evidence, not all examinations were well performed and not all interpretations were accurate. The new law broadened the evidentiary base and allowed NIOSH and the Department of Labor to review submissions for quality and accuracy. The ACR testified again on a 1977 amendment in which Rep. Perkins again sought to give claimants the benefit of the doubt, even in the absence of reliable medical data. In that instance, the ACR urged that Congress separate a policy decision to award benefits to former miners from the presence or absence of valid x-ray studies or other evidence.

Because the resolution of former miner claims was an adversarial process, the determination of findings for each one was made by an administrative law judge working for the Department of Labor. The TFP responded to a request from that agency to develop a special seminar for its judges and for other attorneys who dealt with miner claims. Several of those seminars were presented, often overlapping with physician seminars.

The NIOSH director, Marcus Key, was sufficiently pleased with the ACR efforts that he allowed the College to develop viewbox seminars on other body systems under the aegis of the TFP. Seminars on bone, pediatric radiology, other chest problems, and mammography all worked from the basic test-teach-test format and individual study materials.

The ILO System Needed Fixing

The use of the ILO classification system for recording chest x-ray findings had stemmed from schemes originating in Europe in about 1948. The 12-point classification scale was described and also exemplified by radiographs selected to display each point on the scale. The standard films were expensive, difficult to obtain, and, in several instances, lacking in quality.

By the middle of the 1970s, NIOSH and the TFP were convinced that modifications of the system and a new set of films were needed. The International Labor Office was the official sponsor and because panelists from a dozen countries had been involved in the earlier versions, any change required considerable diplomacy. James Merchant, chief of the NIOSH pulmonary service at Morgantown, West Virginia, and project officer for the TFP, undertook to persuade the ILO to reopen its classification. A strong part of his persuasion was in his offer to pay the costs of the revision and to lend the talents of the TFP to organizing the effort. With another expansion of its contract, the TFP had the lead in an international effort. After three years of international meetings and extensive tests, the ILO 1980 classification was approved. The ACR film-copying facility was selected by NIOSH as the sole contractor for reproduction of the new standard films. Since 1980, the ACR has produced more than 10,000 sets of the standards for ILO distribution around the world.

In the same years came development of the B-reader examination. The term stemmed from an earlier usage. Physicians who completed the ACR seminars were dubbed A-readers and thus recognized as capable of supervising facilities for the NIOSH program and making initial interpretations for its surveys. Though the seminars were well received and the participants were obligated to record their classifications, no effort was made to score them after the first year. Raymond Moore, a NIOSH deputy administrator, decided that a more formal test was needed so that NIOSH could develop a panel of expert readers. The original four panelists had been supplemented by other TFP members, but the demand had outgrown them.

Dr. Morgan developed the B-reader test, using 125 intentionally difficult chest radiographs. A candidate had six hours to score the films using the ILO classification. After task force members validated the test, it was offered in conjunction with what had become by 1978 an annual ACR viewbox seminar. The TFP developed a home-study syllabus for the B-reader test. Those who used the home-study materials and attended the seminar scored better than other examinees, although the number of physicians who took the examination without those preparations was too small to allow a solid comparison.

If the government had a special credential for its experts, companies and lawyers involved in coal mine compensation cases wanted comparable expertise. So, without anyone's intent, the B-reader qualification became the US standard and was accepted in other countries as well. It has remained the standard in the US and accounts for a steady demand for the pneumoconiosis viewbox seminars.

Talents Transferred to Asbestos Problems

The TFP's experience with coal workers' pneumoconiosis proved to be a national asset when the work of Irving Selikoff, a New York City chest physician, focused national attention on asbestosis and other respiratory problems of workers exposed to asbestos fibers. The problem proved to be fairly widespread, involving workers in shipyards, foundries, building wreckers, and even auto brake repairmen. Asbestos fibers, once inhaled and lodged in the lung, could not be removed. Being sharp, they created multiple scars at the alveolar level, reducing the lung's ability to exchange oxygen. The basic method of detecting asbestos-related changes was the same x-ray film specified as the legal determinant for black lung.

Like black lung a decade earlier, asbestosis was little known to most American physicians. The Department of Health and Human Services was mandated to mount a crash effort to educate doctors and other health workers. Because the National Cancer Institute had the broadest experience and talent in mounting crash efforts, like its "war on cancer" a few years earlier, it was given the lead. Most of the NCI working group had worked with the ACR on mammography and other programs and so it turned to the College for help. Within the ACR, the TFP had the experience and skills to develop a project. A fiscal marriage was arranged between the NCI and NIOSH, and the task force went to work on the new problem.

The program for the viewbox seminars was expanded to include asbestosis cases, and new materials were added to the home-study kits. An Asbestos Working Group led by Dr. Morgan developed a new family of asbestos-related teaching materials, including films, micrographs, and historic, epidemiologic, and clinical reprints. A monograph was developed as the key element.[5]

About 150 sets of the asbestos teaching package were sent to American and Canadian medical schools. Approximately 10,000 copies of the monograph were sold to other interested physicians. The small volume remains a classic in its field.

The intensity of TFP efforts subsided in the mid-1980s. Underground coal mining diminished in the US, as much production shifted to strip mining of shallow deposits in midwestern states and the deep mines in Appalachia were shut down. Those that remained in operation were cleaner and safer, as a result of other provisions of the 1969 law. The bulk of former miner claimants had made their way through the adjudication process. Much of NIOSH's emphasis remained on asbestosis and on other kinds of occupational disease problems. Also, the administration of President Ronald Reagan reduced federal initiatives in occupational health.

However, the series of contracts between NIOSH and the ACR and the annual viewbox seminars continued. The demand for the training related closely to the national demand for B-readers. As NIOSH funding was reduced, the size of the contracts and the opportunities for other teaching efforts shrank apace.

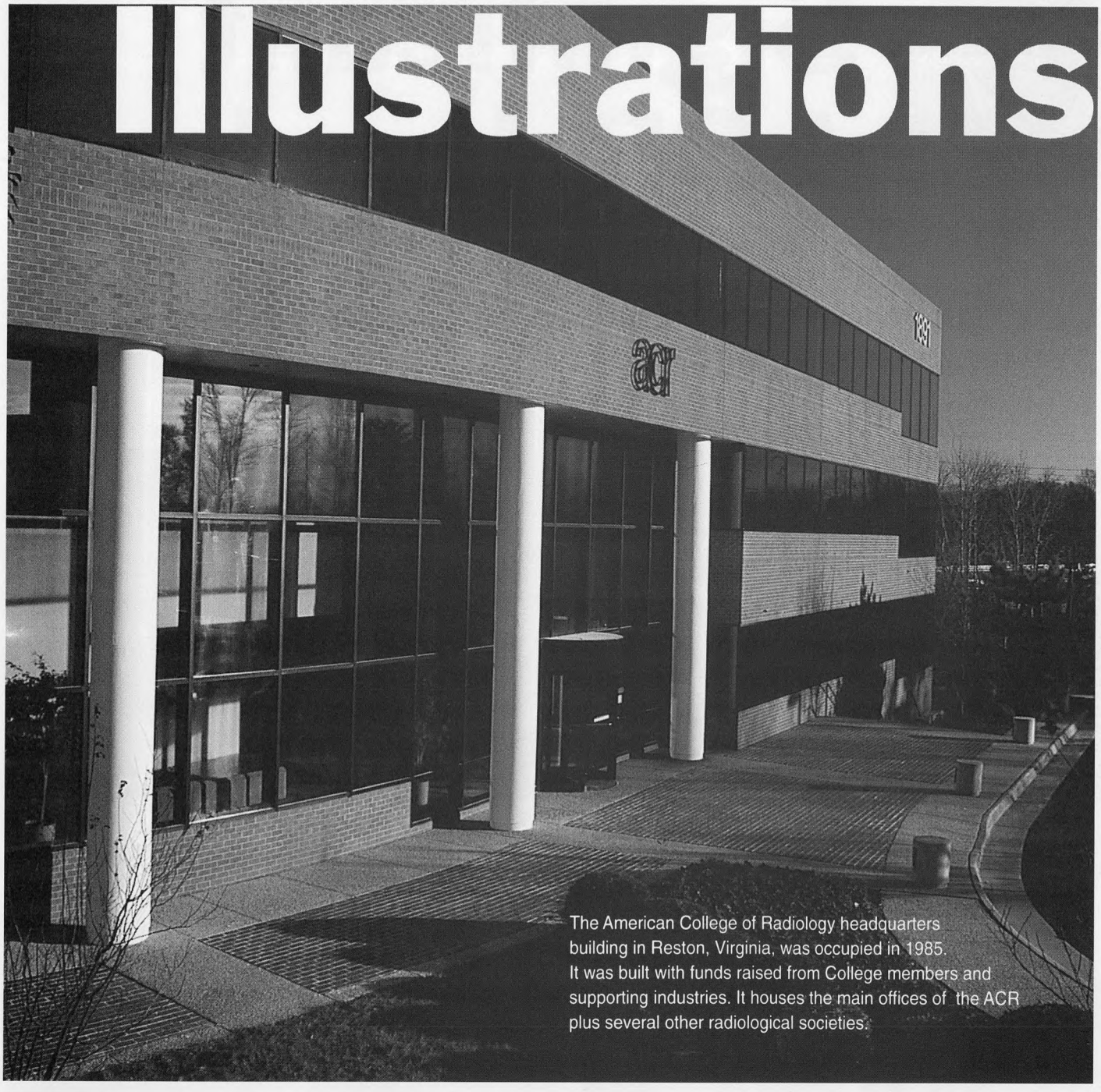
Death and retirement had stripped away most of the original TFP members by 1996. Only radiologists Jerome Wiot and E. Nicholas Sargent and pathologist Jerome Kleinerman of Cleveland remained of the original committee members (and Otha Linton of the original ACR staff). The existence of NIOSH was threatened in 1995 by the budget-cutting efforts of the Republican-led Congress, and the ACR contract lapsed for the first time in a quarter-century. The College elected to keep the TFP intact and to continue offering the yearly viewbox seminars. The task force remained active in efforts to get the ILO to sponsor a revision of the 1980 classification system with the hope that a new version could be crafted by the end of the century.

Whatever its future, after a quarter century, the TFP could claim considerable credit for the College in several areas: the development of a new interactive teaching technique, the improvement of x-ray film quality in a key area of practice, the establishment of lasting liaison with other professional societies whose members are involved with chest disease and occupational health, the recognition of the ACR as a world leader in teaching and standards development, and the radiologists' retention of the leadership in this area.

End Notes

1. PL 91-173, 30 December 1969.
2. B Felson, G Jacobson, EP Pendergrass, LJ Bristol, OW Linton, and RW Harrington, "Viewbox seminar: A new method of teaching roentgenology," *Radiology* 116(July 1975):75-78.
3. American College of Radiology Task Force on Pneumoconiosis, *Follow-up Survey of Coal Miners: Final Report*, National Institute of Occupational Safety and Health (NIOSH) contract HSM 099-71-34, 30 September 1972.
4. ED Trout and JP Kelly, "A step-wedge phantom for chest radiography," *AJR* 117(April 1973):117.
5. American College of Radiology, *Asbestos-Related Diseases: Clinical, Epidemiologic, Pathologic, and Radiologic Characteristics and Manifestations*, supported in part by NIOSH contract 210-75-0015 and interagency agreement 3Y01 (CN 80607), 1982.

Illustrations



The American College of Radiology headquarters building in Reston, Virginia, was occupied in 1985. It was built with funds raised from College members and supporting industries. It houses the main offices of the ACR plus several other radiological societies.

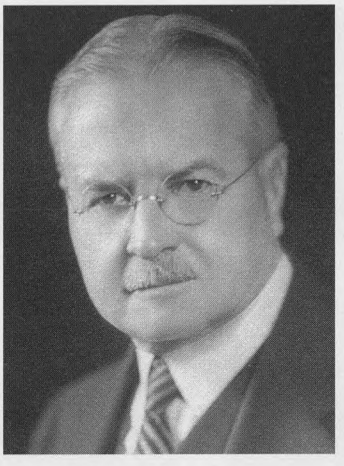
The enclosed section of photographs is intended to add life to the words which surround it. Like the content of the history, the task of selection here proved more interesting than the result may be. ACR photo files are less comprehensive than were the official records. Thus, it was not possible to offer a chronological view of all ACR presidents or board chairmen, even if that had been desired. Instead, an effort was made to select a group of individuals whose contributions as recorded in the text made them particularly significant. In addition, a relatively small number of other photos were chosen to reflect certain significant events. The captions are, deliberately, quite brief. The reasons for each selection are found in appropriate sections of the text.

Significant ACR Leaders

Albert Soiland
Los Angeles, founder of the ACR in 1923

George Pfahler
Philadelphia, first president, 1923

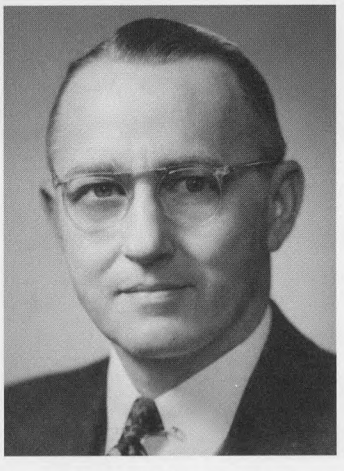
Benjamin H. Orndoff
Chicago, founding member, secretary, president 1936



William H. Stewart
New York City, second president, 1924

Edwin C. Ernst, Sr.
St. Louis, founding member, president 1947

W. Edward Chamberlain
Philadelphia, first chairman, Board of Chancellors, founding member, president 1941

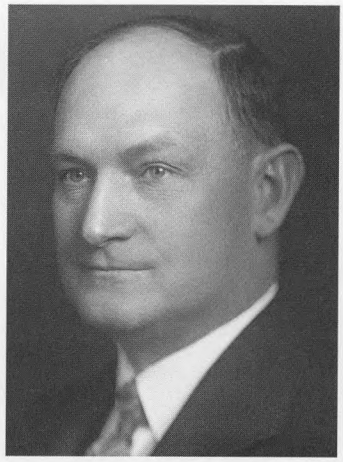


Eugene P. Pendergrass
Philadelphia, secretary, chairman, president 1948, AMA delegate

Byrl R. Kirklin
Rochester, Minnesota, president 1942

Thomas Groover,
Washington, DC, president 1934

Mac F. Cahal
Kansas City, Missouri, first executive secretary



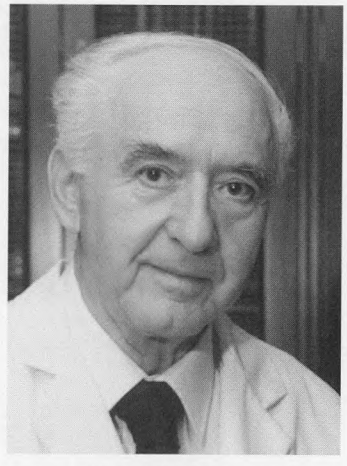
Arthur C. Christie
Washington, DC, president 1931, chairman, InterSociety Committee

Lowell S. Goin
Los Angeles, president 1944-45, member ISC

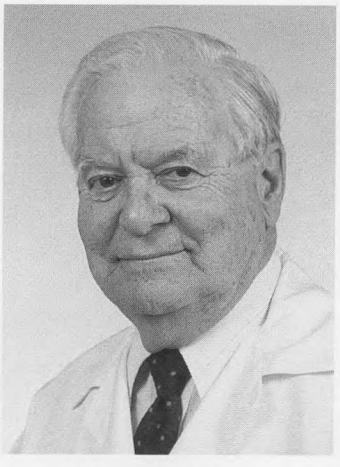
Edward H. Skinner
Kansas City, Missouri, president 1948, member ISC

Ross Golden
New York City, president 1943, first delegate, International Society of Radiology, InterAmerican College of Radiology

Russell H. Morgan
Baltimore; chairman, ACR Commission on Public Health; member, Task Force on Pneumoconiosis

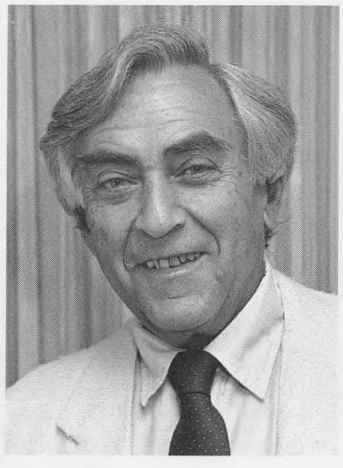


Elias P. G. Theros
Winston-Salem, NC; registrar, Armed Forces Institute of Pathology; chairman and editor, Self-Evaluation and Continuing Education series



Benjamin Felson
Cincinnati, Ohio, chairman, ACR Commission on Education, member Task Force on Pneumoconiosis

Wallace D. Buchanan
South Bend, Indiana, chancellor, chairman of board and president 1965



Simon Kramer
Philadelphia, founder of ACR Philadelphia office, first chairman of Radiation Therapy Oncology Group, Patterns of Care Study

William C. Stronach
Chicago, executive director 1947-1982

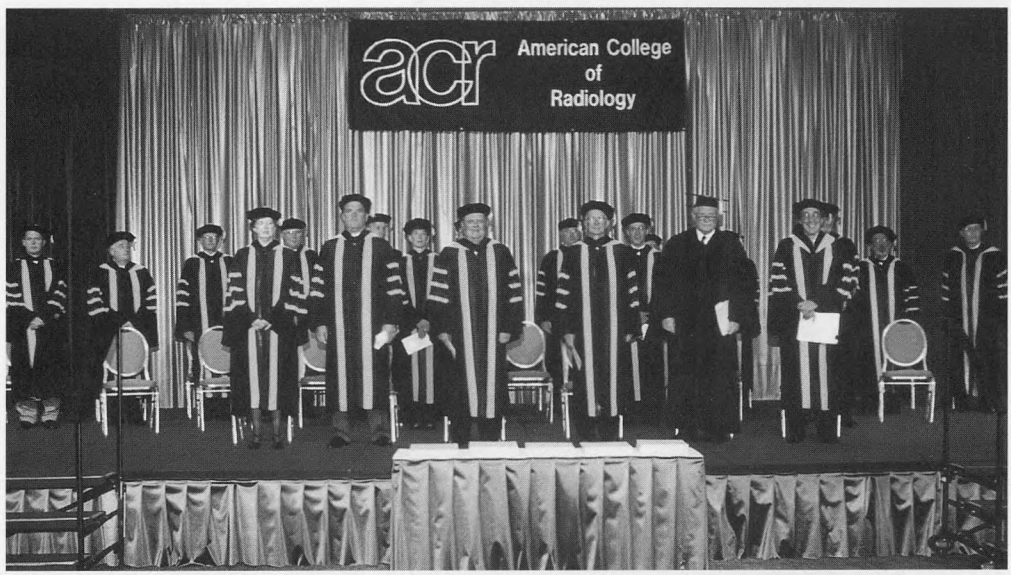
Moments in ACR's History

(Left) Albert Soiland, found of the ACR, presents its second gold medal to Mme. Marie Curie, discoverer of radium, at the 3rd International Congress of Radiology, Paris, France, 1931

(Right) The head table at the 25th annual meeting of the ACR, Chicago, 1948

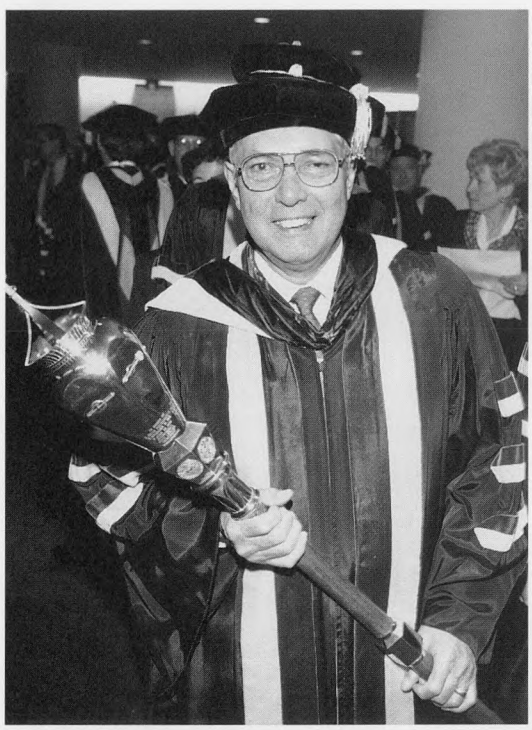
(Left) Attendees at the first ACR Conference of Teachers of Clinical Radiology, Kansas City, Missouri, 1936

Scenes from Annual ACR Fellowship Convocations

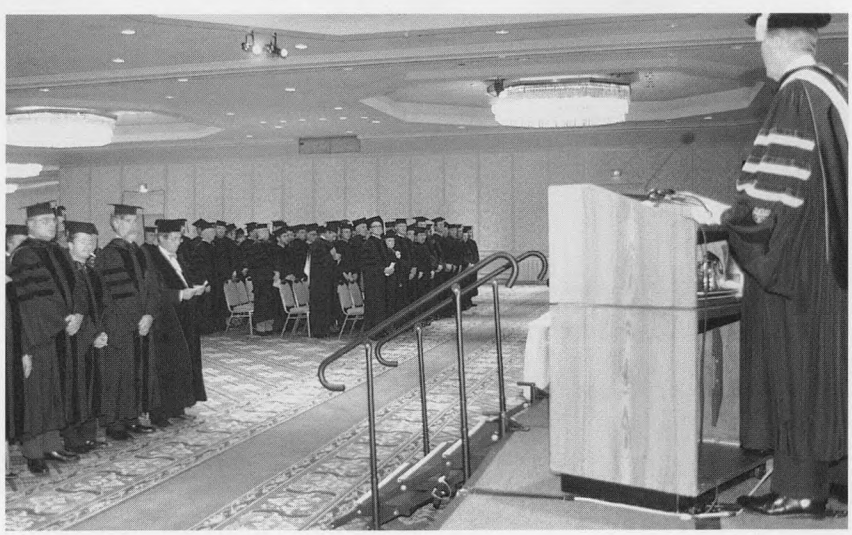


The Board of Chancellors, 1996

New ACR fellows (right)



(Above) ACR Vice president Victor Carlson of Houston, Texas, with the official mace of the College, 1995

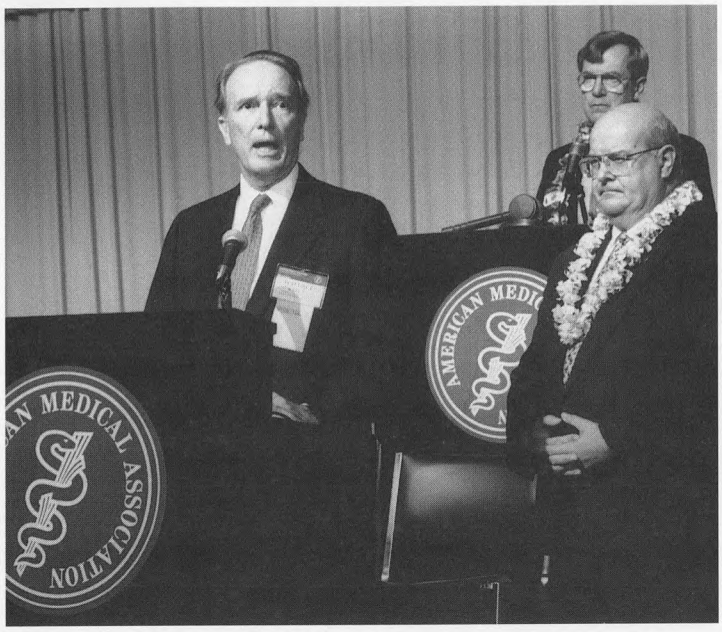


Annual Meetings and Symposia

(Left) President K. K. Wallace, Jr., Charlottesville, Virginia, presents a fellowship certificate, 1995

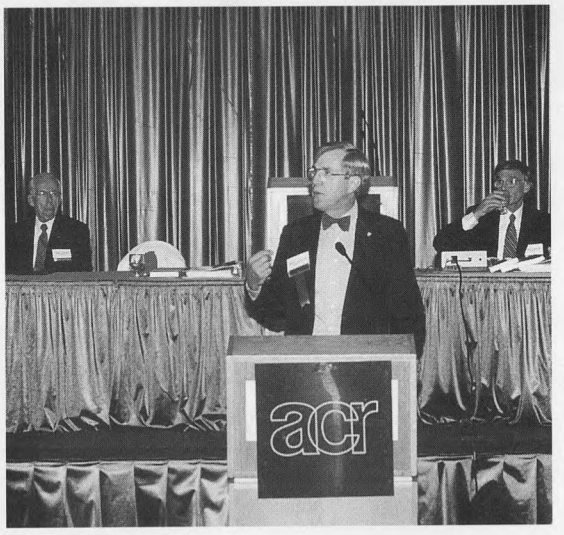
(Above right) A group of councilors at the 1992 Council meeting (at right).

(Left) A past president, Gerald D. Dodd, Jr., Houston, Texas, speaks to the Council

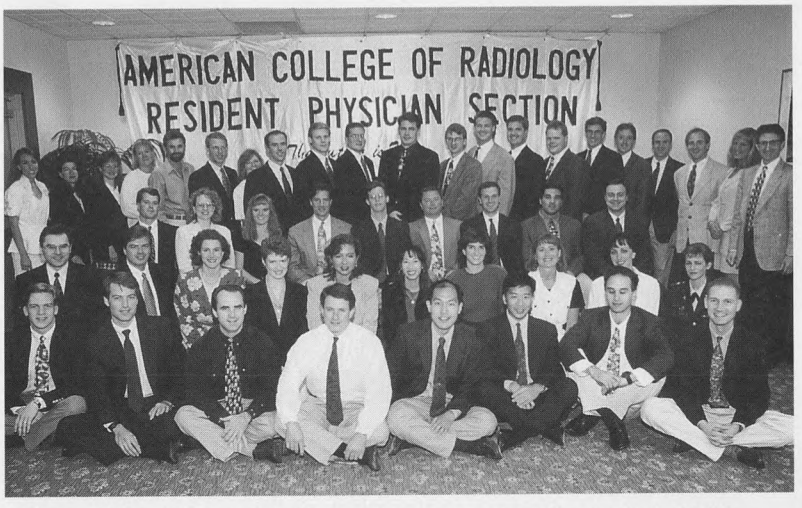


(Above) ACR President K. K. Wallace, Jr., Charlottesville, Virginia, received an organizational certificate of merit from the American Medical Association in 1994 recognizing the ACR mammography accreditation program. AMA President Robert McAfee, Portland, Maine, made the presentation with Daniel Johnson, then the AMA speaker, in the background.

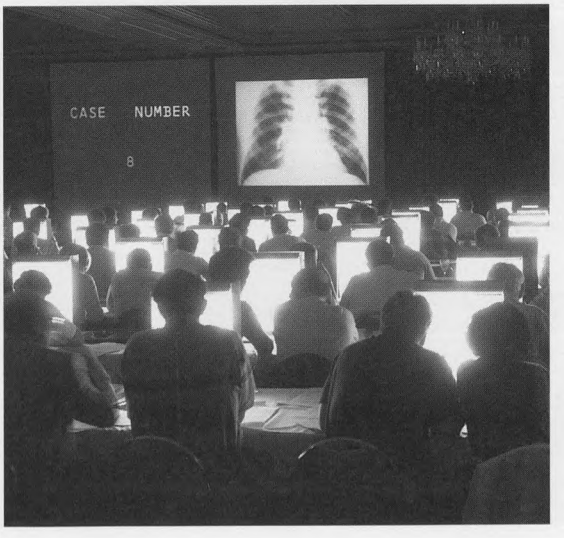
The Gold Medal



(Above) Daniel H. Johnson, New Orleans, the first radiologist to be president of the American Medical Association, addresses the Council, 1996



(Above) The ACR resident section at an annual meeting, 1996



(Right) The viewbox seminars were developed by the ACR Task Force on Pneumoconiosis as a short course teaching technique. Each participant worked from his/her own set of images.

The ACR Today and Tomorrow

(Left) The ACR headquarters building was dedicated in April, 1986. Roy R. Deffebach, Redwood City, California, ACR president, conducted the ceremony. Seated were other ACR officers and senior staff.

(Right) The colors are presented at the convocation of Radiology Centennial, Inc., May 1995. The ACR was a leader in a cooperative effort to celebrate 100 years of radiologic science.

(Left) A project of Radiology Centennial, with the 3M Company, was the development of a time capsule. The capsule began its projected century in the lobby of the ACR headquarters.

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Chapter 11

The Philadelphia Projects

Early radiologists noticed that exposing a patient with overt cancer to x-rays seemed to have a good effect. But they had no real idea of why they saw changes, what the causative factor was, what the efficacious dose was, or how to control the dose. Some of them worked with physicists to develop a crude concept of an "erythema dose," which translated into the notion of turning off the machine when the patient's skin turned red.

Almost a century later, radiation oncology is a precise science that involves dedicated physicians, physicists, biologists, epidemiologists, statisticians, and engineers using a constantly growing body of research and experience. A significant part of these improvements resulted from a series of projects brought together in what became the Philadelphia office of the ACR.

The early history of radiation therapy, or radiation oncology, as its practitioners preferred much later, was mostly trial and error. Then radiation measurement developed, x-ray generating equipment grew more reliable and more capable of emitting higher dose ranges, and the nascent science of radiobiology began to reveal some knowledge about the impact of x-rays on normal and malignant cells. Still, determination of the most effective way to treat a particular patient with a defined cancer at a marked stage of its development remained more good intentions than science.

As years passed, radiation oncologists contributed their experience to the literature. Few institutions had enough patients with any single type of cancer to allow strong conclusions. The need for patient follow-up after early indications of successful treatment slowed down research. Further, many patients were treated with radiation in conjunction with sur-

gery and, beginning in the 1960s, in conjunction with cancerocidal drugs, and then with various agents to alter radiation responses, such as hyperbaric oxygen, heat, and certain potentiating chemicals. If there was a best way to treat specified cancers at definable stages of their growth, it remained elusive.

Another difficulty in focusing on the science of radiation treatment was that most radiologists were trained in both diagnosis and therapy, with an emphasis on diagnosis. As recently as the 1960s, only one year of a radiology residency was devoted to treatment. Most general radiologists declined to attempt definitive radiation treatment. Much of the radiation therapy in community hospitals and private offices was palliative, rather than curative. Even so, a relatively small group of radiologists chose to concentrate their skills on cancer treatment and began seeking a basis for more scientific practice.

Ralston Paterson, the pioneer British radiation oncologist, defined the problems with radiation therapy research: "These studies ... impose a latent period of years (conventionally five years in many instances) from the end of a period of study to assessment of result. Moreover, to get significant statistical samples may, of itself, take two or three years. A final answer therefore requires from seven to ten years from initiation of the study and so calls for great patience."[1]

The first organized approach to clinical research about radiation treatment came in a sidewise fashion in the US. The National Cancer Institute (NCI) organized a Cancer Chemotherapy Service Center in 1956 to begin clinical trials on the fledgling approach of trying to find chemicals which would kill cancer cells while sparing normal ones. Since the surgeon and the radiation oncologist could not always be certain of reaching all of the cancer, the concept of a chemical agent that could pursue cancer cells wherever they might lodge in the body was attractive in concept, if difficult to explore. The new NCI program organized and funded 17 clinical cooperative groups.[2] Radiation treatment was peripheral to only a few of them.

By the end of the 1950s, a small group of 11 radiologists had been gathered by Kenneth M. Endicott, director of the NCI, to give him advice on radiation treatment of cancer. The group named itself the Committee for Radiation Therapy Studies (CRTS). Gilbert H. Fletcher, chief of radiology at the M. D. Anderson Hospital in Houston, became the first chairman; James J. Nickson of Columbia University in New York City was secretary; and Norah duV. Tapley, also of Anderson, was the executive secretary. Dr. Endicott began to fund the CRTS activities in 1963.

The founding members included several others who are regarded deservedly as pioneers of dedicated radiation oncology in the US: Henry Kaplan of Stanford University; Juan A. del Regato of the Penrose Cancer Hospital in Colorado Springs; Victor Marcial of the University of Puerto Rico in San Juan; Fernando Bloedorn of the University of Maryland in Baltimore; Walter Murphy of the Roswell Park Institute in Buffalo, New York; Morton Kligerman of Yale University in New Haven, Connecticut; Manuel Garcia of Louisiana State University in New Orleans; and Milton Friedman of New York City. Other pioneers added to the CRTS included William E. Powers of the Mallinckrodt Institute in St. Louis (and later Wayne State in Detroit); Philip Rubin of the University of Rochester, New York; Isadore Lampe of the University of Michigan in Ann Arbor; Robert Parker of the University of California at Los Angeles; Frank Hendrickson of Rush-Presbyterian Hospital in Chicago; Robert Robbins of Temple University; Luther W. Brady of Hahnemann Hospital; and Simon Kramer of Jefferson Medical College, all of Philadelphia. Representatives of the radiation physics and radiobiology communities also joined the committee. Other radiation oncologists in private practice joined later.

The CRTS encouraged the NCI to support clinical trials of radiation treatment modalities. The first involved a comparison of extended

radiation versus localized fields for Hodgkin's disease, with Dr. Nickson as principal organizer. Henry Kaplan, who did much of the pioneering work on the treatment of Hodgkin's disease, suggested the study but then declined to be part of it. The second was a cooperative trial of adjuvant hormone therapy for adenocarcinoma of the prostate and involved a different set of investigators.

The Radiation Therapy Oncology Group

Simon Kramer proposed a study of radiation with and without methotrexate for advanced cancer of the aerodigestive tract. After discussions with Dr. Endicott at the NCI, he proposed a project to undertake a series of trials, starting with the methotrexate study. He received an award to Jefferson in September 1967. During the methotrexate study, Dr. Kramer obtained a second NCI grant in 1969 to renovate the therapy facility at Jefferson and add a radiobiology research center.

A year earlier, he had gotten an NCI grant to study the feasibility of a national research group, which was the beginning of the Radiation Therapy Oncology Group (RTOG). In 1971, Jefferson was awarded more NCI funds to get RTOG fully functional. Dr. Kramer was chairman; Philip Rubin was vice chairman; Marvin Zelen of the State University of New York in Buffalo (and later of Harvard) was the first chief statistician. At Zelen's resignation, the ACR hired Tom Pajak, who continues to head the RTOG statistical service. Ten radiation therapy centers originally participated.

In a few years, Dr. Kramer's study center became the site of three other complementary, but separate, projects. In 1972, Jefferson was awarded a feasibility grant to develop a national study of treatment protocols. This was followed in 1974 by the Patterns of Care Studies award. Later came NCI support for a series of particles studies and, a decade after that, a cancer diagnostic-imaging project. Their successful integration and transfer to the national aegis of the ACR testify to the drive and political skills of Simon Kramer.

Most of the members of the CRTS were strong individuals and acknowledged leaders in radiation oncology. It took someone who combined standing in the group with enough zeal and organizational skills to pull the elements together. That man was Simon Kramer.

Simon Kramer was trained in England, where radiation oncology had gained early separation from diagnosis, and a series of regional cancer treatment centers provided a concentration of patients and training opportunities. He finished in medicine at Kings College at the University of London in 1943 and spent four years in the British Army Medical Corps. In 1947, he began a residency in radiation therapy at Middlesex Hospital, completing it at the end of 1949 and serving as senior registrar at Middlesex until 1952. He had a two-year stay as a senior assistant at the Royal Cancer Hospital in London. In 1954, he went to Winnipeg, Manitoba, as chief of radiotherapy at Saint Boniface Hospital with a faculty appointment at the University of Manitoba. Then, in 1956, he moved to Philadelphia as chief of radiotherapy at Jefferson Medical College, where he spent the rest of his career and holds distinguished emeritus status. He received gold medals from the American Society for Therapeutic Radiology and Oncology in 1980 and from the American College of Radiology in 1986.

The RTOG began in the Jefferson department of radiotherapy. Dr. Kramer hired a project administrator, John J. Curry. The NCI grant soon was expanded to provide needed data-processing resources, and the study moved into its own quarters near the medical school. However, the sponsorship of a single institution proved to be prob-

lematic, and Dr. Kramer and others concluded that they needed a national sponsor.

Curiously, it was the second broad project, the Patterns of Care Study (PCS), which became the first ACR contract in Philadelphia. The RTOG efforts were transferred slightly later.

Virtually all the participants in the RTOG were ACR members. The American Society of Therapeutic Radiology and Oncology was still a small club with no resources, whereas the ACR had grown to have two offices and a competence in working with the National Cancer Institute on mammography, and with other federal agencies on other projects. So Simon Kramer wrote the second PCS grant for the ACR. He then transferred the RTOG federal grants made to Jefferson to the ACR in 1976. John Curry and other project staff became ACR employees in 1975 while remaining in the same office space near Jefferson in Philadelphia. Since the projects were relatively self-contained, the ACR's new responsibilities were slight.

A Broad Appeal to Cooperating Therapists

As College projects, the RTOG work had a broader appeal to radiation oncologists in other institutions who were needed for the proposed cooperative trials. Even though the study project did not involve patients in a direct sense, the data collected did have an impact on the way participants chose to treat patients in randomized protocols. So in 1975 the ACR appointed an institutional review board. Fran Glica was assigned to coordinate its activities.

In the first five years after its organization, the RTOG originated 16 clinical trials. Besides Drs. Kramer and Rubin, these were designed by Luther Brady, Victor Marcial, Morton Kligerman, and Carlos Perez of St. Louis, Chu Chang and Joseph Newell of New York City, and William Constable of Charlottesville, Virginia.

As James D. Cox of Houston, RTOG chairman in 1996, wrote, "The research strategies of the RTOG have been predicated on laboratory findings from the beginning; protocols were developed specifically to address questions posed or thought to have been answered in the laboratory. Several of the fundamental research questions of the early studies continue to be of major interest to laboratory and clinical investigators."[3]

Among the areas explored were oxygen potentiation, dose intensification, altered fractionation, three-dimensional conformal radiation therapy, cytotoxic drugs and hormones, surgical adjuvant radiation, and palliation.

The RTOG protocols stimulated investigations of concepts for treatment of all body systems. Among conclusions in studies completed were suggestions to add chemotherapy to radiation of lung cancer; the benefits of extended fields to include the periaortic region with gynecological tumors; better patient toleration of treatment combining hormones with radiation of the prostate; moderated radiation doses with chemotherapy for gastrointestinal cancers, sometimes avoiding the need of a colostomy; and explorations of variations in radiation of brain tumors.

"It should not be surprising that studies of the intractable types of cancer investigated by the RTOG should have produced negative results. This has been a disappointment for the investigators and a sad reality for many patients. Fortunately, in the midst of the blind alleys, many benefits were realized from these studies.... Standards were established for conducting and recording radiation therapy. The means of communicating these standards widely throughout the community, quality control of calibration and dosimetry and quality assurance programs were also established," Dr. Cox continued.[4]

The CRTS and the RTOG were instrumental in the creation of the Radiological Physics Center established in Houston by Robert J. Shalek, then the chief radiation physicist at the M. D. Anderson hospital. This organization also was

supported by the NCI. Its mission has been to standardize dose calculations and source measurements for participants in the cooperative RTOG trials and to provide the same service for other radiation oncology centers.

The CROS Continued to Advise the NCI

During the early years of RTOG operation, the overlapping CRTS (now renamed the Committee on Radiation Oncology Studies, or CROS) continued to advise NCI directors on useful research opportunities in radiation applications. When Congress enacted legislation creating the national effort to find a cure for cancer in 1971, radiation oncologists were part of the lobbying campaign which helped shape the legislation. William E. Powers and diagnostic radiologist Kenneth L. Krabbenhoft of Wayne State in Detroit were named to the original National Cancer Advisory Board created by the cancer legislation. Dr. Powers had been a part of the original RTOG effort and had spent a year in Philadelphia at Jefferson working on these projects.

In 1972, Simon Kramer prepared a proposal to the NCI for a separate grant to undertake a series of national surveys of current practice, according to types of cancer. Based in part on the success of the RTOG and on the good reputation of the ACR on other cancer projects with the NCI, the Patterns of Care Study (PCS) was funded. Dr. Kramer and John Curry expanded the ACR Philadelphia office to provide support. The working group consisted of Drs. Kramer and Powers, plus Gerald Hanks of Sacramento, California, and Raul Mercado of St. Louis. David Herring, a nuclear physicist from La Jolla, California, who had consulted with several RTOG members, was added as a consultant for study design. During much of the early work of the PCS, Glenn Sheline of the University of California at San Francisco was a consultant. Bradley Efron, a statistician at Stanford University, advised on the outcome design. Joseph Sedransk, a statistician at the State University of New York in Buffalo designed the sampling techniques.

The feasibility study was successful in developing a methodology for assessing optimal care, in comparing actual practice with optimal patterns, in demonstrating that radiation oncology centers would participate in a national study, and in showing that a national organization, the ACR, could perform studies with reasonable time and budget specifications.

Field Studies at Participating Centers

The patterns studies involved collecting patient treatment data from cooperating treatment centers for each protocol. The group in Philadelphia recruited senior radiotherapy residents as data collectors and sent them on site visits to each participating therapy center to set up protocols. Early in the projects, as many as 100 residents, or a majority of those in American programs, were involved in the PCS.

Gerald Hanks moved from Sacramento to Philadelphia in 1985 to join the faculty of the University of Pennsylvania and become the director of radiation oncology at the Fox Chase Cancer Hospital. This move brought him closer to the operation of the PCS, where he succeeded Dr. Kramer as principal investigator. While the PCS activity was covered under a general support agreement from the NCI, each study involved a separate protocol, a separate group of cooperating institutions, and myriad details specific to the project in hand. Some 200 of the nation's approximately 1,200 radiation therapy centers were intensively involved in multiple clinical trials. Most others participated in one or more of the information-collecting efforts.

The collection of data from centers using different treatment plans and the reports on their results produced a stream of papers. Thus, the in-

dication that certain fractionation patterns or energy levels produced better results than others was made available in the literature for the guidance of all radiation oncologists.

Ten cancer sites were studied in the first round of PCS efforts. The number of centers needed to accumulate a significant patient population and the need to follow patients for some years after treatment made the studies slow to develop and difficult to maintain. Eventually, the first studies were completed and the results submitted to the NCI and to journals. NCI reviewers were pleased with the results and without hesitation recommended an indefinite continuation of federal funding.

On the basis of the data collected, it was possible to reach conclusions about effective treatment for specific tumors and also to get a broad view of the use of radiation in cancer treatment in the US. As of 1996, PCS efforts had resulted in 106 separate reports and papers describing study results.

Back to Neutrons and Other Particles

A historic theme in radiation treatment, the use of various radioactive particles, provided a third project that found lodging in the ACR Philadelphia office. In the 1930s, Robert S. Stone of the University of California at San Francisco (UCSF) treated patients with artificial isotopes generated by Ernest and John Lawrence in the cyclotron at the Donner Laboratory on the Berkeley campus of the University of California. Dr. Stone recalled accompanying patients by streetcar and ferry for treatments until a neutron source was constructed for him at UCSF. The treatments seemed to melt the cancers, but nothing was known about the biologic effects of neutrons and other particles, and soon it was seen that the patients seldom survived the treatments. Those efforts were dropped with the onset of World War II. Both Lawrences and Dr. Stone became part of the Manhattan Project, which developed the atomic bomb. Dr. Stone later wrote a series of papers in which he described his clinical work and outlined its flaws.[5]

After the war, when the Atomic Energy Commission was created to foster peaceful uses of nuclear reactor byproducts, x-ray sources in the million-volt range became available. But some radiation oncologists still hoped that the greatly increased knowledge about radiobiology and the biological effects of various types of radiation would allow a more sophisticated return to the use of neutrons and other radiation particles.

In the early 1970s, expansion of the Los Alamos National Laboratory included a linear accelerator that produced pi mesons. Part of the output of the accelerator was committed to medical research. Morton Kligerman came from Yale University, where he had been chief of radiology, to the University of New Mexico to set up a clinical trial program. Influenced at least in part by the CROS and the ACR, the NCI agreed to fund construction of neutron generators for radiation treatment at the M. D. Anderson Hospital in Houston, at UCLA, and at the University of Washington in Seattle.

Other particle sources became available at the Joint Center for Radiation Therapy connected to the Harvard University–affiliated hospitals in Boston and at Stanford University in Palo Alto, California. Malcolm Bagshaw at Stanford worked with heavy ions; Robert Parker at UCLA studied neutrons; and Herman Suit in Boston worked with protons. Much later, James Slater at the Loma Linda University Medical Center in California was funded by the NCI for the construction of a dedicated medical-use proton generator.

Another Cooperative Study

Dr. Powers is credited with the concept of a cooperative study of particle sources, to be lodged, like the PCS, in the ACR Philadelphia office under the general direction of Simon Kramer. The NCI agreed to the idea; after all, it had committed significant funds to the individual projects and even greater amounts to the construction of dedicated sources. The award was made in 1978, with Lawrence Davis, a young radiation oncologist then at Jefferson, as principal investigator. The first project involved the several US centers. A later project, still active in 1996, involved 10 centers around the world.

The ACR created the Proton Radiation Oncology Group (PROG) to coordinate the study efforts. The groups at Massachusetts General Hospital (Harvard) in Boston and Loma Linda in California have been the only formal participants. Four of the dozen other proton treatment centers in various countries have expressed interest, and the protocols have been designed to allow their participation.

In 1996, the NCI questioned its continued support of the PROG efforts because of the extreme difficulty of recruiting suitable patients. However, with an expanded source scheduled to begin operation at Harvard in 1998 and the full clinical use of the Loma Linda center, PROG participants expressed the hope that they could involve larger numbers of patients. As of 1996, the particle efforts had resulted in 100 publications, 40 articles, and 60 abstracts reporting results from the cooperating institutions.

Over the years, other disciplines interested in cancer treatment got involved in some of the studies of both the RTOG and the PCS. Surgeons, gynecologists, pathologists, and medical oncologists were involved in some of the PCS studies, since many of the cancers studied involved more than one treatment modality. No other discipline has duplicated the RTOG and the PCS on a comparable scale, but other investigators have benefited from the research methodology developed by the ACR working groups.

Defining Cancer Diagnosis

The ACR Philadelphia office got a new tenant in 1987, with the creation of the Radiological Diagnostic Oncology Group (RDOG). Like the other enterprises, this one was funded by the Division of Cancer Treatment of the National Cancer Institute and proposed to study an important element of cancer management: how cancer is diagnosed.

Barbara J. McNeil, director of health policy at the Harvard Medical School in Boston and a frequent participant in federal health advisory groups, became the project leader. She recruited a statistical team at Harvard and group leaders and participants for each proposed study.

Some of the design of the RDOG was taken from the PCS. The RDOG thus far has explored nine cancer sites in five protocols and has compared the effectiveness of various current and emerging imaging modalities in the detection and management of specific cancers. While the radiologic literature on cancer detection is extensive, the RDOG brought a concentration and standard approach which had been lacking and had made comparisons difficult. The nine sites through 1996 were prostate, lung, pancreas, colorectal, musculoskeletal, head and neck, pediatric, ovary, and breast. Through 1996, investigators from 39 radiology facilities have participated in the studies. All of the investigators came from academic departments, except for the mammography study, which included three private mammography centers.

The sophisticated diagnostic studies could avoid many of the difficulties inherent in tracking the results of treatment. Suspect cancers, whether diagnosed by imaging or other methods, can be biopsied and the preliminary findings confirmed or rejected. The time intervals may be

days or weeks, rather than the years after treatment needed to evaluate therapy.

Early RDOG Results

In a 1996 publication, the RDOG team summed up conclusions on its early studies.[6] Magnetic resonance imaging (MRI) was shown to be consistently better than ultrasound in staging prostate cancer. A follow-up study comparing conventional MRI with updated coils was inconclusive as to the value of the added elements: "In the evaluation of CT and MRI in the staging of patients with lung cancer, CT was shown to be a little better than MRI, although there was no difference between the modalities in detecting nodal disease. Both modalities were good predictors of an unresectable tumor, but poor predictors of a resectable tumor."[7] CT was favored over MRI in staging colorectal cancer. It outperformed MRI in detecting tumor penetration through the bowel wall. Both modalities worked equally well in assessing lymph node and liver involvement, the report concluded.

Study populations ranged in size from 150 patients for a study of MRI and bone scintigraphy in staging pediatric solid tumors to 3,600 patients in an evaluation of whether stereotactically guided or ultrasound-guided fine-needle aspiration and core-needle biopsy can replace open surgical biopsy for women with suspicious mammograms and nonpalpable lesions. Those studies were still underway in 1996. As an example of the potential of such studies to change medical practice, guided-needle biopsies are done mostly by radiologists, rather than surgeons, while open biopsies have remained the domain of surgeons.

The ACR Philadelphia office is located in 1996 in office space only a few blocks from where Simon Kramer started the projects in the radiation therapy department at Jefferson Hospital. Luther Brady, also of Philadelphia, followed Dr. Kramer as chairman of the RTOG in 1981. Six years later, James D. Cox of Houston became chairman (and remained so in 1996), commuting from Houston on a regular basis. Gerald Hanks has been the chairman of the PCS since he succeeded Dr. Kramer in 1985. Lawrence W. Davis, now at Emory University in Atlanta, has been principal investigator on the particles study since its origin. Barbara McNeil continues to direct the RDOG.

Primarily through the efforts of the organizers and participants in these studies, the ACR has gained a dimension of respect as the manager of significant research on cancer treatment and diagnosis. Most of the projects involved funding individual investigators in their own institutions, but it took Simon Kramer's vision and the ACR's organizational strength to make it all come together.

End Notes

1. R Paterson, "Clinical trials in malignant disease: I. Principles of random selection," *Journal Faculty of Radiologists* 9(1958):80-83.
2. JD Cox, "Evolution and accomplishments of the Radiation Therapy Oncology Group," *Int J Radiat Oncol Biol Phys* 33(No. 3, 1995):747-754.
3. JD Cox, Ibid.
4. JD Cox, Ibid.
5. R Brecher and E Brecher, *The Rays: A History of Radiology in the United States and Canada* (Baltimore, MD: Williams & Wilkins, 1969), p. 348.
6. American College of Radiology, *Radiological Diagnostic Oncology Group: 1987 to the Present*, January 1996.
7. Ibid.

Chapter 12

The Radiologic Learning Laboratory

Medical students and residents learn about the role of radiologic imaging in the diagnosis of a wide variety of diseases when they encounter imaging studies in presentations by their teachers and in patient workups. Sometimes the teacher is a radiologist who speaks at length about the image and not about the patient. Other times, the lecturer is a physician from another discipline who brandishes the image and moves on before anyone can perceive its significance. But however well or badly used, radiological images are part of medical teaching, as they are part of medicine.

In the 1960s, the ACR undertook the development of a series of Roentgen anatomy movies, using segments of cinefluoroscopy with animation and narration to teach normal anatomy in the first grouping and abnormal findings in a subsequent series. Armand E. Brodeur of St. Louis, Missouri, was chairman of that project. It produced some 25 motion pictures, which were used by anatomy teachers and others for more than a decade, until the advent of new imaging techniques and videotapes superseded the materials.

However, there was no compendium of x-ray teaching materials, no organized package which related x-ray findings to clinical findings and brought it all together in a way that was user-friendly to medical students and residents. That dilemma would be solved with the development of the radiology learning laboratory.

The idea came to Reynold F. Brown, professor of radiology at the University of California in San Francisco (UCSF).

Dr. Brown had an unusual career. As a protege of Robert Stone, the long-time department chairman at UCSF, he developed a strong interest in radiation protection. While keeping his appointment at UCSF, he served as a medical consultant to a labor union and to a large insurance company. Then he became director of the environmental health and safety program for the medical campus. In the same years, he became involved with the Atomic Energy Commission and the Public Health Service Bureau of Radiological Health (BRH), with which he undertook a variety of projects. He served on ACR committees, became a chancellor, and chairman of the Committee on Radiologic Units, Standards and Protection.

His idea was to create a package of selected x-ray cases, with supplementary clinical discussion, which a student could use as a self-teaching exercise. A student learning about diseases of the bowel could go to the section on gastroenterological disease to find a variety of cases chosen to illustrate manifestations of different abnormalities. The BRH gave him a developmental grant in 1967, and he began work on the teaching files at UCSF. Originally, there were to be six sections, focusing on bone, genito-urinary, gastrointestinal, head and neck, pediatric, and chest. Each was entrusted to a radiology faculty member at UCSF to collect approximately 200 cases for each section. Some cases had a single film; some of those in the neuroradiology section had as many as 50 images. This was before the advent of computed tomography; almost all of the images were x-ray films.

Three Elements

Because the BRH had a more direct mandate for radiation protection than it did for improving clinical practice or teaching, the project was shaped with three elements. The teaching file was by far the largest. It also included a curriculum package on radiation safety, with a cabinet x-ray generator and other equipment for student use, and a medical school curriculum package on patient selection—that is selection for x-ray examinations. The project quickly became the largest funded activity in the BRH program.

The BRH also made available Bruce Burnett, a PHS officer who had been assigned to work with Rey Brown on other BRH-funded projects. Burnett was succeeded two years later by Joe Arcarese, also a PHS officer. Part of Arcarese's mission was to restrain the growing expenditures. However, his enthusiasm for the potential of the learning film file convinced his boss at the BRH, John C. Villforth, to maintain the promised support.[1]

At the time the project started, no commercial x-ray copying film was available. Dr. Brown hired David Lamel, a physicist, to work on the physics portion of the package and to develop a method of making the thousands of film copies needed for the learning laboratory collection. Joe Arcarese left the project in 1973 and John Shaver, who had been working in the North Carolina radiation health program, became the project administrator. The film production facility was set up in rented space near UCSF in San Francisco.

The learning file was first presented to the radiology community at the 1970 meeting of the American Roentgen Ray Society in Miami Beach. Favorable responses encouraged Dr. Brown to ask for funding to make six sets for testing. Instead, the BRH agreed to make the copies and provide them to the cooperating institutions. The six test sites were at UCSF, UCLA, the University of California-Davis, Johns Hopkins in Baltimore, Meharry Medical College in Nashville, Tennessee, and the University of Connecticut at Storrs.

Enthusiastic Response: The Project Grows

When responses from the other test sites matched the enthusiasm of students and residents at UCSF, Dr. Brown and his supporters at the BRH decided that it was worth national distribution. They manufactured and sold another 25 sets of the teaching file after some revisions. Each purchaser got the film file and the physics and patient selection materials, these sections courtesy of the BRH.

But to get general acceptance, Dr. Brown needed a national sponsor. So he approached the ACR to get endorsement for the project and to involve the College as the organization that would duplicate and distribute the learning film files.

The Board of Chancellors approved ACR participation at its January 1975 meeting. Dr. Brown assured the College that the BRH would continue to subsidize most of the development costs and that the project would pay for itself through the sale of learning files. He was as good as his promise. A few years later, he returned to the board to seek support to construct a building for the project across San Francisco Bay in the suburb of Walnut Creek. He also moved his other BRH contract projects into a separate building in the same community. The development of new materials was financed by continuing BRH contracts, and the revised film files were made and sold under the auspices of the College. With more than 7,000 images, the learning file sold for more than $20,000. By this time, contributors from other institutions had added cases and replaced some of the original material from UCSF.

The ACR created a legal subsidiary organization, the ACR Institute (ACRI), to develop and market the package.

Although the major x-ray film manufacturers had copy films on the market beginning in 1970, the quality of film copies in the learning file led others to ask this ACR facility to make copies for book illustrations and other projects. When the American Board of Radiology decided to standardize its examination materials, it turned to the ACR facility to supply the needed copies. When the International Labor Office adopted a new set of standard radiographs for its classification of chest films for pneumoconiosis and other dust retention diseases in 1980, the ACR was chosen to make those copies.

Over these years, Dr. Brown had managed to combine his College activities as chairman of the Commission on Radiologic Units, Standards and Protection with activities in medical radiation applications through his series of contracts with the BRH. He looked into the impact of abdominal x-ray exposures on pregnant women. He developed a male gonad shield for x-ray examinations. He developed a series of seminars and publications on patient selection criteria for chosen procedures. (This last effort put him in conflict with a more intensive efficacy study which the ACR was making under a separate committee with funding from another PHS agency.)

Market Saturated

By October 1981, some 165 learning files had been delivered or were on order. All but a few American medical schools and teaching hospitals had acquired a learning file. The major effort became the expansion of the units and the replacement of original material as nuclear, ultrasound, and CT images came into general use. Despite the general enthusiasm for the file from the beginning, Dr. Brown and his customers recognized that some of the cases were presented poorly, some intended areas were not covered by cases, and some of the clinical material was not in a usable format. Some of the deficiencies had not been corrected in several years of trying, he wrote in a 1982 contract report to the BRH.[2] Some of his advisory panels did not agree with his objectives. Some of the teachers who were asked to prepare material failed to do so or to put it in the requested format. A new group asked to

prepare a physics unit, headed by David Lamel of the project staff, was slow to complete its outlines. On a different note, Dr. Brown commented that he and his colleagues were looking into the possibility of converting some of the film file to new electronic media that were becoming available.

The slackening of interest in the mid-1980s affected Dr. Brown and his staff, as well as his customers and sponsors. The BRH cut back on its level of support for new developments, and the ACR directed its attention to its proposed new building in the Washington area. Dr. Brown pledged a contribution from the Walnut Creek operation to the new building fund. The problems Dr. Brown had cited to his federal contract officer continued. He and his staff still produced learning file sets and completed their commercial contracts, but the project had largely gone stagnant.

A crisis arose in the spring of 1987 when the two senior staff members, John Shaver and David Lamel, approached the BRH asking for permission to take the learning laboratory materials into a new venture of their own. Because the materials had been developed under federal contracts and then, in effect, licensed to the ACR for copying and sales, Shaver and Lamel argued that they were in the public domain and thus available to others for use, as well as the ACR. The BRH could not refuse their request.

However, in the summer of that year, the ACR and the BRH acted to salvage the project and continue it under College control. College employees from the Reston headquarters took possession of the Walnut Creek facility and gained control of the vital negatives and other materials. Gary Pfaff, a College employee with substantial experience in radiology quality control and film copying, was put in charge of the project. Some months later, when space in the Reston headquarters was completed, the entire operation was moved from California, and the Walnut Creek building was sold. Dr. Brown remained as a consultant to the project, but in 1988, Mark M. Mishkin of Philadelphia was named as medical director of ACRI, serving until the position was eliminated in 1994.

Taking Advantage of New Media

At the 1988 Radiological Society of North America convention, David Lamel exhibited a version of the learning file on videodiscs. This speeded the ACR's interest in converting the bulky file to an electronic format. It also prompted the College to move more vigorously to replace elements of the file that had been deemed inadequate and to begin developing new components. Within a year, the ACRI offered its materials on videodiscs and for a while became a vendor of the player needed to use the discs. The contents of one file could be contained in a disc, together with the clinical information, thus reducing the bulk from a large cabinet to a small container. Users relied upon a bar code and scanner to select materials of interest from the disc. The conversion ended a small side business in reproducing films that were lost or taken from the film versions.

By 1990, the ACRI had sold some 360 sets of the film learning file. But by that time, the advisory committee had made a commitment to future developments in electronic format. That year, a new marketing campaign touted the availability of learning files on ultrasound and abdominal CT, with 239 cases in nine subsections, edited by Barbara Gosink of the University of California at San Diego, who had earlier edited the film version. It also offered a new gastrointestinal package edited by Igor Laufer of the University of Pennsylvania in Philadelphia, with 230 cases in eight categories. The third videodisc unit contained 275 cases from pediatric radiology, compiled by David F. Mertin of the University of North Carolina at Chapel Hill. John Campbell of Los Angeles, who had edited the original chest unit, offered a new one, with 312 cases. Finally,

Robert McLellan of the University of North Carolina, chairman of the ACR Committee on Mammography, organized a breast-imaging package with more than 200 cases. In 1991 units on MRI with 200 cases were completed, coordinated by Dr. Mishkin and Leon Partain of Vanderbilt University in Nashville, and a unit on neuroradiology was assembled by Dr. Mishkin with Anne Osborn of the University of Utah in Salt Lake City and James Smirniotopoulos of the Armed Forces Institute of Pathology in Washington.

By that time, the selling price of the learning laboratory in the film version was more than $40,000, while the videodiscs were offered at approximately $500 each and the player package for their use cost about $1,500. Most purchasers of the film set also bought the videodisc version, and within three years sales of each unit had exceeded 600 copies. Since that volume greatly exceeds the number of North American residency programs, it has been suggested that many private practices found the material attractive at the lower price.

While the videodisc format was judged technically acceptable for radiology purposes, the technology was not faring well in the electronics marketplace. So the ACR advisory committee explored offering the units on the CD-ROM, which was gaining widespread acceptance and could be played on widely available equipment. The price for each set on CD-ROM was set at $295 for ACR members, $195 for residents, and $500 for other purchasers. Sales of the several units in the CD format compared with those in videodiscs by 1996. Some purchasers now have the learning file in all three versions. Some of the units are no longer available as film sets.

From its start in making copies of standard films for the American Board of Radiology, the ACR Institute worked with ABR committees as they switched portions of their oral examinations to electronic formats. The Institute continued to supply copies of the International Labor Office standard films. However, at the midpoint in the 1990s, it was looking at the possibility that it would discontinue film copying, for want of enough business to justify maintaining its capability.

After a quarter century, the idea that Rey Brown had started, the Bureau of Radiological Health had supported, and the ACR had developed is now a standard part of radiology teaching programs around the world.

End Notes

1. Joseph Arcarese, interview with the author, August 1996.
2. RF Brown, *Final Report of the Radiological Health Sciences Learning Laboratory Accession System*, Bureau of Radiological Health contract 223-79-6011.

Chapter 13

Professional Self-Evaluation and Continuing Education for Radiologists

Any radiologist who practices only what was learned in residency training is soon out of date and, in a few years, out of business. Changes in medical technology and advances in understanding disease processes make that true for any physician. But in radiology, where entirely new concepts of imaging come along at decade intervals, the learning curve is steep and stays that way during a practice lifetime.

The historic way that diagnostic radiologists learned was by showing each other x-ray cases and discussing them. Much of the radiologic literature consists of reports of new findings from standard imaging procedures. The same is true of exhibit sections of scientific meetings. This may help to explain the popularity of refresher courses at major meetings and short-course seminars on a single topic.

Throughout radiology's history, opportunities to learn were always available. The attainment of board certification was a formal attestation that the physician had mastered the basic elements of radiology—at the time of examination. However, as the demand for proof of keeping up with new developments grew in the 1960s, validating learning became more important. So did the need for radiologists to expand their learning base from one week a year at the RSNA and one evening a month reading journals. While not in keeping with the intent of the RSNA or any other scientific meeting sponsor, it was possible for a registrant to stay busy at the meeting site for a week without actually attending a session! Even after the societies began registering attendance at sessions, there was still no proof that any learning had occurred or been reinforced. Increasingly, critics of medicine demanded that some sort of evidence be generated, preferably within medicine.

One respondent to this general concern was Elias P. G. Theros, registrar of the American Registry of Radiologic Pathology at the Armed Forces Institute of Pathology (AFIP) in Washington. Dr. Theros had gained a reputation as a stellar teacher in the series of resident courses and seminars he developed at the AFIP.

At the RSNA meeting in 1968 and the ARRS meeting the next year, he and his colleagues won gold medals for exhibits in which radiologists tested themselves on unknown cases and were scored on their answers. The popularity of the exhibits seemed to prove that practicing radiologists would challenge themselves, even when they knew that an authority was keeping score on their skills and accuracy.

But only a few hundred radiologists could participate in the exhibit program at any meeting. The ACR Commission on Education was looking for a format that could be made available to every radiologist and every resident. They reached an old solution to their problem: They decided to put their teaching and test material into a series of books. To borrow from the computer jargon of later years, books offered random access, easy portability, simple storage, reasonable clarity of images, and moderate cost. Also, computer-based teaching programs had not yet been invented.

Theros to Edit Series

Dr. Theros agreed to be editor-in-chief of the proposed series and chairman of the working committee. The authors of each book were selected from among experts in each field to be covered. Originally, each topic consisted of a test booklet presenting images, brief clinical information and a series of multiple-choice questions. Accompanying the booklet was a test sheet, which the participant was to mark and return by mail to the ACR for grading. The completed test booklets were scored by ACR staff, norms were derived, and the participant received a score, the profiles, and a syllabus in which the images were repeated, with the addition of the "correct" answers and reading materials. It was a fairly complex package to design and to use, but it offered the planners a firm grasp on the validity of their materials and allowed each participant to profile himself against others in comparable practice circumstances. A 60-year-old general radiologist could match against the norm for senior generalists, rather than against the hotshot teaching subspecialist.

"When the participant realizes that the purpose of these packages is not really to test *per se* but to use the test as a primer to get him 'hooked' and thus drive him to investigate (through the syllabus and its reading suggestions) the plausibility of his proffered answers and decisions, then he will finally appreciate that the main thrust of this program is continuing education through inculcating the desire to continue learning," Dr. Theros wrote in the introduction to the first volume in the series.[1]

The working group realized that establishing this format was necessary if thousands of radiologists were to participate and if the ACR were to be able to process and score answers, develop norms, and keep a sequence going. It decided that the ACR would do the principal work on the series within its Washington office, which was convenient for Dr. Theros. Earle Hart was hired as editor of the series and other ACR scientific publications. Hart came to the College from the medical publisher Williams and Wilkins of Baltimore, and he provided the technical knowledge of editorial production needed to make books out of good intentions.

The committee members had elected to use a multiple-choice question format to allow machine grading of the hundreds of responses from each participant. They felt insecure in their own expertise and turned to the National Board of Medical Examiners (NBME) in Philadelphia for help in question construction and validation.

First Volume on Chest Radiology

The first volume dealt with the most common radiologic examination, the chest. It appeared in 1972, four years after the project started, and was immediately subscribed for 5,000 copies. Dr. Theros was editor and coauthor. Other principal authors were Robert P. Barden and William J. Tuddenham of Philadelphia and Theodore E. Keats of Charlottesville, Virginia. They and 14 other leading teachers contributed cases.

With 5,000 subscribers to the chest volume and 6,000 to the second one on bone radiology, the committee could assure the ACR that it had a winning product. The bone volume was advertised to orthopedic surgeons and drew 1,000 of the 6,000 subscriptions from that discipline. The response from other disciplines to the early volumes prompted debate within the Board of Chancellors and Council about whether the College was training the competition for its members. The "outsider group" advertising was quietly stopped.

The effort attracted many noted teachers in diagnostic radiology. Though some fretted at the discipline needed to work in the multiple-choice question format, most adapted. For an academic radiologist, the acceptance of a case for a self-evaluation book became scholarly coin, and the appointment to a volume editorial committee was a mark of national commendation.

After several volumes, the committee gained enough confidence to break from the NBME and find other help in question design and validation. Though the NBME was an internationally recognized leader in testing, the committee members soon found its relationships with NBME staff members to be difficult and the costs to be higher than they could justify. They found other experts on a consulting basis, including test designers, statisticians and, of course, Earle Hart for editorial production.

More Than 110,000 Copies Sold

By 1981, just over a decade from the project beginning, 17 books were in circulation and 10 more were in some stage of editorial production. Some 110,000 copies of the 17 volumes had been sold to 11,900 ACR members and 3,900 nonmembers. By then, most of the nonmember buyers were radiology residents, who had learned to use the books as a cram course for the American Board of Radiology examination.

The ABR had no official relationship with the series and never made any statement about dependency on the books in its own test construction. However, many ABR trustees were editors and contributors. The thoroughness and authority of the material in the books inevitably touched on the same areas covered by ABR examiners. The ACR neither claimed nor denied that studying from the self-evaluation books would help with the ABR examination, but the street wisdom that it did boosted sales.

In testing its products, the committee observed that a significant number of practicing radiologists purchased the book but did not return the test booklet for scoring. Since the main idea, as Dr. Theros had asserted, was to stimulate learning, rather than to intimidate radiologists, the committee decided to combine the test book with the syllabus and rely upon the good intentions of subscribers to follow the format. Enabling readers to study the cases, mark answers, and then turn to the back for instant confirmation sparked a new interest by practicing radiologists. The combination occurred with the 23rd volume and has remained since.

The volumes were based upon the anatomical divisions of radiologic diagnosis. The first five volumes dealt with chest, bone, genitourinary, gastrointestinal, and head and neck. The next looked at pediatric problems, followed by a volume on nuclear imaging and one on radiation biology. Then a second set on the same subjects

came out. Those were followed in volume 14 with a presentation of film diagnosis of cardiovascular problems and one on emergency radiology.

The emergency radiology book was compiled by John H. Harris, Jr., of Houston, who then became an associate editor of the series, fitting the editorial tasks into a schedule already crammed with his responsibilities as a chancellor. With volume 23, the first on ultrasound, Barry Siegel of St. Louis became an associate editor. Volume 24 dealt with mammography. Dr. Harris dropped out as associate editor, and Drs. Theros and Siegel were named as coeditors starting with volume 27, the fourth publication on chest diagnosis. The ACR separated the position of editor from the chairmanship of the working committee. Anthony V. Proto of Richmond, Virginia, who compiled volume 27, became committee chairman, as well as editor of the fourth chest volume. By volume 28, the first on neuroradiology and the only one to require two volumes, Drs. Siegel and Proto were coeditors and Dr. Theros had become editor emeritus. Volume 31 was the first on MRI, with Dr. Siegel now the sole editor and Dr. Theros continuing as emeritus. With the next one, the second volume on radiation bioeffects, David Stephens of Rochester, Minnesota, became associate editor of the series.

From the beginning, the pattern for each book was to appoint a working group of four or five experts in the field. A senior person was the volume editor. For the next book in that series, the previous editor retired and one of the other members of the committee became volume editor, adding one or more new members. Except for the first volume editors, later ones had the experience of working on a volume before taking responsibility for one. In most instances, a dozen or more subspecialists contributed cases, and some of them moved upward to volume editorial committees.

Earle Hart left the College staff in 1984 and was succeeded by G. Rebecca Haines, who brought the production into the computerized printing age. She was succeeded in 1996 by JoAnn Bresch. Press runs on later volumes stabilized at 3,000 copies, with several volumes requiring reprinting. The demand is now about 70 percent practicing radiologists and 30 percent residents. The committee believes that most copies are used by more than one radiologist, although it does not attempt to measure usage intensity.

In 1996, the group produced the fifth volumes in the gastrointestinal and chest series, numbers 39 and 40. An additional ten volumes were committed or in some state of production.

The original emphasis on testing and validating physician education abated from its peak in the 1970s. The volumes grew easier to produce and to use as the committee members gained experience with the format. After a quarter century, the Self-Evaluation and Continuing Education series has earned a lasting place in the panoply of diagnostic radiology learning products.

End Notes

1. EPG Theros, ed. *Chest Disease I* (Reston, Virginia: The American College of Radiology, 1972), p. xvi.

Chapter 14

The American Registry of Radiologic Pathology

Some would trace the beginning of the American Registry of Radiologic Pathology to the War Between the States and to the bullet that killed Abraham Lincoln: That was the start of the Army Medical Museum. Others would trace it only to the beginning of registries of pathology, which began in 1922, when the American Academy of Ophthalmology sponsored a registry of ophthalmic pathology to catalog diseases of the eye. By the end of World War II, the Army Institute of Pathology had become the world center of collections of surgical biopsy specimens, micrographic slides, clinical data, and autopsy reports on a vast array of diseases. The registrars of more than 20 separate registries were senior pathologists with international reputations who lectured and prepared atlases in their special areas, as well as providing consultation to military and other pathologists on difficult cases.

For most of its first century, the Institute was located on the mall in Washington. Scholars visiting the center shared space with tourists who looked at pickled specimens and other exotica in the museum. But in 1956, President Dwight D. Eisenhower dedicated a new building for what was now called the Armed Forces Institute of Pathology (AFIP) on the campus of Walter Reed Army Medical Center in northwest Washington. The tourists did not follow the move, and the pathology scholars had more space in a building designed to resist an atomic bomb blast.

By then, radiology had part of the action. The correlation of radiologic diagnoses with pathologic findings is generally

regarded as a mark of good practice in most hospitals, particularly those that teach students and residents. For many years, the Residency Review Committee for Radiology required programs to include instruction in radiologic-pathologic correlation as part of each residency. Confirmed cases, ultimately, were those for which the pathology study either agreed with or contradicted other elements of the diagnosis, including x-ray findings.

A Radiologic Registry of Pathology

The concept of a radiologic registry apparently arose in a letter to the College in early 1944 from Col. Alfred A. deLorimier, a radiologist serving as director of the wartime Army School of Roentgenology.

"In connection with anticipated large scale training program during the post-war era, it is recommended that a central depository be developed for compiling radiologic studies and for elucidating in them, the roentgen criteria pertinent to one or another diagnosis; to correlate these data with gross and microscopical pathology and provide therefrom, film strips, and other educational data for distribution to various educational centers. Since there are already established at the Army Medical Museum, approximately ten such depositories (described as registries) as related to other branches of medicine and surgery, it is further recommended that the interest of the surgeon general of the army be solicited for establishment of such a radiologic depository (registry) at the Army Medical Museum."[1]

During his long service as chairman of the Commission on Education of the ACR, Eugene P. Pendergrass of the University of Pennsylvania had coveted the pathology resources at the AFIP and decided to do something about getting a registry of radiologic pathology. As he usually did with any new project, he involved leaders of the American Roentgen Ray Society and the Radiologic Society of North America. In 1944, he wrote to Col. James. E. Ash, director of the Army Medical Museum, to express the interest of the College and its companion societies in starting a radiologic registry.

Lt. Col. Balduin Lucke, the deputy curator, responded on April 25. He explained that the center had seven disciplinary registries, adding otolaryngology, orthopedics, dental and oral, neurology, dermatology and urology to the original ophthalmological study center. "Please note that several subdivisions of the registry are more or less concerned with radiology, in particular, the registries of orthopedics, dental, the general tumor registry and the chest tumor registry," he explained. "No doubt the development of a separate Roentgen registry could be made an instrument of great scientific and educational value to radiologists. As I see it, the specific aims of such a registry might be, first, the bringing together of pathological material—together with pertinent x-ray films and clinical records—which is of especial interest to radiologists. Such material might comprise cases exemplifying diagnostic problems and the results of radiologic treatment; second the use of this material for comprehensive studies and for educational purposes." He expressed concern that the new project could be started during the war. But he concluded with a suggestion that Dr. Pendergrass visit him for further discussion and asked for a starting fund of $1,000. He also urged Dr. Pendergrass to stay for dinner if he could make the visit.

In 1922, the AFIP had created an alliance with the National Academy of Sciences/National Research Council to create a civilian structure, the American Registry of Pathology. This and a second group, Universities Associated for Research and Education in Pathology, provided channels for the specialty societies to sponsor registries and to raise funds for various projects that extended beyond the military mission. The beginning of the classic series of *Atlases of Tu-*

mor Pathology was handled through that mechanism.

It took three years, until 1947, before Dr. Pendergrass' initiative succeeded in the creation of the American Registry of Radiologic Pathology (ARRP). The founding Registry Inter-Society Committee was led by Arthur Christie of Washington, with Ross Golden of Columbia University in New York City, Laurence Robbins of Massachusetts General Hospital in Boston, and George Wyatt of Iowa City, Iowa. Aubrey Hampton of Washington was named as the first radiology consultant. Merrill Sosman of Boston, L. Henry Garland of San Francisco, and Fred J. Hodges of Ann Arbor, Michigan, were added shortly.

The ACR voted $2,500 to start the activities, and the ARRS and the RSNA each gave $3,000. Dr. Pendergrass sent Paul R. Noble, a trainee in his department at the University of Pennsylvania hospital, to serve as the first fellow and to begin organizing radiology materials. In a brief report, Dr. Noble indicated that he had been consulted by pathologists on several cases that included x-rays.[2] His major task during his time at the AFIP was to begin a radiographic atlas of pulmonary tumors, selected from more than 1,300 cases in the files.

The funds from the three societies were to support other fellows. Rules were drawn up and a committee representing the ARRS and the RSNA—but not the ACR—was created to select candidates. Each fellow was to prepare a monograph describing work on a collection during his stay at the AFIP. The 1948 report of the Registry Inter-Society Committee emphasized the need for supervision of the fellows by the consultant radiologists, rather than leaving them to be guided by pathologists. The committee forecast the future by recommending that those fellows who were still in residency get credit for training in radiologic-pathologic correlation for their time at the AFIP.

During 1948, the fellows prepared atlases on pulmonary tumors, giant-cell tumors of bone, intracranial meningiomas, and tumors of the gastric fundus. They also worked on a radiology section of a larger ear, nose, and throat atlas and prepared an exhibit for the 1948 meeting of the RSNA.

Colonel Thompson Arrives

That was a good start, the committee concluded. But the ARRP made a giant step forward in 1950 with the arrival of Col. William L. Thompson, a retired military radiologist. During his years of military service, he had accumulated voluminous notebooks of teaching cases, many with the radiologic-pathologic correlation included. Col. Thompson became the first registrar. Sessions with his notebooks and with case material from the AFIP collections were the informal beginning of the registry teaching program. Soon his sessions attracted radiologists from Washington-area hospitals and visitors from academic centers around the country.

The rudimentary radiologic atlases were improved, and copies were offered as teaching loan sets. The radiology files grew from 1,500 cases in 1950 to 3,000 a year later, 6,000 by 1954, 12,000 in 1960, and 20,000 in 1970. Fellows and visitors were encouraged and later required to bring cases from their own institutions. By 1963, some 233 radiologists had spent time as fellows at the AFIP. By 1967, when Col. Thompson retired, the number had passed 500.[3]

Col. Thompson's retirement was prompted by age and a series of illnesses which had kept him away from the registry. The AFIP director turned to the radiology groups to help select a successor. Wendell G. Scott of St. Louis, a chancellor of the ACR, was also a vice admiral in the Navy Medical Corps reserve. He located Elias P. G. Theros, a navy radiologist only a year out of his residency after a most unusual career in other disciplines. Lee Theros was the right man at the right time.

"He Was a Teacher"

As the final notes of taps played by a navy bugler faded away from the funeral for Lee Theros at the Arlington National Cemetery in 1995, someone in the party said quietly, "He was a teacher." Lee Theros was many things—an opera singer, a linguist, an actor, a navy line officer, and, in midlife, a physician and radiologist. In 1965, he had just completed his residency, but already he was lecturing to his colleagues on various radiologic syndromes. Those who heard him remarked on his wealth of knowledge, his fluency, his earnest desire to communicate and his ability to fit his message to his listeners. His research was modest. The bulk of his extensive work was in teaching texts, monographs, audiovisual programs and guest lectures, to which he brought the ability to synthesize and communicate. Dr. Scott had seen that talent and persuaded the navy to dedicate it to the AFIP.

All three military services assigned a radiologist to the ARRP. They made up the core faculty as Dr. Theros expanded the teaching programs for residents. A steady stream of guest lecturers enriched the programs, some of them in person and some on rudimentary videotapes. New and better slide sets were created and distributed. Dr. Theros became a regular contributor to national meetings and short courses, notably in his own area of expertise, bone radiology. His reputation grew and increasing numbers of residency programs wanted to send trainees to the AFIP to satisfy the requirement for radiologic-pathologic correlation. Late in the 1960s, as a member of the ACR Commission on Education, he designed interactive exhibits that won prizes at the RSNA and ARRS annual meetings. These exhibits presented viewers with a series of cases and required them to make diagnoses from the x-ray and clinical evidence contained therein. The concept in the exhibits was expanded into the series of teaching volumes known as the ACR Self-Evaluation and Continuing Education program (see Chapter 13). Dr. Theros was the editor-in-chief for the first two series of those books.

He retired from the navy in 1973 and stayed on as registrar for three more years before moving first to the faculty at UCLA and then to the Bowman Gray School of Medicine at Wake Forest University in North Carolina, where he finished his career. He received the gold medals of the ACR, the ARRS, and the RSNA, as well as a trunkful of other citations and awards and honor lectureships. He was a teacher—and a builder.

As the ARRP grew during Lee Theros' years, it added support staff, beyond the rotation of radiologists from the three military services. The collections grew with the requirement that each resident seeking to attend a session contribute two cases with complete radiologic-pathologic correlation. The three societies continued to contribute to the support of trainees, though by now most of them were supported by their own training programs.

The growth of the ARRP and 26 other registries tied the AFIP to national societies in pathology, radiology, ophthalmology, dermatology, pediatrics, and even veterinary medicine. The majority of requests for pathology consultations now came from civilian pathologists, and most of the radiology residents attending Dr. Theros' courses came from civilian training programs.

The Military Teaching Civilians?

A few people asked why a military installation was taking on such a broad role in medical education and research. One of those asking in 1975 was army Surgeon General Richard R. Taylor, who had administrative responsibility for the AFIP. He made known his intent to purge the nonmilitary programs and return the AFIP to its military mission.

Late that spring, Dr. Theros borrowed the conference room at the ACR Washington office. He requested suitable refreshments and asked Otha Linton and Bill Melton to stand by for the meeting. The room was soon filled with the registrars of most of the registries, who had gathered to organize resistance to General Taylor's plans. Many of them were civilian employees who were likely to lose their positions. Because the radiology registry was by now the largest program at the AFIP, Dr. Theros had the largest stake in thwarting the surgeon general. With no hesitation or consultation, he volunteered the ACR as a focus for the resistance effort.

Each of the registrars was asked to place a private call to the sponsoring society of his registry. Two weeks later, the conference room filled again. This time, each registrar was accompanied by a representative of his national sponsoring society. These physicians were skilled medical politicians. O. B. Hunter, Jr., a Washington pathologist and a delegate to the American Medical Association, prepared a resolution for the AMA House of Delegates urging that the civilian function of the AFIP be continued and strengthened. Several of the visitors volunteered to contact senior members of Congress to urge legislative language in the Department of Defense (DOD) appropriation bill. Edward Maumenee, then head of the Wilmer Eye Institute at Johns Hopkins in Baltimore, promised to contact every member of Congress whose cataracts he had removed. Letters and resolutions began to reach the Congress and General Taylor. In a meeting with ACR representatives, the surgeon general told them that his intentions had been misunderstood—that he wanted to improve the efficiency of the AFIP so that the military function would not be lost.

His explanation was inconsistent with orders forbidding the civilian employees from supervising military personnel, signing purchase orders, or even signing case reports.

Arthur Silverstein, a pathologist at Johns Hopkins, was spending a sabbatical year on the staff of Senator Edward Kennedy of Massachusetts. He was able to enlist Sen. Kennedy's support and he, in turn, persuaded Senator James Eastland of Mississippi, chairman of the Senate Defense subcommittee, to insert language in the 1976 DOD appropriation providing statutory authority for the civilian programs.[4] The language went further, directing the AFIP to support a new civilian American Registry of Pathology (ARP), which would have a federal charter to manage and finance civilian activities. The legislation also created six positions for distinguished scientists who could be employed by the ARP and funded through the AFIP without following civil service rules. General Taylor finished his tour as surgeon general with the expressed hope that he never have to hear of the AFIP again.

The New American Registry of Pathology

Once a new civilian organization was authorized by Congress, it had to be created. Again, the ACR found itself in the lead. While the several national pathology groups jostled each other, the sponsor of the senior registry, the American Academy of Ophthalmology, contacted the ACR to suggest that its representative, John M. Dennis of Baltimore, be named chairman of the ARP organizing committee. He was elected and the ACR staff continued to put the new organization together. The comptroller of the American Society of Clinical Pathologists was volunteered to handle the finances.

The organizing meeting was held August 18, 1976, in the director's conference room at the AFIP. Navy Captain Elgin Cowart, the acting AFIP director, had cleared the protocols for the new organization to begin functioning. A charter was drafted, an overhead rate determined, and sponsoring societies each were requested to donate $1,000 to start the ARP. The ACR agreed that money collected by the ARRP as tuition from short courses would be pooled with the new

organization's other funds. The ARP set out guidelines for hiring an executive director.

In February 1977, the first officers of the ARP were installed. Dr. Dennis was elected treasurer. The ACR gradually moved the organizing materials to the new structure. When the DOD funded the six distinguished scientist positions, the ACR claimed one for the ARRP. Col. Ray Cowan, the AFIP director, asked Dr. Dennis to organize an advisory committee to work with the ARRP and to help select candidates for the distinguished scientist position there. The three sponsoring radiology societies—the ACR, the ARRS, and the RSNA—each agreed to an annual contribution of $15,000 to support the scientist and to provide secretarial help and travel.

Dr. Theros retired from the AFIP in 1976 and was succeeded as registrar by his deputy, John E. Madewell, then an army major. Dr. Madewell retired from the army and remained as registrar until 1982. He was succeeded by navy radiologist David S. Hartman, who had the opportunity to recruit the first radiology distinguished scientist.

Distinguished Scientists in Radiology

Dr. Dennis and his committee had drafted guidelines for the distinguished scientist position. It was to be a one-year appointment, open to academic diagnostic radiologists with a demonstrated interest in radiologic-pathologic correlation. The scientist was to participate in teaching the resident courses and short seminars and was to be given time for research. The scientist could be either a mid-career teacher or a senior radiologist.

With delays in the appropriations and the selection process, it was 1985 before William W. Olmsted of George Washington University became the first distinguished scientist at the ARRP. As an army radiologist, he had served three years at the AFIP a decade earlier and had no difficulty in fitting into the mixed society of a military facility with a civilian mission.

Dr. Olmsted was succeeded by Alan J. Davidson of San Francisco, who remained at the AFIP as a civilian employee after his year as distinguished scientist. He was followed by Roger Harned of Omaha, Nebraska, and then by Terry M. Hudson of Boston. The fifth scientist was Anne G. Osborn of Salt Lake City, Utah. Dr. Osborn was so pleased by her experience that she persuaded the Winthrop Company to provide an annual donation to the ARRP to support visiting lecturers. That program is now supported by Nycomed, which purchased Winthrop some years later.

After Dr. Osborn came two Bostonians, Robert Pugatch and Robert Ackerman. Then came Ina L. D. Tonkin of Memphis, Mahmood F. Mafee of Chicago, and Maer B. Ozonoff of Hartford, Connecticut. The position was split in 1995, with Marc S. Levine of Philadelphia and Jeffrey H. Newhouse of New York City dividing the year. Philip J. Kenney of Birmingham, Alabama began a year in 1996.

A major problem for the ARRP was finding space for the increasing number of residents whose programs wanted to enroll them. The time when a small group could assemble in Col. Thompson's office was long past. Remodeling space in a building built to be atom bomb-proof was almost impossible. However, negotiations finally cleared a large file room on the lowest level and the space immediately above it. By now, tuition fees from residents and practicing radiologists had replenished the ARRP's account in the ARP. So funds were available to carve out a small two-story auditorium into which 135 students could crowd themselves for lectures. Some of the sight lines were poor and the speaker could not be seen, but the slides could be.

In 1986, David Hartman retired from the navy and was succeeded as registrar by Richard Moser of the army. He retired in 1990 and the navy's James L. Buck became registrar. In 1995,

he was succeed by Melissa Rosado de Christenson of the air force.

The Theros Auditorium

It fell to Jim Buck to solve the problem of a suitable auditorium. A new hospital commander of the Walter Reed Army Medical Center, Major General Ronald Blank, offered the ARRP the elderly and decrepit building that had held the post movie theater—if the ARP could refurbish it. Dr. Buck turned to his sponsoring societies for help. The task of persuading radiology societies to pay for remodeling a government building was challenging. But with strong support from the radiology advisory committee, the ACR, ARRS, and RSNA each pledged $100,000 and the ARP agreed to finance the rest of the $700,000 cost. The auditorium was completed late in 1994 and named for Lee Theros. It has been kept busy by radiology resident courses and a constant overflow of courses from other AFIP registries.

With completion of the new auditorium, the ARRP was in a position to offer space to every diagnostic resident. Fewer than a dozen US teaching programs now declined to send residents at some time in their program for the six-week course. There were also spaces for Canadians and a limited number from other countries. The ARRP expanded its short course program, including two or more overseas programs most years. In 1996, 11 faculty members from the AFIP served as core instructors for the International Congress of Radiology in Beijing, China.

From the beginning of an effort to create the ARRP during World War II, its support had been a joint commitment of the ACR, ARRS, and RSNA. Also represented on the advisory committee are the Association of University Radiologists, the American Osteopathic College of Radiology, and the Society of Program Directors. The annual openings for the distinguished scientist are contested vigorously. The ARRS has created a shorter-term "visiting scientist" billet, and the ARRP has added civilian faculty to its three military radiologists. Eugene Pendergrass' good idea has grown into an ornament of radiology.

End Notes

1. AA deLorimier, letter to ACR Board of Chancellors, 10 February 1944, ACR archives.
2. "Report of the Special Committee on the Registry of Radiologic Pathology to the ACR Board of Chancellors," 10 February 1947.
3. EPG Theros, unpublished manuscript, 1970; ACR archives.
4. PL 94-361, Sec. 811, 14 July 1976.

Chapter 15

The 1980s: Coping with the Changing Environment of Medical Care

The 1980s were difficult for the specialty of radiology and for the American College of Radiology.

In the 1970s, radiology had managed to stay on the edge of new technology, in the van of expanding medical service, ahead of the growth curve for health services, and well settled into patterns of independent practice in a system which paid for all of the health services American patients could consume. The next decade brought new realities of payment limits, stronger controls, manpower restrictions, and challenges about the inherent value of new technical developments. Efforts by federal health programs to limit growth and payment were joined by vastly expanded cost and access controls in the private sector.

Managed care leaped beyond the theories and mild federal incentives of the 1970s to pose new challenges to the independence and prosperity of physicians—including radiologists. Some of these changes stirred the embers of historic turf struggles. Primary care physicians mounted a vigorous campaign against what they saw as inequities in compensation between "procedural specialists" and "cognitive" or thinking and caring physicians. Radiologists became the target of primary care physicians' efforts to gain income at the expense of specialists. And a family feud within medicine about how best to resist the physician equivalent of the hospital diagnosis-related-group (DRG) payment mechanism left radiologists at odds with the American Medical Association and most other national medical societies before the threat was vanquished.

All of these external pressures impinged on a College structure that was creaking into disarray. By 1980, Bill Stronach had been executive director of the ACR for 34 years. He began with a staff of four persons in one office in Chicago. He was in charge of, responsible for, and personally involved in all that happened in the College. His direct contact with the Board of Chancellors and his attention to all of the working committees provided a quieter continuation of the aggressive, hands-on management and advocacy style of the first executive director, Mac F. Cahal.

The College had grown enormously in that 34-year period. It had grown beyond the board. The Council became the policy-making body of the ACR, and the state chapters involved hundreds of radiologists in leadership positions. With the growth of the College's scope and programs, the staff grew. So did the budget. Beginning in the mid-1960s, the ACR began to add federal contracts and the sale of services and products to the kitty provided by dues payments.

Four Offices—Too Many?

In 1980, the College had four offices. The Chicago headquarters staff had grown to 34 persons and still had fiscal, managerial and some programmatic responsibilities. Stronach had advanced Robert Becker to associate executive director. Sheila Aubin, who had begun in 1963 as a typist, had become meetings manager for the College and the ARRS and had taken responsibilities for membership and other administrative functions. Keith Gundlach remained as comptroller, with only one bookkeeper assistant to manage the money for a $10-million-a-year enterprise. He had not adopted the rudimentary computer acquired by the College to help him. John Settich provided much of the program support for those activities still managed from Chicago.

But the growth of ACR activities had come elsewhere. When the Washington office was opened in 1969, the intent was that Otha Linton and Bill Melton would develop a liaison program to look after the interests of radiology and would funnel any federal contract money back to be managed by Chicago staff. Instead, Melton continued to manage the mammography programs that he had brought to the ACR. When the ACR got its first federal contract—to develop the Task Force on Pneumoconiosis—its management was left to Linton and Melton, who conceived it. Maureen Trautz was hired to provide educational expertise. Shortly, when the Self-Evaluation and Continuing Education publications started, the new editor, Earle V. Hart, was located in Washington to be near the editor-in-chief, Lee Theros. Soon the Washington office had 20 employees.

The offices in Philadelphia and San Francisco were independent of other ACR functions. Both were contract operations entirely supported by outside funds and managed by existing volunteer and staff mechanisms. The Philadelphia office originated with a project grant awarded to Simon Kramer of the Jefferson Medical College to coordinate research proposals advanced to the National Cancer Institute by the Committee on Radiation Therapy Studies (see chapter 11). Recognizing the need for a national base rather than just one department, Dr. Kramer and his colleagues presented the project to the ACR. The board accepted it without any serious discussion or real insight into the opportunities or obligations involved. While the projects were managed by Jefferson, Dr. Kramer developed a support team and hired John J. Curry as its manager to back up the growing efforts of the Radiation Therapy Oncology Group, the Patterns of Care Studies, the Particles Study and, much later, the Radiation Diagnostic Oncology Group. All of these activities were supported by NCI contracts and had their own subcontracts with participating radiation oncology departments and consultants. The Jefferson contracts were transferred to

the ACR and new ones were awarded directly to the College.

The San Francisco project was a gift from Reynold F. Brown of the University of California at San Francisco. Under a series of contracts with the PHS Bureau of Radiological Health, Dr. Brown developed an extensive radiologic learning laboratory for independent study by residents and medical students (see chapter 12). Like Dr. Kramer, Dr. Brown recognized that national acceptance of the learning laboratory would be enhanced by national sponsorship of the project and by the College's talent for marketing educational projects to its members. Dr. Brown's project depended upon the continuation of federal grants for development. But the major costs of the project were recovered through the sale of the learning packages. Significant amounts of ACR money were needed to purchase a building in Walnut Creek, California, and to equip it for the duplication of learning files.

Changing the Guard

The College was galloping off in all directions. Bill Stronach was growing old and sick. Money was coming in and going out, but the financial controls were not adequate. College leaders began to think the unthinkable—that they would have to change their management. Those who were then in the ACR hierarchy had spent their entire careers as members of an ACR managed with knowledge and grace by Bill Stronach. But by 1980, Stronach had developed symptoms of malignant illness and was named executive director emeritus. Bob Becker was named acting director and the Board of Chancellors began to consider what to do about a successor.

Bill Stronach was given a gold medal at the 1980 annual meeting in recognition of his tremendous service and also in recognition that, with the progress of his disease, it would be the last opportunity to extend that recognition. He died in May 1981.

In June, the Executive Committee of the Board of Chancellors met to choose a new executive director. It interviewed six candidates, four outsiders and Bob Becker and Otha Linton from the staff. The first decision was to take an outsider. The position was offered to Rue W. Harris, who was no relation to the chairman, John H. Harris, Jr.

Rue Harris was then the assistant director of the Federal Bureau of Mines. He was trained as an educational psychologist and had expertise in test design. That expertise led him to the ACR, first through a California consulting group, and then as a part-time consultant to the self-evaluation and continuing education project. He took over in August 1981.

More of the Same Issues

Most of the issues on the College's agenda in 1980 and 1981 lingered from the previous decade. The ACR offered to help its members who had difficulties preparing certificate-of-need applications to public planning agencies for new departments and major equipment. The ACR and the PHS Bureau of Radiological Health issued statements on x-ray exposures of pregnant women. The BRH suggested minimizing examinations or postponing them in a known pregnancy. The ACR stressed that medical necessity applied here, as in other instances. An Arizona court ruled that a radiologist had an affirmative obligation to advise a referring physician about possible complications of angiography or other radiologic procedures.

The state radiation control programs indicated that the nation had 136,121 medical x-ray machines in 1978. Of those, 39 percent were in hospitals, 29 percent in physicians' offices, 9 percent in chiropractic offices, 7.4 percent in clinics, 7 percent in veterinary facilities and 7

percent elsewhere.[1] John C. Villforth, director of BRH, annoyed radiologists by declaring that 30 percent of all medical x-ray procedures in the US were medically unnecessary. That translated into $2 billion a year in unneeded costs.[2] The basis for the claim was a hash of repeat examinations, lateral chests added to postero-anterior views, technical deficiencies, and outdated patterns, such as admission chests for hospitalized patients. Some radiologists pointed to the growing number of self-referred examinations performed by primary care physicians as a stronger case for controlling the quantity of x-ray studies than those cited by Villforth.

Good Relations with Medicare

Relations with Medicare were fairly smooth. The Health Care Financing Administration resisted criticisms from the Health and Human Services Inspector General regarding compensation arrangements for radiology. HCFA agreed to pay for body CT examinations on a standard "usual, customary and regular" schedule rather than the arbitrary fees initially decreed. The change resulted from a successful lawsuit in which the ACR did not participate.

Bruce Steinwald, an economist at Vanderbilt University in Nashville, Tennessee, reported on a study supported by the HCFA, which concluded:

> The trend to fee-for-service for these physicians (radiologists and pathologists) is certainly there. In 1978, some 73 percent of hospital-based radiologists were on fee-for-service, 12 percent on percentages, 15 percent on salaries. That was an increase from 51 percent independent in 1975. Those on percentages decreased by 29 percent in the same three years.... The net income for radiologists in 1977 was $69,000, or 20 percent more than office-based physicians.[3]

Early in 1981, HCFA resolved a growing problem for radiologists interpreting studies on emergency patients by stating in a January 15, 1981, letter from the HCFA administrator, Howard Newman to the ACR: "In our view, interpretations by radiologists of radiologic examinations, e.g., x-rays which other physicians have previously interpreted, almost always constitute patient care and on that basis qualify as physicians' service. A radiologist's interpretation is really to evaluate the interpretation of the attending physician or the emergency room physician, and the radiologist's findings could affect the course of treatment initiated or cause a new course of treatment to begin."[4]

Medicare declined to pay for admission chest x-rays, possibly influenced by John Villforth's claim that they were medically unnecessary. Indeed, the ACR had recommended discontinuing such studies except in populations where tuberculosis remained a health problem. In another action, the federal program decreed that it would pay radiologists only for reasonable charges for their direct physician involvement in specific procedures for covered patients. Any payments for administration, teaching, research, or other duties would be regarded as service to a hospital, payable as part of the hospital's recovery of its costs under Part A.[5] That ruling eliminated the last of the discriminatory payment mechanisms that Medicare had adopted in 1966, when almost all radiologists were tied to their hospitals on compensation contracts. Radiologists liked that ruling.

Their colleagues in pathology did not, since they were unable to show a direct physician involvement in most clinical laboratory testing. The pathologists were able to enjoin Medicare from implementing the change until Congress changed the language of the law two years later. The difference in the ACR position and that of the College of American Pathologists pointed out how the two specialties had changed since the enactment of Medicare. Most radiologists broke off their hospital compensation contracts. Pathologists, whose incomes were tied more closely to control of the clinical laboratory than to the performance of surgical pathology, had remained in situations in which the hospital billed the total charges and shared the revenue.

At the end of 1980, Congress decided to restrict the payment of 100 percent of radiologist charges for Medicare inpatients to those who accepted Medicare assignment. Congress abandoned efforts to create special rules for paying teaching physicians. It also rejected an effort by chiropractors to be paid for x-ray examinations. It passed over a proposal from the ACR to ban percentage contracts.

Out-Planning the Planners

Implementation of federal health planning requirements involved radiologists in justifying the need for CT scanners. The question of what constituted a sufficient patient load to warrant procurement of an initial CT scanner in a community or to support adding a second one was critical. The ACR and the National Electrical Manufacturers Association devised a formula for planners to use. The formula grew complex as it attempted to accommodate the different length of time needed to image heads and other body sections and to reflect the added time involved when radiologists chose to add contrast runs to CT examinations. The more complex the formula became, the more readily the planners adopted it. Two events rapidly made the whole effort obsolete. One was the introduction of faster CT units, which greatly reduced scanning time. The other was the decision by the Reagan administration in 1981 to abolish the health planning law and requirement. However, some states chose to keep planning requirements.

At the 1980 annual meeting, the College attacked its financial problem when the Council voted to raise the dues from $175 to $250. The ACR agreed to sponsor the 1985 International Congress of Radiology, to be held in Honolulu, Hawaii, with Robert D. Moseley of Albuquerque, New Mexico, as president and Luther W. Brady of Philadelphia as secretary-general. The ACR established a separate congress corporation, which turned out to be a very good idea when the congress lost money.

Time to Move

The College continued to work at its own planning activities. One element overcame the others: a new push for consolidating ACR operations, probably in Washington. Rent on the several ACR facilities was projected to reach $500,000 a year by 1985, prompting the chancellors to conclude that the time had come to acquire property. But where should that property be? There were reasons of inertia and politics to remain in the Chicago area, if not necessarily in a high-rent downtown high-rise building. Some chancellors objected to taking the ACR to Washington as a reflection that the government was controlling their profession. Some suggested relocating to Dallas or Denver, where transportation was as good as Chicago and the winters were milder. In the end, the College acknowledged that it needed to have strong representation in Washington and could do without a continuing Chicago presence. The board voted for the move in June 1982 and the Council concurred in September of that year.

A site selection committee was put to the task of finding a suitable site for a College headquarters building. There was a general sense that the College would build, rather than acquiring an existing building. Almost a year later, the recommendation to the board and Council was to obtain a site in the planned suburban community of Reston, Virginia, 16 miles from the White House and 10 minutes from Dulles International Airport.

Medicare Changes

During the early months of 1982, Congress returned to the issue of amendments to the Medicare legislation. Proposals affecting radiology from Senator Herman Talmadge of Georgia, chairman of the Senate Finance Health Subcommittee, had been pending for several years. Now, in the Tax Equity and Fiscal Responsibility Act (TEFRA), they were revived as part of broad changes in the Social Security program and Medicare.[5]

One immediate effect was to end any separate treatment of radiologists under Medicare compensation regulations.[6] Prior language providing 100 percent payment for radiologist fees for services to inpatients was dropped. The bill also eliminated original HCFA presumptions that hospital-based radiologist compensation was partially based on administrative services. "Carriers will be instructed to presume that a radiologist's income relates entirely to patient services unless the radiologist and his hospital supply an agreement allocating some portion of time to services to the installation."

The Medicare program capped the amount it would recognize as full compensation for a radiologist performing only administrative duties at $133,000. It also invoked what it and the ACR called the 40 percent rule. Much earlier, the ACR advised HCFA that a reasonable allocation of a total charge for a diagnostic or therapeutic radiology service was 60 percent for technical costs and 40 percent for the radiologist's professional time. HCFA then argued that if a radiologist in his own office accepted $40 of a total fee of $100 as professional compensation, it would recognize the same $40 for the professional component of the same procedure in a hospital in that community, even if the accepted prevailing hospital charge and fee was higher than $100. Since charges in hospitals had increased more than office charges, this ruling was meant to curb Medicare costs. In practice, carriers had great difficulty in applying the rule. In a community with a free-standing radiation therapy facility, the 40 percent rule applied. In a community with only hospital-based radiotherapy, it did not.

Within days of the new publication, the ACR sent an all-member mailing to explain the impact of the regulations. It was important to furnish those radiologists who still needed to sever compensation contracts with hospitals the exact language in which the federal government mandated the change. The regulations had the effect of forbidding a hospital to send a bill combining its charges and a physician fee to a Medicare carrier or intermediary. They did not dictate how the money paid by the Medicare program should be allocated by the recipients. But the regulations said that the program would deny any amount billed by a hospital on behalf of a physician that was more than the physician received under an employment or other agreement. Thus, over 16 years, the Medicare program had accepted the full equity of radiologists as physician providers of medical service and had completely eliminated the 1966 presumption that they were the expensive end of a hospital service called radiology.

Isotope Licensure Changes

The ACR was involved in the December 1982 decision of the Nuclear Regulatory Commission (NRC) to require six months of training in a residency program in radiology as one pathway for a physician to qualify for the NRC's physician licensure to use radioisotopes. The NRC (and its predecessor agency, the Atomic Energy Commission) had controlled these uses by its own licensing program, even though the growth of specialty board qualifications supplanted that need in the opinion of most radiologists. However, in accepting specialty board qualification, the NRC clung to an alternative route via preceptorships, with detailed requirements for hours in various activities. At the same time, it was

receiving strong arguments from physicians who wanted nuclear medicine to be a separate discipline to lengthen the training requirements, as well as increasing arguments from cardiologists to grant them licenses to use isotopes for cardiac procedures on the basis of only token training requirements. The ACR's argument was that the NRC could accept the inherent training in radiation safety received throughout a radiology residency as serving to qualify a trainee to use isotopes safely. But the absence of such training in cardiology residencies left those residents in need of extensive formal training if they were to use isotopes on their own. The arguments continued throughout the decade, without ever changing the NRC requirements.

At the end of 1983, the ACR reported that 13,817 radiologists—or 80 percent of known living diplomates of the American Board of Radiology—were College members. The budget for 1984 projected gross revenue of $10,522,000 and expenses of $10,457,000. Almost $7,000,000 of the revenue came from projects and contracts.

In the summer of 1984, the ACR participated with the Blue Cross and Blue Shield Association (BCBSA) in the release of guidelines to reduce the medically questionable portion of the annual $7 billion spent on diagnostic imaging procedures.[7] In a press conference, Bernard R. Tresnowski of Chicago, president of BCBSA, said that imaging had increased at the rate of 10 percent a year and was adding costs of new technology without eliminating older procedures. He added that the guidelines would not mean automatic rejection of claims. Instead, they were issued to alert physicians to their overuse of imaging.

"There has been an emphasis on the quality of patient care and not a narrow-sighted view of cost containment for its own sake," the ACR asserted in an accompanying statement. Through its own efforts, the ACR has adopted as formal policy many of the principles which have been incorporated into these BCBSA guidelines," said ACR board chairman Gerald D. Dodd of Houston.[8]

The guidelines covered nine procedures:

1. Ultrasound and x-ray pelvimetry in maternity care
2. Diagnostic imaging in the evaluation of breast disease
3. Radionuclide bone scan and x-ray of bones in the evaluation of bone metastases
4. Radionuclide brain scan in the evaluation of adult intracranial disease
5. CT scan in the evaluation of headaches, cerebrovascular disease, and dementia
6. Upper gastrointestinal fluoroscopic study
7. Head CT scan and ultrasound in the pediatric patient
8. Chest x-ray examinations
9. Radionuclide imaging procedures

Over several decades, the ACR had issued various guidelines addressing radiation protection and elements of clinical practice. Some of the statements on radiation protection had been offered jointly with the Public Health Service. A statement recommending discontinuation of chest x-ray surveys for tuberculosis detection was the joint product of the ACR, the American College of Chest Physicians, the American Thoracic Society, and the PHS Centers for Disease Control. The ACR efficacy study had been intended to set guidelines for clinical situations warranting imaging procedures. But the BCBSA effort persuaded the College that the time had come to begin a more organized and extensive effort at standard and guideline preparation. Other national specialty groups were reaching the same decision, and the standards race was well begun.

The Emergence of Imaging Centers

As the College leadership gathered for the 1984 annual meeting in Los Angeles in September, a larger issue would capture the attention of the Council: the growing popularity of imaging centers.

An unintended effect of federal health planning requirements in the 1970s had been to move elements of traditional hospital service out of institutions and away from the planners' jurisdiction. Some radiology groups purchased CT scanners when their hospitals were denied certificates of need. Other radiologists invested in a CT scanner when a hospital balked at the expense. Whatever the combination of reasons, most of the independent imaging centers, surgicenters, radiation therapy centers, and even emergency medicine clinics quickly attracted patients and showed a profit for their investors.

The composition of the investors roused the Council. An imaging center featuring CT scanning, magnetic resonance imaging (MRI), and other high-technology procedures could cost several million dollars to fit out. The same magnitude was involved with linear accelerators and treatment-planning devices for a radiation oncology center. The money came from everywhere. Venture capitalists could put together a deal to involve referring physicians. With no thought of medical ethics, a commitment of money from an internist or surgeon would stimulate his referrals to that center rather than elsewhere.

Jerome F. Wiot of Cincinnati amended his 1984 presidential address to warn against endorsing joint ventures. "I believe that we will have abandoned our ethical standards if we give any support to the concept of imaging centers owned partially or totally by physicians other than radiologists."

But a significant number of councilors and other College members were already involved in joint ventures and believed that they could be operated ethically. The Council's 1984 statement on freestanding imaging centers read: "Dividends or profits related to such investments should be commensurate with the individual's investment. No physician-investor should participate in a system which offers financial rewards for patient referrals or practice patterns which are medically inappropriate."

The ACR commissioned a monograph on imaging centers and expanded on its statement about investments to outline other elements of ethical practice. But the issue left the Council and the College sharply divided.

After three years in the post, Rue Harris was relieved of duties as executive director by the board. John Curry, who had managed the Philadelphia office, was designated acting executive director and was confirmed in the job in November by the Board of Chancellors.

Last Planning Effort

Board chairman Joseph A. Marasco, Jr., of Pittsburgh made one final effort to coordinate and conclude a decade of ACR planning committees. He proposed six studies to summarize ACR challenges and needs for radiology in a changing environment. In a 32-page report on the status of radiological economics, work group chairman Roy R. Deffebach of Redwood City, California, offered several prophetic comments:

> The phrase "free choice of physician" may soon be an anachronism as patients are herded into closed panel, prepaid, or fixed-price health systems. With federal seed efforts, HMOs, PPOs, IPAs and other closed panel group practices have become economically viable.
>
> The striking development of the past decade is the role of the entrepreneur in actually providing health care services. For-profit hospital companies bring capital formation, management skills and economies of scale to hundreds of community facilities. The business approach of these hospital groups often extends to relations with physicians on their staffs.

> The critical mass may have shifted to a point where prudent physicians will not resist opportunities to affiliate with closed panel risk groups.
>
> In a legal sense, and for reimbursement purposes, there is no service performed by radiologists which is not also performed by other physicians acting upon their own assertion of competence and its acceptance by hospital boards and third parties.[9]

If the statement was clear, the issues were complex and the currents of change were as yet intermittent. Thus, the ACR remained preoccupied with setting its management in order, getting its finances under control, arranging to move its headquarters to suburban Washington, and continuing to regard the federal government as the main player in health reform.

Government Potpourri

Government-related issues touched on a wide variety of issues. The Federal Trade Commission advised the ACR that proponents of thermography, an imaging technique which used a body's natural heat emissions to develop a diagnostic pattern, had complained that the ACR's negative statements about the usefulness of the technique represented a restraint of trade. The College was subjected to a year-long FTC investigation which went well beyond thermography. The FTC complaint was dismissed. Thermography disappeared, particularly after both the American Medical Association and the Health Care Financing Administration issued statements condemning its use.

The Food and Drug Administration approved the injection of chymopapain for relief of spinal disc pain by orthopedists and neurosurgeons but not anyone else. Since the injections were made with fluoroscopic guidance, the ACR objected to the FDA's acceptance of the chymopapain manufacturer's restriction of its product to two specialty groups. The orthopedists and neurosurgeons sponsored weekend courses with fluoroscopes set up in hotel meeting rooms until state radiation control programs shut them down for lack of radiation protection. But the promise of chymopapain faded almost as quickly as it had arisen, thus ending the disputes.

In one of its many efforts to curb the growth of health spending, Congress in 1982 had frozen acceptable fees at the October 1982 level. For radiologists ending hospital compensation arrangements after that date, Medicare could not recognize a fee profile that would produce revenues exceeding what they had received through earlier hospital billing. The ACR's efforts to extricate its members extended all the way to obtaining a letter to HCFA from the ranking members of the Senate and House Health Subcommittees, asserting that it was not their intent to penalize physicians who changed their practice circumstance. But HCFA ignored the pressures until the freeze was lifted in 1986.

The ACR led a successful effort to gain FDA approval of MRI devices and then to persuade HCFA to pay for the examinations. With all of the involved organizations remembering the complications of CT approvals a decade earlier, MRI was approved rapidly. The FDA elected not to ask manufacturers to prove the safety of intense magnetic fields in the absence of any indication that they were hazardous. A contrary decision might have delayed approval by decades.

The ACR, the American College of Nuclear Physicians, and the Society of Nuclear Medicine were less successful in persuading the FDA to expedite approvals for new radiopharmaceuticals. Lawrence R. Muroff of Tampa, Florida, chairman of the Commission on Nuclear Medicine, met with FDA Commissioner Frank Young and gained assurances that the agency would improve its processing of isotopes. However, Dr. Young left the FDA shortly thereafter and the problem remained unsolved.

RAPs and Other Dirty Words

The most traumatic federal initiative to affect radiology since the initial drafts of Medicare had classified it as hospital service arose in the summer of 1986. A staff member of the House Ways and Means Health Subcommittee proposed the development of a diagnostic-related group (DRG) compensation basis for paying physicians who cared for hospitalized Medicare beneficiaries. Some years earlier, Medicare had put into effect a protocol under which it classified all hospital services into 470 DRGs and assigned a fixed cost to each hospital for each group. The change was intended to remove hospital incentives to add services, lengthen stays, and run up hospital bills for Medicare beneficiaries. If a given DRG called for a five-day stay and the patient could be discharged after four, the hospital kept the difference. If the patient needed six or more days, the hospital absorbed the extra costs. The technical or hospital costs of diagnostic radiology or radiation oncology were bundled into appropriate DRGs, but physician fees were excluded. The DRG allowances were relatively generous and few hospitals suffered. Even so, the overall spending on hospital care by the Medicare program began to level out.

On the strength of that success, Congress proposed to look at a similar scheme for all of the physician services provided during a Medicare patient's hospital stay. Since most physicians were independent of their hospitals and of one another, this was a more complex task than dealing with a hospital as a single entity. So the congressional staffer proposed starting with the hospital-based specialists—radiologists, anesthesiologists, and pathologists (RAPs). The ACR quickly determined that there was no enthusiasm for the proposal among key congressmen.

Late in 1986, President Reagan included the idea in a preliminary budget message for 1987. His original proposal applied the notion to all physicians, but in the face of thunderous opposition from the AMA and other physician groups, he retreated to the narrower RAPs proposal. By the middle of his second term, President Reagan had reached an impasse on most budget issues with the Democrat-controlled Congress.

Having determined that there was no enthusiasm for the idea in the summer of 1986, the ACR's government liaison team felt that the president's endorsement would not change many congressional minds six months later. After discussions in January 1987 at the Board of Chancellors meeting, the ACR decided on a policy of quiet containment, relying on its contacts with senior members of the congressional health subcommittees to keep the issue bottled up. Indeed, at that time there was no legislative proposal, only the discussion papers.

Too Much Help

But the discussion papers alarmed other medical groups, including many who lacked the ACR's long Washington experience. On the last day of the chancellors' meeting, the AMA Board of Trustees decided to lead a fight against the RAPs proposal for all of medicine. To the AMA and to most other groups, this was a generous decision to help the three threatened specialties. Not incidentally, it was recognition that if the RAPs groups were picked off, others would follow. By the time the ACR could regroup and urge against the AMA's plan for a broad effort, it was too late.

The AMA chose to use a parliamentary device known as a concurrent resolution as its carrier. A concurrent resolution is a nonbinding expression by one or both houses of Congress and is used most frequently for ceremonial purposes. It was an uncommon use to seek sponsors for a resolution asserting that if and when RAPs legislation might be proposed it not be supported. But by that time, most state medical societies had mobilized to follow the AMA lead. Senators and congressmen who had not heard of the RAPs

proposal were being pressed strongly to endorse a resolution against it. A strong minority in both houses did sign on in the early months of 1987.

The ACR held to its own game plan, quickly drawing critical fire from the AMA and many of the other groups that had rallied to help. The ACR could not announce that its conversations with congressional leaders had gained verbal assurances of opposition. With attention being drawn to the RAPs issue, those assurances would be harder for the congressional leaders to support.

Cognitive Means Caring

A second issue complicated the medical political scene. In 1985, internists and family practitioners had complained that health service payment schemes discriminated against their "cognitive" patient services in favor of the "procedural" services of specialists such as surgeons and radiologists. Congress had authorized a study of the problem. Even if Congress was not sympathetic to the notion that any physicians were underpaid, some members did believe any contention that many physicians were overpaid. The primary physicians contended that the discrepancy was too broad to be fixed by tinkering with existing relative value scales or fee profiles.

Early in 1986, HCFA awarded a contract to a study team at the Harvard School of Public Health led by economist William Hsiao. Hsiao had been principal author of earlier studies funded by the Massachusetts health care rate-setting commission.[10] He had concluded that physicians were overpaid and that procedural physicians were more overpaid than primary care givers. The AMA, having been denied the study contract, promptly agreed to help the Harvard group.

To the ACR leadership, this study posed a greater threat to radiology than the RAPs proposals. They felt that they had no choice except to participate, with the hope that such participation might influence the outcome more than would opposition. The ACR had historic experience in devising a relative value scale (RVS) for radiology, but after the ACR accepted the Federal Trade Commission's consent order to stop such activities, the College's scale was a decade out of date.

The ACR was among a dozen national medical societies and other witnesses testifying before the House Ways and Means Subcommittee on Medicare reform proposals including RAPs and relative values on 13 May 1987. In his testimony, ACR President Joseph A. Marasco of Pittsburgh, warned of serious problems in the announced but untested methodology of the Harvard study and its intended emphasis on resource-based relative values scale (RBRVS), an approach that rejected the experience of physicians and health care insurers in determining rates. He agreed that the mandated Medicare reimbursement plan based upon paying whatever physicians established as their charges had been inflationary. An RVS based on experience rather than theory could be developed by each medical discipline and coordinated by the AMA, he argued.

At the conclusion of testimony by the medical specialty societies, Rep. Fortney Stark of California, chairman of the subcommittee, asked each of the witnesses if his society would like to develop an experience-based RVS. Only Dr. Marasco gave an affirmative answer.

A Threat to Others

To the internists and their allies, the ACR position and Rep. Stark's favorable response to it was a threat to their hope that the Hsiao study would result in improved compensation for them. The ACR was accused of making a private deal for radiologists to accept mandatory assignment of Medicare benefits in return for their own version

of relative values. The accusation was false, but it served the purpose of those who favored the RBRVS approach. AMA Executive Vice President James H. Sammons publicly called upon ACR leaders to resign. His protest was echoed by other groups and by some radiologists who were active in state medical societies.

When the House Ways and Means Health Subcommittee met to mark up broad Medicare authorizations and changes in June, Chairman Stark quickly dismissed the AMA-sponsored concurrent resolution. He did not support the RAPs proposal, but he had to do something about changing the Medicare basis for paying physicians, which had started with concerns about RAPs and now focused on relative values of some variety. The lobbying was intensive on members of the Stark subcommittee and also on the Commerce Committee Health Subcommittee, which shared primary jurisdiction over Medicare. Rep. Henry Waxman of California, chairman of the Commerce subcommittee, inserted legislative language authorizing HCFA to proceed with adoption of an RBRVS but specifically directing HCFA to work with the ACR on the development of an experience-based RVS for radiology procedures.[11] The legislation passed the House of Representatives with that language intact. The AMA threatened to get it changed in the conference committee with the Senate. It remained in the final version and was signed by President Reagan.

"The law requires that HCFA is to work with the Physician Payment Review Commission, the College, and other organizations representing imaging physicians to develop a relative value schedule for all radiologic services. This will be a national schedule. It will be given to the Medicare carriers with instructions to use it in negotiating radiology fee schedules for the payment of radiologists and certain other physicians performing radiologic services," wrote Thomas Meaney of Cleveland, Ohio, in his "Chairman's Memo" in the January 1988 *ACR Bulletin*.[12]

The ACR had stayed with its strategy despite massive medical opposition and had won its point. The legislative language removed the Federal Trade Commission stricture on ACR development of relative values to the extent that such values were developed in cooperation with HCFA and intended for Medicare use. For the second time in just over two decades, the ACR had defied great odds and had been successful in gaining congressional support for its key point.

In mid-August, Dr. Meaney convened a special session of the board and the Council steering committee to consider the ACR position. He recalled that all of medicine agreed on the need to defeat any RAPs or doctor DRG proposal. The disagreement came with regard to tactics. He reminded his colleagues that the ACR had avoided questioning the motives of those in other societies.

Frank Angell of Baltimore, the vice chairman of the board, who had headed the ACR working group on the Harvard study, asserted his belief that the results of that study would be detrimental to radiology if they were ever applied. Roy Deffebach of Redwood City, California, the ACR delegate to the AMA and a member of its Council on Medical Service, urged the ACR to maintain communications and find a basis for reconciliation with the AMA. Tom Meaney replied that he had kept open communication with Alan Nelson of Salt Lake City, Utah, chairman of the AMA Board of Trustees, despite Dr. Sammons' intemperate denunciations of him. He would remain a member of the AMA and he urged all radiologists to do likewise. After a day of discussion, the board and Council steering committee voted unanimously to support the College leadership's actions. The Council took similar action in its annual meeting a month later.

HCFA Manual Transmission 1200

While the ACR was occupied with RAPs and DRGs and the legislation and politics pertaining thereto, HCFA issued an instruction to carriers that severely threatened the basis for paying for fractionated teletherapy for a wide variety of cancers. The proposed change was contained in carrier Manual Transmission 1200. It directed the carriers to pay a professional fee only for those daily fractions that involved the radiation oncologist in contact with the patient. Prevailing practice in most therapy centers involved the oncologist seeing the patient on a weekly basis or as needed. Implementation of the change could have resulted in a reduction of 80 percent or more in payments for teletherapy treatment supervision.

Two decades earlier, the ACR had helped its radiation oncologist members adopt a sophisticated method of billing for a course of treatment. Before that, most courses of treatment were billed globally. Patient evaluation, treatment planning, and daily costs were all combined in an arbitrary figure. That was simple enough, but hardly reflective of the growing sophistication of radiation treatment of many cancers. It made no allowance for decisions to not treat or to discontinue treatment of complications.

In the 1960s, the College devised and gained acceptance of a "front-end loading" concept of billing, in which the radiation oncologist's time for patient evaluation and the costs for treatment planning, dosimetry, creation of blocks and prostheses and simulation were all identified and priced individually. This allowed the patient or the insurer to know what services were provided and what each cost. Patients who did not need the full work-up avoided some costs. In return, the daily treatment supervision charge was reduced and tagged to the number of daily fractions received.

The problem arose from HCFA's perception that there was no physician participation in most daily treatments. Spot checks by HCFA field agents indicated that many patients were being treated with no physician present at the treatment center. Those findings negated the argument that the physician's presence is important to deal with medical problems and to make frequent assessments of the patient's condition, possibly leading to alterations in the treatment plan. The ACR pointed to its recommendation that a physician always be present during treatment, but it could not claim that its recommendation was always honored. Further, the ACR and the American Society of Therapeutic Radiology and Oncology accepted that the majority of teletherapy patients do not need a physician consultation with each treatment fraction.

The ACR worked with HCFA staff to develop a new basis for paying for treatment supervision. The new basis was a weekly treatment supervision charge that reflected common practice and would be taken as an average. Certain services—like review of portal films and prescriptions—were to be included in the management fee, rather than being allowed as separate charges. For this purpose, a week included three or more daily treatments. The charge allowed by HCFA was pegged at approximately 85 percent of the amount previously paid for five daily supervision charges. In the final agreement, Medicare saved some money, radiation oncologists saved the bulk of their incomes from treatment supervision, and the new policy reflected reality.

Radiology in the Courts

The College and its members were also busy in the courts. The decade-old suit by chiropractors alleging that the ACR and the AMA and other medical groups were attempting to monopolize medical service by refusing to consult with them finally was settled with a finding favorable to the chiropractors. With an adverse verdict pending,

the judge allowed the ACR and the American College of Surgeons to settle, leaving the AMA as the sole defendant. The ACR settlement called for a payment of $200,000, plus costs, and a statement that it would make no recommendations to its members as to their relationships with chiropractors.

A federal district court in Virginia ruled that a hospital could contract with its radiologists to interpret all CT examinations, even if a neurologist claimed to be qualified to interpret CT procedures on his or her own patients.[13] The College provided strong support for 65 radiology practices in the New York City area in their suit to force Empire Blue Cross to pay their fees for services to hospitalized Blue Cross subscribers. The suit ultimately was unsuccessful. It represented another example of ACR support for members who resorted to the courts, when the issue was broad enough to affect all of radiology.

With a congressional mandate and a target date of January 1989, the ACR began the task of collecting data to design an experience-based radiology relative value schedule. Because of the longstanding mutual trust between HCFA and the College, and because of specific congressional language, HCFA relied strongly on ACR initiatives. The College handed the assignment to James E. Moorefield of Sacramento, California, chairman of the Commission on Economics. He convened a task force and engaged Abt Associates, a Boston research organization, to help with data collection and analysis. Radiology practices completed detailed questionnaires. Radiologists and business managers convened to analyze the results of the surveys and to massage the data into a series of recommendations to HCFA. As the early results seemed to suggest reductions or failed to suggest desired increases in relative values for nuclear imaging and interventional procedures, the ACR and HCFA were challenged.

The congressional language had accommodated the complaints of internists that their imaging services should not be subject to a radiology RVS, which they would not help to prepare because it conflicted with their support of the RBRVS. So Congress ruled that the radiology scale would apply to those physicians whose billings to Medicare were 50 percent or more for radiology and not to any others. The others could continue to bill using the usual, customary charges, pending some completion of a resource-based scale. Two societies of nuclear physicians formally requested to be allowed out of the radiology RVS. HCFA denied their request.

Toward the end of 1988, it appeared that the work of the ACR and HCFA would not be completed in time for detailed instructions to reach the Medicare Part B carriers to allow conversion by January 1989. The ACR pointed out to HCFA that some carriers were using bad data in calculating conversion factors. The resulting recalculation slowed the whole process. Implementation was delayed three months and then began amidst much confusion. When some carriers began to pay radiologists fees greatly reduced from the previous levels, Medicare granted the ACR access to carrier billing information, a radical departure from previous practice. Once some of the carriers realized that this access also gave the ACR an understanding of the bases of their payments for their private patients, they protested, gaining a HCFA agreement to not allow other physician groups similar access.

The ACR later estimated that it had spent $1.7 million and thousands of hours of volunteer, staff, and contractor time on its RVS activities. Some 2,500 practices had participated in the extensive data gathering and analysis efforts.

Against Fraud and Abuse

While the ACR and most other medical groups in 1987 were paying attention to the Tax Equity and Fiscal Responsibility Act (TEFRA) and its changes in Medicare reimbursement, Congress amended and strengthened the provisions of

Medicare legislation dealing with fraud and abuse. The Department of Health and Human Services Office of the Inspector General (OIG) was given a mandate to investigate violations, including instances of kickbacks and other incentives to Medicare providers.

The ACR served up a classic case. In the spring of 1988, the administrator of Culpeper Memorial Hospital in Culpeper, Virginia, decided to solve some of his hospital's money problems by offering certain services to members of the medical staff who held contracts with the hospital, including billing and marketing services. The price was substantially above the going rate for such services. Virginia Radiology Associates, the incumbent radiologists for a quarter century, perceived the hospital's proposal as an inducement for a kickback in violation of Medicare regulations. They refused and were ousted from the radiology department and their appointments to the medical staff.

After a lengthy investigation, the US attorney for northern Virginia declined to seek a criminal action against the Culpeper hospital, but it did use this case as an example of the kind of behavior it hoped to prevent. The radiology group gained ACR support to file a civil action against the hospital for breach of contract and other offenses. Eight years later, the case finally was resolved favorably to the radiology group, which received money damages and reinstatement as members of the hospital staff. The ACR's good relationship with the OIG proved fruitful in trying to deal with the proliferation of joint ventures for imaging centers, radiation therapy centers, and other enterprises which involved physician and outside investors.

ACR Now Against Joint Ventures

In 1984 and 1985, the ACR Council had attempted to spell out guidelines within which radiologists could work with other physicians in joint ventures. However, by the 1988 meeting, the Council had concluded that no set of guidelines could avert the potential for fraud and abuses in such arrangements.

In substitute resolution 39, the 1988 Council reversed its stand. "The position of the ACR is that the practice of self-referral of patients for a diagnostic or therapeutic medical procedure may not be in the best interest of the patient. Accordingly, referring physicians should not have a direct or indirect financial interest in diagnostic or therapeutic facilities to which they refer patients."

The ACR position itself did not abolish other physician-investors. But when the ACR took its new position to the OIG and to hearings of the House Ways and Means Health Subcommittee, it found enthusiasm. In the face of the enthusiasm of the subcommittee chairman, Rep. Fortney Stark of California, the AMA and societies representing other medical disciplines objected strongly. The AMA argued that physician-investors often provided communities with the only available medical facilities and that physicians could make such investments and still practice ethically. Both the OIG and Rep. Stark favored the ACR position in subsequent regulations and statutory language.

The ACR was also moving ahead on its voluntary program of accreditation for screening mammography facilities (see chapter 9). By the mid-1980s, much of the furor about possible harm to women from radiation exposure in mammograms had died away. Improved films and techniques had reduced exposures by a factor of ten. Also the American Cancer Society, prodded by Gerald D. Dodd of Houston, a past College officer, had made breast cancer a continuing campaign issue. The ACS requested the ACR to accredit mammography facilities and to encourage radiologists to accept women for breast screening without referrals. The ACR accepted both recommendations, cautioning radiologists that they accepted extra burdens of patient and

physician notification in the absence of the traditional referral.

The ACR effort proved timely. In 1988, Congress passed the Medicare catastrophic benefits bill, with biennial screening mammography as a new benefit and the first screening program to be covered by Medicare. Once again, HCFA turned to the ACR for help in implementing its new mandate.

A New Code of Ethics

In the aftermath of the loss of the Wilk chiropractic suit, the ACR needed to amend the section of its bylaws dealing with association with nonscientific practitioners. The Judiciary Committee, which undertook the revision, chose to make a new start on the ACR Code of Radiologic Ethics. A quarter-century earlier, the ACR had abandoned the historic notion that the financial relationships between radiologists and hospitals or other health organizations were matters of ethics. Now it divided the subject into two dimensions. One was a statement of aspirations that listed six principles, not enforceable against a College member. These included obligations to respect patient dignity and confidence, obligations to share learning, and to work at improving skills. Principle six read: "Rendering of a service by a radiologist should be governed by what is in the best interest of the patient. The decision to render this service to a patient is a matter of individual choice."

The second section contained six rules which were held to be enforceable by the ACR against members. These covered the propriety of providing informal consultations on diagnoses of cancer, a directive that radiologists should become members of hospital medical staffs before signing exclusive contracts, and rules against fee-splitting, deceptive billing, and self-referral to joint ventures.

The new code was adopted by the board and Council in 1988 and incorporated in the bylaws.

Low Osmolar Equals High Cost

Yet another activity of the College in busy 1988 was its involvement in the dilemma created by the introduction of low-osmolar contrast agents (LOCA). The new agents were formulated for vascular and other procedures and were asserted to be considerably safer and less traumatic to patients than the high-osmolar contrast agents (HOCA) in common use. The trade-off was that all three of the major contrast manufacturers priced their new products at roughly 20 times the cost of the older products. Instead of an incidental contrast cost of $5 on a procedure priced at $200, the use of LOCA might add $100 to the technical cost of the same procedure.

Several questions arose. How much better and safer was LOCA? And if LOCA was safer and better, how should it be used? Did all patients need LOCA? If not, what high-risk groups could be identified? Who would make the judgments, and on what basis? Who would undertake to get lower prices or to persuade health insurers to pay extra for LOCA?

The ACR Committee on Drugs was asked to find answers to those questions and any others which might arise in the course of its investigations. Already, some hospitals had acted on the advice of their attorneys or insurers by converting entirely to LOCA. One major Chicago hospital, Northwestern Memorial, estimated that its contrast bill would rise from $100,000 to $1 million a year as a result of the conversion. An ACR staff estimate put the national cost of conversion at $2 billion.

One contrast maker offered to fund the cost of an ACR study to prove the better and safer nature of its new product and, by extension, those of its competitors. But the ACR realized that the

legal pressures on hospitals and radiologists to use the safer, if more expensive, products prejudiced the ability of any US investigator to conduct a randomized trial on LOCA. Instead, the ACR turned to extensive analysis of large studies in Australia and Japan, which showed lower mortality, reduced intensity and number of side effects, and better patient tolerance with LOCA.[14]

The ACR committee's conclusion was that while LOCA was better than HOCA, it was not necessary or desirable to convert all vascular contrast studies to the new products. Instead, it offered a recommendation that patients in certain risk groups be offered LOCA. These risk groups included those with previous adverse reactions to HOCA, those with known cardiac and renal problems, those who were aged or in precarious health, and those whose physicians had other reasons to request LOCA. The ACR did not recommend a separate pricing scale but urged carriers to recognize the extra costs if hospitals sought recovery. HCFA accepted all of the ACR premises, except the one regarding physician discretion.

RBRVS Bad for Radiology

College leaders felt vindicated in their efforts to keep radiology out of the RBRVS when a preliminary report from the Harvard group preparing it contained an estimate that radiology fees would be cut by 25 percent if the RBRVS was applied to them. Earlier in the year, the Government Accounting Office used AMA data to estimate that the pretax net incomes for all physicians averaged $113,201 and those of radiologists averaged $150,000, with a fourth of radiologists earning $200,000 or more. The AMA also noted that radiologists represented 4.6 percent of all physicians.

At the December 1988 meeting of its House of Delegates, the AMA endorsed the RBRVS it had been helping the Harvard team to develop. The internists and family physicians pushed strongly. The radiologists and anesthesiologists, with their own RVS programs in Medicare, did not battle. However, some physicians complained that the preliminary publications of the Harvard study group did not appear to support the premise that primary care physicians would get more money from the RBRVS scheme. The AMA argued that it was endorsing the original concept and not the unfinished work of the Harvard team.

As is often the case with congressional mandates, Congress in 1989 was so intent on reducing Medicare spending that it declined to await the implementation of any of the RVS approaches before decreeing across-the-board reductions for all physicians. For radiology groups, the stated 3 percent reduction built into their experience-based RVS was translated by carriers into deeper cuts. College arguments that radiologists already had agreed to the 3 percent cut did not get radiologists exempted from the broader cuts, which amounted to nearly 20 percent of levels paid in 1987 before the implementation of any variety of RVS. In effect, Congress and HCFA accepted the argument of primary physician groups that specialists were overpaid and thus reduced their compensation. But the imperatives to cut back on Medicare increases prompted the government to attempt to keep the savings, rather than sanctioning any significant increase for primary care.

James Moorefield told the June 1989 meeting of the Board of Chancellors that the implementation of the radiology RVS in April had gone fairly well. There were problems with some carriers and with surgical codes for interventional procedures. He expressed the conviction that HCFA and the ACR could solve the technical problems. Eventually, the agency agreed that interventional procedures required two billing codes; one for the insertion and manipulation of a catheter and another for supervision and interpretation of images. In that fashion, the scheme would work equally well for a situation in which

a radiologist performed the entire procedure or a situation in which a surgeon or cardiologist inserted the catheter and a radiologist performed supervision and interpretation.

Later in the summer, Congress authorized HCFA to adopt the RBRVS methodology devised by the Hsiao group at Harvard. It directed that the radiology RVS be inserted into the broader program, rather than using the radiology values developed by Hsiao and his team. Thus, the College's efforts continued to sustain radiology compensation as carriers and physicians began to cope with the broad problems of converting most physician fees from the previous bases to the RBRVS. Congress in the next few years kept making cuts which made it impossible to measure the effects of the RBRVS and left most physicians unhappy with its application.

The issue of self-referral of diagnostic procedures and the profiteering of physician-investors in imaging centers was the centerpiece of draft legislation (HR939), by which Rep. Fortney Stark sought to protect the public. "Conflict of interest in self-referrals raises three major policy concerns. First, there is a risk that physician-partners may not refer patients to the facility that provides the best care. Second, patients may be referred for costly services which are unnecessary. Finally, honest competition is undercut because providers are being forced to compete—not on price or quality—but on the cut they give physicians," he said in opening Health Subcommittee hearings on April 17.[15]

When the Inspector General's guidelines later that year spelled out restrictions on physician-investors, the legislation was dropped. Even so, the attention from federal agencies stemmed the development of other joint ventures. Some facilities were closed and others shifted ownership to avoid the strictures in the federal guidelines. To a very real extent, the ACR had carried out the mandate of the Council in its 1988 vote against joint ventures.

The College finished the decade with new management and leadership, in much better financial conditions and in a new consolidated headquarters. In his 1989 presidential speech, Thomas Meaney summed it up:

> We meet now with radiology firmly established as a medical specialty, totally within the concept of fee-for-service practice, thriving in a multitude of settings, acquisitive of new technologies and attractive to the brightest among our medical graduates. We are respected—some say feared—within the circles of medicine. We are looked to and respected by the Congress and by health administrators and policy makers.
>
> I say we speak up and out. We know that self-referral is bad medicine. It detracts from quality, encourages overutilization and panders to greed. We will be criticized by those whose tails we singe. But they are the same ones who are taking the silverware in broad daylight and smiling as they go.

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Chapter 16

The 1990s: Positioning for the Future

The 1990s marked the completion of a century of radiology and almost three-quarters of a century of the College's existence. Through the Inter-Society Commission, the ACR had taken a leading role in conducting a centennial celebration for the specialty in 1995.

As the 1990s began, the College had solved many of the structural and financial problems that had troubled it a decade earlier. It occupied its own building in Reston, Virginia, with more than 60 employees, and it had another 50 in its research office in Philadelphia. The historic office in Chicago and the brief venture into California for creation of the learning laboratory both had been closed and their functions consolidated in Reston.

The College was prosperous. Donations from radiologists and from the x-ray industry were enough to pay for the Reston building without exhausting reserves or cutting program spending. A $150 dues increase voted in 1987, plus increased fees for mammography facility accreditation, sales of other College materials and services and a steady flow of research and educational funds from federal grants and contracts finally had banished the ACR's historic poverty. In 1989, the College had a surplus of $1.9 million. College treasurer C. R. Bogardus of Oklahoma City said that the ACR had $19.5 million in assets and $10 million in liabilities for a fund balance of $9.5 million in 1990 with a projected surplus of $2.3 million and investments of $16.4 million. The College had substantially better control of its finances than ever before. While the ACR had raised enough money to pay for its building, it chose to take advantage of a low interest rate on its county-guaranteed mortgage to invest much of the building fund and realize a small margin on its funds.

The passage of time and the turn of events relative to physician compensation had eased the tensions of 1987 between the ACR and the AMA and many other national specialty groups. Radiologists asserted a strong voice in the AMA, with the 1987 election of Daniel H. Johnson of New Orleans as vice speaker; Dr. Johnson rose through the ranks of the AMA to become the first radiologist to serve as its president. Timothy Flaherty of Neenah, Wisconsin, became the first radiologist to be elected an AMA trustee in more than three decades. John Knote, a radiologist from West Lafayette, Indiana, was elected vice speaker in 1995. The AMA Section Council on Radiology grew, as eight radiology societies were seated in the House of Delegates and more than 30 other radiologists represented their state medical societies. Carefully crafted resolutions from radiology societies began to influence AMA policy on issues of importance to the specialty, despite the minority status of radiology relative to primary care or surgery.

The ACR devoted more attention to government relations in the early 1990s, adding staff and expanding its coverage of state governments, as well as the federal scene. After 25 years, JT Rutherford resigned as the ACR lobbyist, passing that responsibility along to his junior partner, Donald J. Lavanty. The ACR research department, which contributed so substantially to the development of the radiology RVS, continued to expand its activities in defining radiology practice. The ACR lobbying effort became more public, involving more direct contacts between radiologists, state chapters, and their elected officials, rather than depending on inside relationships with senior members of Congress. Circumstances had changed, and the College's approach changed with them.

Private Sector Health Changes

Like almost every other national medical society, the ACR was slow to recognize that the strongest push for change in health care and health financing was coming from the private sector, rather than from government initiatives. That push was a reaction to the continued growth of health spending. Employee health care insurance, which started as an inexpensive management ploy to ward off wage increases, had grown into the largest cost incurred by many companies after the payroll itself. Being demand driven, health care costs showed no sign of easing their rate of growth in a fee-for-service system. Thus, various forms of managed care became a stronger element of national health systems. Likewise, for-profit chains continued to acquire more hospitals, closing some, combining others, and imposing business-like management on the survivors. One observer noted that the greatest change in health care during the Ronald Reagan presidency in the 1980s was its conversion from a public service utility to a competitive business.

As they coped with the historic problems of radiology, the ongoing efforts of the College, its chapters and radiology practice groups to resist controls and turf attacks had prepared the specialty for new problems. In establishing independent practice, most radiology groups had developed the capacity for management, data collection, effective billing, elementary marketing, negotiating savvy, and political awareness in dealing with health insurers, regulators, and public opinion. All of these elements of success in a competitive environment had been reflected in various ACR projects beginning in the 1960s and continuing into the 1990s.

A College survey published in the September 1990 *Bulletin* estimated that Americans would receive between 275 and 350 million medical imaging procedures during that year, close to one procedure per person. Of that number, some 62.8 million were performed by physicians other than radiologists. Americans also received an estimated 26 million radiation therapy procedures. The total spending for that imaging, including the technical costs, ran between $20 billion and $26 billion. With an estimated 23,000 diagnostic radiologists in practice, the workload averaged 11,400 procedures a year.

Those figures reflected a doubling of volume from 1964 when the Public Health Service estimated in its first X-ray Exposure Survey that one in two Americans received a diagnostic x-ray procedure in any given year. The 1964 figure had not included fluoroscopy or any of the newer modalities covered by the 1990 estimate. In the same time frame, the individual workload estimate for radiologists had increased by 1,400 a year over PHS numbers, which had included only x-rays. The new data reflected substantial substitution of isotope, ultrasound, CT, and MR techniques for the older methods.

Within those larger national numbers, the Medicare program in its Part B Medicare Annualized Data (B-MAD) for 1989 as analyzed by the ACR and reported in the August, 1991 *Bulletin*, indicated an increase in diagnostic imaging procedures for Medicare beneficiaries from 65 million in 1986 to 72 million in 1988, with radiologists accounting for 52 million of the later number. Within the totals, radiologists performed 800,000 angiograms to 100,000 for other physicians, 4 million CT and MRI procedures to 400,000 by others, 2 million isotope studies to 400,000 by others, and 38 million general diagnostic procedures by radiologists to 14 million by others.

Their domination of the radiology market was gratifying to radiologists, given the growth of imaging centers and other health facilities outside of hospitals. Within the hospital world, the ACR continued to protest, to no avail, changes in the requirements of the Joint Commission on Accreditation of Healthcare Organizations, which stripped away previous policies requiring interpretation of all images by a radiologist and requiring direction of radiology departments by board-certified radiologists.

Self-Referral Is Bad Medicine

The question of primary care physicians and others performing imaging procedures on their own patients drove much of the ACR's public policy activities during the early 1990s. After the furor with the AMA and the internists over the relative value schedules in the late 1980s, ACR leaders felt that radiologists had little to lose in making public their concerns about self-referral.

When the ACR was able to demonstrate that radiology by radiologists saved money and reduced the volume of diagnostic services, it found strong allies in the public sector. The most dramatic evidence of the economies of radiology by radiologists was a study by Bruce J. Hillman of Charlottesville, Virginia, and others which was supported in part by the ACR. "Because self-referring physicians performed imaging studies more frequently and generally charged more than radiologists for similar imaging procedures, patients seeking care from self-referring physicians incurred considerably higher diagnostic imaging charges during their episodes of care than patients receiving care from physicians who referred their patients to radiologists."[1]

That study was followed by a second Hillman study on the experience of coal miners who received health benefits from the United Mine Workers of America (UMWA) health and welfare fund. This study showed comparable results and prompted the UMWA independently to decide to pay professional fees for interpreting imaging procedures only to radiologists.[2] Only the UMWA went so far as to refuse to pay other phy-

sicians. Medical practice acts in all states allow any licensed physician and many other health providers to use x-rays as part of their licensure. But the outside help came from other directions.

One was the series of statements by the Health and Human Services Office of the Inspector General (OIG) limiting the ability of physicians to buy into medical joint ventures. The other was an OIG statement cautioning against allowing hospitals to tap into physician fees. On January 31, 1991, Richard Kusserow, the inspector general, wrote to HCFA to caution against hospitals demanding kickbacks from staff physicians:

> Hospitals recently began to view these physicians as potential new revenue sources. Some hospitals have reduced payments to hospital-based physicians, and some are requiring payments from these physicians.
>
> These illegal financial arrangements may have several unfortunate results. The remuneration gives the hospitals a financial incentive to develop policies and practices which encourage greater utilization of the services of hospital-based physicians. Additionally, hospital-based physicians faced with lowered incomes may be encouraged to do more procedures in order to offset the payments to the hospitals. These problems are among the recognized purposes of having anti-kickback statutes on the books in the first place.[3]

The acceptable business practices for medical joint ventures were contained in a so-called "safe harbor" advisory issued by the OIG in July 1991.[4] This is a legal term meaning that if an enterprise is structured within language specifically allowing a practice, it will be safe from challenge as being in violation of fraud and abuse laws. Practices outside the defined rules would be open to challenge and possible prosecution.

In general, the safe harbor rules required joint ventures to be open to others besides physicians and to treat all investors the same. Any tie between revenues to physician investors and their volume of referrals was forbidden. Fewer than half of investors could be physicians practicing in the locality where the joint venture facility is located. Hospitals as investors were subject to the same restrictions as physician investors. The radiologist-investor in an imaging center or radiation therapy facility could be paid a management stipend and could charge professional fees separate from the center's technical charges. So, on the whole, radiologists felt strengthened by the safe harbor publication.

Medicare Adjustments

During those years, the College had a busy exchange with HCFA on a wide range of topics. Late in 1990, HCFA advised the ACR of its acceptance of College recommendations for coverage of low-osmolar contrast agents, thus accepting the ACR's middle ground between no coverage and total conversion at great cost. HCFA also followed the ACR's lead in recommending to its carriers limited coverage of single- photon emission-computed tomography.

Medicare coverage of screening mammography was contained in the 1988 catastrophic coverage amendments, was lost when those amendments were repealed, and was restored in 1990 legislation. HCFA began paying a fixed fee of $55 for screening procedures to eligible Medicare beneficiaries in 1991. The specifications for the coverage were based on the ACR voluntary accreditation program. They had the effect of allowing only radiologists to supervise and interpret screening mammograms for Medicare patients.

The resource-based relative value scale (RBRVS) setting payments for physician services to Medicare beneficiaries was implemented in 1991. Because radiology was already covered under a separate RVS devised by HCFA and the ACR, the direct impact was slight. But radiologists were subject to repeated downward adjustments in conversion factors and relative values, resulting in a 20-percent reduction in what Medicare would pay for a given radiologic

procedure between 1987 and 1992. Then, HCFA proposed an additional 32-percent cut for radiology over the next four years. In effect, Congress was unwilling to wait for application of the RBRVS to create savings, so it kept demanding mandatory cuts in all physician fees. The ACR was unable to persuade HCFA and the congressional committees to recognize the specific reductions that had been applied to radiology in 1989 with the radiology RVS.

The ACR returned to a historic concern and a historic alliance with the FDA Center for Devices and Radiologic Health in 1991 when the chairman of the Commission on Physics and Radiation Protection, Thomas Payne of Minneapolis, told the board of dangerous radiation exposures to patients and health workers from extended fluoroscopic procedures. For most of radiology's century, one protection for radiation workers was the limited ability of x-ray tubes to tolerate the heat caused by extended activation. However, to create brighter images and longer viewing experiences during procedures in the heart and for some orthopedic processes, manufacturers had developed tubes capable of sustained exposures. Dr. Payne reported on patients who received skin doses of as much as 2,000 roentgens and an organ dose of as much as several hundred rads in the course of an interventional procedure.

The fluoroscopic machines met the FDA's standards. However, the federal agency agreed with the ACR's concerns, particularly with regard to the element of judgment by cardiologists, orthopedists, urologists, and other physicians who lacked training in radiation protection. At the same time, the FDA was hesitant to require machine restrictions which might cause a loss of image at a critical point in a delicate heart procedure. After an exploratory conference with industry and other disciplines in the fall of 1992, the ACR and FDA devised a user information program to address the problem.[5]

AMA Opposes Self-Referral

The ACR won, lost, and rewon an important point on self-referral in the AMA House of Delegates during 1991 and 1992. In response to a request from the College, the AMA Council on Ethical and Judicial Affairs (CEJA) issued a policy statement on the ethics joint venture in report I at the December 1991 meeting of the delegates: "Physician investment in health care facilities can provide important benefits for patient care. However, when physicians refer patients to facilities in which they have an ownership interest, a potential conflict of interest exists. In general, physicians should not refer patients to a health care facility outside their office practice at which they do not directly provide care or services when they have an investment interest in the facility." The CEJA opinion went on to note that there could be exceptions when the lack of physician investment would result in the proposed service not being available in a community.

The issue was debated hotly before the house approved the CEJA opinion. At the June 1992 meeting, the same issue arose and the house reversed its prior vote. The principal impetus for the reversal came from physicians in Florida and New Jersey who were investors in joint ventures. At the December 1992 session of the house, the ACR worked with the AMA Board of Trustees and obtained a second reversal, restoring the house's endorsement of the CEJA recommendation against physician joint ventures, with the exception as stated.

The AMA position was reflected in some state laws and regulatory positions against physician joint ventures and in continuing action by federal agencies. The Federal Trade Commission announced in 1992 that it would look at joint ventures for possible antitrust implications.[6] The Internal Revenue Service cautioned hospitals that they could lose tax exemptions by joining with physicians in certain types of joint ventures.[7]

National Standards for Mammography

Pressures from women's groups and the press about an urgent need to do something useful about breast cancer stirred Congress to consider once more the issue of mammographic quality and availability. Mammography had been politically hot since the mid-1980s, when the American Cancer Society decided to concentrate a multiyear effort on breast cancer. This had been picked up by women's groups, television commentators and magazines and had led to broad public policies requiring insurance coverage of screening and focusing on the only national criterion—the ACR voluntary facility accreditation program—as essential for any public policy decision.

In 1992, Senator Brock Adams of Washington and Representative Patricia Schroeder of Colorado introduced a bill to require federal standards for all mammography. Their rationale was that the voluntary efforts of the ACR could not be imposed on all facilities and thus bad examinations would continue despite the ACR's good efforts. Sen. Adams supported the ACR program, indicating that his intent was to give those standards the force of law and to eliminate any health provider who could not meet them. The ACR supported the bill, proposed some amendments, and was cited in the legislative history as the preferred agency for helping the Public Health Service to implement federal requirements for all mammography. Again, the effect of the federal program was to keep radiologists in control of all mammography.

Efforts with HCFA continued on local issues dealing with implementation of relative value based payment, on coverage of examinations requested by chiropractors, and on HCFA's decision to cease paying for thermography and diaphanography. The ACR agreed with the decision to stop paying for the two discredited techniques.

The next large health initiative was the proposal in January 1993 by newly elected President Bill Clinton to develop a comprehensive national health care coverage program. Radiology's interests were marginal to the larger reform effort. But the working groups on the project gathered up dozens of discarded proposals, including the notion of paying RAPs, the radiologists, anesthesiologists, and pathologists, on a combined basis for their services to hospitalized Medicare patients and seeking competitive bidding for any CT and MRI services to Medicare patients. Gastroenterologists and others attempted to use health reform as a basis for getting a national policy of screening for colon cancer, similar to the policy of screening for breast cancer. The preferred method of screening the colon was sigmoidoscopy, asserted the gastroenterologists, somehow failing to mention the old, reliable barium enema. Thus, the ACR's task was to add a line saying that barium enemas were a useful alternative to sigmoidoscopy if a decision to screen was made. All the smaller issues died in 1994 when Congress refused to act on the Clinton proposals.

Focus on Radiology Issues

Unlike many other national societies, the ACR had stuck to dealing with radiology issues in the debate over the Clinton health care plan. The chairman of the Board of Chancellors, K. K. Wallace of Charlottesville, Virginia, testified several times before congressional committees, limiting his message to issues of importance to radiology, such as avoidance of self-referral and radiologist access to closed-panel managed care programs. "We accept that a dramatic change will be made in our health care system," he wrote prematurely in his March 1993 "Memo to the Membership." "We will be ready to seek the proper recognition of radiologists."[8]

He was right about dramatic changes. With the failure of the Clinton initiative, however, they

came from the private sector, rather than the government. The changes might be lumped under the concept of "managed care." The several varieties of managed care had in common a strong management presence imposed between physicians and their patients. Where historic health insurance carriers had paid fee-for-service for those covered by their plans, the managed care organizations bargained for health services, setting their own payment levels and participation requirements on hospitals and doctors.

Employers who paid the health care bills for their employees were attracted to the claims of managed care groups that they could save money and improve quality and control. Part of the savings came from the ability of large managed care plans to negotiate discounts in return for guaranteeing selected physicians and hospitals a monopoly on the care of their insured patients. The other part of the savings came from a form of rationing, in which the managers required patients to seek care only from participating physicians and hospitals and then set up stringent rules about what services would be covered and under what circumstances.

Part of the managed care push focused on primary care. This coincided with the strong efforts of internists and primary care physicians to assert a stronger presence through such mechanisms as the resource-based relative value scale for payment and the gatekeeper concept, which requires patients to get specific referrals from a primary physician before seeing a specialist. In turn, the managed care plan exerted a variety of incentives to persuade the primary care physician to minimize referrals to specialists.

In some areas where managed care covered significant numbers of the population, radiologists began to notice a diminution of their volume of imaging procedures. At the same time, they found themselves pushed into aggressive cost-based negotiating for the right to perform services for managed care plan patients. In some cases, radiology groups found themselves bound to deals worked out by their hospitals to keep patient groups through discounts and other incentives—including discounts from radiologists and other hospital-related physicians. Refusal to participate by a radiology group could work a hardship on a hospital and could result in the managed care plan diverting its patients to another, more agreeable radiology group.

"It is important for radiologists to consider the vulnerability of their patient base to erosion due to the declining ability of both hospitals and referring physicians to continue to refer patients to the radiologists of their choice. Just as particular referring physicians' patients may be captured by managed care contracts, hospitals, too, can lose out in the competitive process to be one of the contracting providers selected to service a managed care plan offered by an insurer, local dominant employer or business coalition," wrote Chicago attorney Thomas Reed in the January 1994 *ACR Bulletin*.[9]

With most managed care plans emphasizing ambulatory services, radiology groups found it necessary to negotiate with them to keep their offices busy. Traditional referrals could vanish if primary care physicians dealing with managed care patients were instructed to refer imaging procedures only to the group that held the plan's current contract. Further, most plans offered only yearly agreements, leaving practices uncertain about how much to expand to cover managed care patients if the expanded practice could be wiped out a few months later by another low bidder. One consequence was to make practices very conservative about expanding and slow to add new radiologists or new facilities.

Coping with Managed Care

These changes brought a flood of questions and demands to the College. Some managed care plans preferred to capitate their physicians, rather than discounting fees. Few radiology groups had any clear idea of how to develop valid

capitation approaches. If a plan wanted capitation for radiology services, what did it intend to include? Would CT, MRI, and mammographic screening be part of the package, or would they be carveouts? What was the plan's patient mix? What was its experience in paying for radiology in previous years or in other communities? How willing was the plan to share its data and to adjust for experience?

In many areas, the managed care plans sold themselves to major employers, thus attracting relatively healthy, young and middle-aged patients. Most plans sought to avoid high-risk groups, such as the elderly, the unemployed, and those with chronic problems. With few exceptions, they shunned the medically indigent groups who supposedly were covered by state Medicaid programs. In many communities, the only patients left in health care coverage on a fee basis were Medicare beneficiaries. Even there, managed care plans began to recruit the healthy elderly, waiving co-insurance and adding benefits like drugs and vision care.

Most managed care plans coming into a community chose to deal with only part of the physicians and hospitals—just enough to provide care for their insured population. They enforced discipline on providers by close monitoring and financial penalties or prompt dismissal of physicians for deviations from prescribed patterns.

Those postures prompted the AMA and state medical societies to seek relief from legislators and regulators. The concept of "any willing provider" gained widespread attention in 1993. In effect, the medical profession sought laws or regulations requiring a managed care plan to deal with any physician who would agree to accept the plan's stated fees or other financial arrangements. In its fullest extent, any willing provider meant that a managed care plan could not refuse to let its patients see any physician or use any hospital in the service area, so long as the physician or hospital agreed to the plan's financial terms.

ACR Favored 'Any Willing Provider'

The ACR supported the any willing provider concept by Council vote in 1993, though it did not take a vigorous role in efforts to achieve it. Indeed, for a specialty whose members had held exclusive contracts in hospitals for most of radiology's century, the notion that any other radiologist might demand access to a hospital department was unsettling. Hospitals desperate to keep their facilities busy might find it practical to open their radiology departments to other radiologists and even to other physicians. Conversely, managed care plans had a financial incentive to deal with the smallest possible number of providers, including radiologists.

In response to member demands, the ACR appointed two task forces. The already-extensive effort to develop standards for radiological procedures was expanded by a task force on "appropriateness criteria" to develop detailed protocols for applying imaging procedures to a wide variety of clinical problems. The second task force was to help radiologists understand and cope with managed care.

The first effort of the managed care task force was to develop a series of 19 weekend seminars, which attracted more than 3,500 radiologists and business managers during 1994 and 1995. The *Bulletin* featured a series of articles on managed care topics by task force members. In addition, a separate series of articles on contracting was written by attorneys who worked with various College chapters and radiology practices. Members of the task force and College staff provided consultation to hundreds of radiologists. Recognizing that managed care would be a continuing dilemma for radiologists, the task force was made into a standing committee.

The pressures from managed care organizations, from other physicians eager to perform imaging procedures on their own patients, and a continuing rumble from the federal and state

governments about physician competence stirred a series of fusses with the ACR in the middle.

Staff Bylaws Are Contracts

When radiologists separated their financial affairs from hospitals following the enactment of national Medicare legislation, most of them continued to practice in hospitals under terms of exclusive contracts. Most commonly, the contracts were sought by hospitals as a way of guaranteeing that the incumbent radiology group would provide all needed coverage, accept all referrals and participate in departmental management. Despite an ACR position urging against such contracts, most radiology groups found exclusive privileges to be a comfortable and lucrative circumstance.

From the 1930s, the College had been emphasizing that radiologists should be appointed to hospital medical staffs on the same basis as other physicians, subject to the same disciplinary strictures, and protected by the same stated rights as other physicians on the same staff. Thus, a new radiologist joining an incumbent group had to apply for staff privileges before beginning practice and members of a new radiology group coming into a hospital had to become part of the medical staff.

Thus, it would seem that most incumbent radiologists had double protection. However, over the decades, hospital boards and administrators began to proffer contracts to radiologists including language requiring the radiologists to waive protection of pertinent provisions in hospital staff bylaws. The College cautioned against acceptance of such language and many groups were successful in keeping it out of their contracts.

But, like anything to do with contracts, the issue of a contract's primacy over staff bylaws found its way to the courts. Among others, the most cited case involved radiologist David Alfredson and the Lewisburg (Tennessee) Community Hospital and its owners, Republic Health Corporation.[9]

"The question arose when Dr. Alfredson sued the Lewisburg Community Hospital because the hospital terminated his contract to provide exclusive radiological services and thereafter denied him access to the hospital's equipment and support personnel. The hospital maintained its medical staff bylaws did not constitute a contract with Dr. Alfredson; that it had not reduced his staff privileges and that he was not entitled to a hearing," the Tennessee Supreme Court wrote in March 1991. "Alfredson argued that the hospital's bylaws constituted a contract, which it breached by reducing his clinical privileges without following the fair hearing procedures set out in the bylaws.

"The (Tennessee) Court of Appeals held that a hospital's bylaws are an integral part of its contractual relationship with the members of its medical staff, and that a medical staff member has a contractual right to require that the hospital follow its bylaws requiring it to provide a hearing when it takes an action which 'significantly reduces a physician's clinical privilege.'" The state's Supreme Court concurred. Dr. Alfredson eventually was awarded monetary damages, though he was not returned to the hospital's active staff.

Because of the perceived significance of the case, the ACR and the American Medical Association submitted amicus curiae or "friend of the court" briefs at the appellate level. The College also intervened at the appellate level on other cases involving radiologists and hospital staff privileges. These actions were taken under a policy which held that the ACR would assist in cases which had a broad application to radiologists in general and not just the individual or group involved in the case at issue.

Who Is a Radiologist?

For most purposes, a radiologist was defined as a diplomate of the American Board of Radiology or the American Osteopathic Board of Radiology (or the Royal College of Physicians of Canada) who limited practice to uses of radiation for imaging or treatment. The ABR credentialed for life, as did other specialty boards. But by the early 1990s, many of the other specialty boards had begun to issue time-limited certificates and some had sanctioned subspecialty credentials.

Beginning much earlier, the ABR had responded to demands for some kind of credential in nuclear diagnosis by offering a short examination and a medallion. In the face of general resistance from most radiologists and from the ACR Council, the ABR had resisted expanding on its original mission until the early 1990s. It had agreed to a subspecialty certification program in pediatric radiology but had never implemented it.

Assuring Continuing Competence

By the early 1990s, the ABR began to talk about offering subspecialty examinations for certificates of added qualifications (CAQ) in four areas: an expanded coverage of nuclear imaging; pediatric radiology, with revived interest from pediatric radiologists; neuroradiology; and interventional radiology. In particular, neuroradiologists and interventionalists faced strong challenges from neurologists, cardiologists, and surgeons. Many felt that they needed current, specific credentials to defend against other physicians claiming to have the same skills.

The ABR announcements created widespread apprehensions and the ACR Council received resolutions urging the ACR to prevent the ABR's actions or to assure that all radiologists would pass the proposed examinations. Others urged the ACR to seek expansion of credentials into other subspecialty areas. At the 1992 annual meeting, after assurances from ABR spokesmen that the CAQs would not be prejudicial to practicing radiologists, the Council endorsed the concept. The ABR began offering its CAQ examinations in 1995; the ABR also adopted a ten-year limited certification in radiation oncology, beginning with examinees in 1997.

A separate broad question for radiology and for other medical specialties was how to provide some demonstration of current competence for physicians whose formal training ended 40 years ago and whose board certification examination did not cover the majority of current practice. Three general approaches were explored by most medical groups. One was time-limited certification with reexamination required for renewal; a second was the accumulation of continuing medical education credits. The third was some form of practice audit. Each approach presented significant problems. ACR committees and the Council became the sounding boards for much of the discussion.

If the ABR or some other agency were to reexamine radiologists, what would be the qualifications, what would be the extent of the examination, and what would be a reasonable passing level? Should community radiologists be examined on the whole of radiology or just those areas in which they practice? Should the community radiologist be held to the same level of expertise as the academic subspecialist? Should reexamination be obligatory or mandatory? The ABR believed that it could not impose a new requirement on any diplomate who held an unlimited certificate. However, many feared that the existence of a new credential would be prejudicial to any radiologist who could not or would not qualify for it.

The majority of national radiology groups offered continuing medical education (CME) materials, ranging from the thousands of papers, refresher courses, and exhibits at the annual meeting of the Radiological Society of North

America to weekend courses and home-study packages from smaller societies and commercial vendors. The ACR offered selected CME materials. The use of all of those materials was voluntary and the testing of participants for learning was rudimentary.

A specific area where radiologist qualifications came into question was in the interpretation of mammograms. The ACR accreditation program for mammography facilities was directed toward the consistent production of reliably good images. The ACR agreed to specify certain levels of training and experience, selected empirically, for radiologists and technologists. These requirements subsequently were incorporated into the mandatory requirements imposed by Medicare and by the Food and Drug Administration.

To address the question of radiologist competence, the ACR Task Force on Breast Cancer in 1992 formed the Committee on Mammography Interpretative Skills Assessment. This committee developed a test for radiologists as mammography interpreters. It was devised and validated over two years, with more than 370 radiologists participating. The product of those tests was synthesized in 1995 into a 90-minute test with images on viewboxes and validated still further by 150 additional participants. The committee hoped to make its test a regular part of ACR mammography seminars and to offer a certificate to those who achieved reasonable scores on it.

More broadly, other ACR committees developed home-study materials to be used in what was called continuous professional improvement (CPI). The program consisted of home-study and test materials covering ten areas of diagnostic radiology. Participation was limited to ACR members. It would involve both the completion of specific College-produced materials and also allow the radiologist to note participation in other continuing medical education efforts. Thus, CPI added a new dimension to the weekend seminars, the self-evaluation series of clinical volumes, and other materials intended to help radiologists keep current and prove it.

Teleradiology, Good and Bad

Another fundamental change in radiology practice began to emerge in the early years of the decade as a result of improved imaging technology. The ability to capture, store, transmit, and retrieve images made it possible to separate the radiologist from the patient by a continent and still allow a consultation. Radiologists had been involved in a variety of experiments with transmitted images for several decades. For the most part, senior radiologists felt that the digitized images were marginally adequate for diagnostic purposes. However, when the original image was captured digitally from a CT, MRI, isotope, or ultrasound procedure, the question of information lost from a film diminished. At the same time, instrumentation improved in speed and quality.

As telemedicine, or for ACR members, teleradiology, became feasible, other questions arose. What impact would teleradiology have on community radiology practices? Would referring physicians be content with interpretations from unknown radiologists or perhaps trainees? Teleradiology does not stop at state lines, though licensure does. Should a distant radiologist be required to be licensed in every state to which he or she provided consultations? If fees differed from one state to another, which fee profile would apply?

The ACR got into these problems early, with a working committee led by George Kamp of Tulsa, Oklahoma. The committee produced a monograph offering technical standards for information transmission. The needs of radiologists for x-ray images and of pathologists for valid reproduction of micrographs drove the technical system. Most other medical uses demanded less image quality. The ACR recognized that teleradiology offered tremendous potential for assisting community radiologists with expert consultations. At the same time, it had the potential of replacing community radiologists with remote interpreters. The College noted the accep-

tance of teleradiology by groups who used portable equipment to take night call for many procedures, without leaving home.

AMA Concern: Telemedicine

The AMA and others were equally concerned with the social and professional implications of telemedicine. At the 1996 meeting of the AMA House of Delegates, approval of a resolution sponsored by the ACR put the AMA on record as supporting a requirement for full licensure of physicians in states to which they consulted electronically. Various state boards of medical licensure explored the subject. Some of them appeared to favor a limited license for the electronic consultant from other states. The ACR urged the states to require full licensure. Gradually, most of them set rules for their own states.

Writing as a guest columnist in the July 1995 *Bulletin,* Ronald G. Evens of St. Louis, vice chairman of the ACR board, summed up the dilemma:

> We serve a dual role as technology experts and consultants to attending physicians, providing information about their patients so that medical decisions can be made in a timely manner. The correct written radiologic interpretation is only one aspect of the radiologist's role in patient care. Personal contact with referring physicians allows the development of trust and mutual understanding. A successful professional consulting relationship directly benefits patients because it contributes to effective communication between the two physicians and the best communication level is rarely possible over long-distance wires.
>
> Long-distance teleradiology does not easily allow the radiologist to become involved in the decision of what studies are appropriate for a specific patient. At a long distance, we run the risk of becoming isolated from the ongoing care of the patient and making radiology a commodity where price is the only discriminator. For the radiologist to add the best value to patient care decisions, we must be personally and directly involved. Our future in patient care becomes tenuous if we rely only on a long-distance relationship.[10]

Radiology's Centennial

Amid the difficulties that occupied most ACR leaders and committees, there arose the thought that as radiology approached its century mark, there was much to celebrate. The notion of a radiology centennial celebration came from Glen Hartman of Rochester, Minnesota, a Mayo Clinic radiologist serving as chairman of the Intersociety Commission.

He proposed that all of the national societies of radiology join to organize a centennial celebration during 1995. The ACR offered to provide the staff. Ultimately, some 50 national societies, more than 70 radiology suppliers, and 4 public health organizations became sponsors of Radiology Centennial, Inc. (RCI), an independent organization created for the celebration. Dr. Hartman began as president. At his death, he was succeeded by John P. Tampas of Burlington, Vermont.

RCI activities proceeded along two tracks as the program evolved. One was planning for activities of the sponsoring societies and of radiology practices, technology schools, and other local organizations. The second was a substantial public relations effort using the centennial as the basis for stories about how far radiology had come in 100 years. RCI raised and spent approximately $3 million on its various activities before returning a small surplus to its major society contributors.

Many of the sponsoring societies devoted part of their annual meetings to history presentations. Hundreds of newspaper and magazine articles recounted some element of radiology's growth. A kit of teaching materials about radiation science was produced for high school physics and biology teachers and distributed through a commercial publisher. A videotape produced by RCI was shown on television and cable sta-

tions and to thousands of groups. Several thousand copies of 14 slide sets were sold. Two large museum exhibits, four mid-sized exhibits, and a ten-panel poster exhibit were distributed widely. Three books (with 55 authors) capturing the history of radiology in the United States were published. RCI's own single public event was a convocation held in connection with the meeting of the American Roentgen Ray Society. A time capsule containing historic and current materials was sealed at the convention of the Radiological Society of North America, concluding the celebratory year.

As the ACR finished radiology's centennial year, it was stronger and more prosperous than it had been in 1990. In January 1996, the College reported a total membership of 31,156. Of that number, 18,798 were full dues-paying members; 12,358 others included members in training, 1,290 introductory members in fellowships or just beginning practice, 851 transitional members, and 4,113 retired, emeritus, honorary, or life members. ACR assets at the end of 1995 were $35.7 million, against liabilities of $12.2 million for a fund balance of $23.5 million. This was a gain of $1.5 million in 1995. The ACR staff numbered just over 200 persons in its Reston and Philadelphia offices.

More important than the numbers was the strength of the organization in terms of representation of 75 percent of certified radiologists as members, in terms of grassroots participation through chapters in every state and more than a dozen subspecialty societies represented in the Council, and in terms of thousands of radiologists active on ACR and chapter committees. As Albert Soiland had hoped in 1923, the College had grown into the tasks needed to keep the borders of radiology defended, the economics of radiology practice in good order and the prestige of radiology strong within medicine.

From Darkness into Light

In his 1991 ACR presidential address, Lee F. Rogers, then of Chicago, said of radiology, "We came literally from darkness into light. We have been propelled by a technologic tempest, urged on by our more adventuresome colleagues, men and women of energy, insight, courage, and skill who created, [who] accepted challenge after challenge to bring us to where we are today. We started out as an accessory to the practice of medicine and became central to the diagnosis and treatment of disease." The same might be said about the American College of Radiology's role in building the specialty.

Postscript

This is not the end of the history of the College, if it is the end of this account. It is written in 1996 as the last assignment of the author as a member of the ACR staff. Most of the problems and programs of the ACR in the 1990s extend beyond the margins of these pages. So long as the disciplines of radiology survive in medicine, they will have problems to solve. And so long as radiologists elect to work together in something called the American College of Radiology, it will continue to serve them as Albert Soiland, the founder, meant it to do.

End Notes

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3. R Kusserow, IG Management Advisory Letter to HCFA, 31 January 1991.
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5. American College of Radiology, Proceedings of the ACR-FDA workshop on fluoroscopy, 16-17 October 1992.
6. KJ Arquit (director of the FTC Bureau of Competition), speech to National Health Lawyers Association, January 1992.
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Acronyms

ABP	American Board of Pathology
ABR	American Board of Radiology
ACR	American College of Radiology
ACS	American Cancer Society
AEC	Atomic Energy Commission
AFIP	Armed Forces Institute of Pathology
AHA	American Hospital Association
AMA	American Medical Association
ARP	American Registry of Pathology
ARRP	American Registry of Radiologic Pathology
ARRS	American Roentgen Ray Society
ARS	American Radium Society
ARXT	American Registry of X-ray Technologists
BCBSA	Blue Cross Blue Shield Association
BCDDP	Breast Cancer Detection Demonstration Project
BHI	Bureau of Health Insurance
BRH	Bureau of Radiological Health
CAQ	certificate of added qualification
CCP	Cancer Control Program
CDRH	Center for Devices and Radiological Health
CEJA	Council on Ethical and Judicial Affairs (AMA)
CHAMPUS	Civilian Health and Medical Program for the Uniformed Services
CME	continuing medical education
CPI	continuous professional improvement
CROS	Committee on Radiation Oncology Studies
CRTS	Committee for Radiation Therapy Studies

CRUSP	Commission on Radiologic Units, Standards, and Protection
CWP	coal workers' pneumoconiosis
DOD	Department of Defense
DRG	diagnosis-related group
FDA	Food and Drug Administration
FTC	Federal Trade Commission
GMENAC	Graduate Medical Education National Advisory Committee
HCFA	Health Care Financing Administration
HEW	(Department of) Health, Education and Welfare
HIP	Health Insurance Plan *(of New York)*
HOCA	high-osmolar contrast agent
HSCRC	Health Services Cost Review Commission *(Maryland)*
ILO	International Labor Office
ISC	InterSociety Committee
JCAH	Joint Commission on Accreditation of Hospitals *(later to become Joint Commission on Accreditation of Healthcare Organizations)*
LOCA	low-osmolar contrast agent
MRI	magnetic resonance imaging
NASA	National Aeronautics and Space Administration
NBME	National Board of Medical Examiners
NCI	National Cancer Institute
NIOSH	National Institute for Occupational Safety and Health
NRC	Nuclear Regulatory Commission
OIG	Office of the Inspector General
PCS	Patterns of Care Study
PHS	Public Health Service
PROG	Proton Radiation Oncology Group
RAPs	radiologists, anesthesiologists, and pathologists
RBRVS	resource-based relative value scale
RCI	Radiology Centennial, Inc.
RDOG	Radiation Diagnostic Oncology Group
RSNA	Radiological Society of North America
RTOG	Radiation Therapy Oncology Group
RVS	relative value scale
TEFRA	Tax Equity and Fiscal Responsibility Act
TFP	Task Force on Pneumoconiosis
TMA	Tennessee Medical Association
UAREP	Universities Associated for Research and Education in Pathology
UCLA	University of California at Los Angeles
UCSF	University of California at San Francisco
UICC	Union International Contre Cancer
UMWA	United Mine Workers of America
VA	Veterans Administration

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