information. The availability of refresher courses, home-study materials, fellowships, books, audiovisual packages, and programmed instruction programs for and about radiology also provide a base for continuing education for practitioners.

Strong industrial base.—The major suppliers of radiologic equipment and supplies include international leaders in electronics and chemicals. They have devoted significant corporate resources to the research and development of new imaging and therapeutic devices. In recent years, these suppliers have been joined by inventive new companies in bringing products of space technology and the computer age to radiology.

A strong economic base.—For all of its capital-intensive nature, modern diagnostic and therapeutic radiology is demonstrably cost effective. In less than a decade, CT became a staple of diagnostic imaging and the method of first choice for a wide range of major problems. The increased level of certainty in many diagnoses, the elimination of other procedures, the shortening of workup time, and the relative safety of procedures all contribute to measurable reductions in hospital stays for patients and to reduced overall costs for treatment of many spells of illness. In addition, the introduction of simulators into well equipped therapy facilities increases efficiency and patient yield and contributes to cost containment.

For all of the swirls around it, the specialty of radiology is solidly built to resist efforts to diminish it and is well positioned to continue the kinds of scientific and clinical advances that have made it so attractive to its practitioners, to other doctors, and to the young physicians seeking career choices. Indubitably, radiology has the science, the discipline, the motivations, and the political structures to survive and prosper despite the profound changes in the nonsystem in which it serves.

Radiology and the Marketplace

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A familiar proverb declares that history repeats itself. In that context, an excerpt from an editorial written in 1930 by Dr. T. A. Groover [1] is of contemporary relevance:

> Whenever radiologists gather together one is apt to hear expressions of apprehension as to the future of radiology as a specialty of medicine. The attitude of many hospitals toward radiology and the radiologists, the more or less extensive use of roentgen rays and radium by other specialists and by general practitioners, and the commercial laboratory problem are all cited as evidence of the precarious position which radiology occupies.

Virtually identical concerns are topics of conversation whenever radiologists gather today, but their genesis differs. In 1930, the country was in the grips of a profound depression; there was little money available for any purpose. Radiology was an infant specialty that lacked status and offered a source of ancillary income to physicians in other disciplines. The potential dangers of the indiscriminate use of x-rays were not fully appreciated, and laymen had established laboratories to serve the medical profession.

These problems were, of course, significant, and Dr. Groover's pessimism can be appreciated, but the truth is that difficulties notwithstanding, radiology survived and subsequently prospered. During World War II the shortage of physicians encouraged centralized care in hospitals. The war-fueled economy recovered, and radiology became an important source of income to hospitals. The lure of captive patient groups and low overhead expenses proved a strong attraction for radiologists, and the number who practiced in hospital settings increased rapidly in the postwar years.

Shortly thereafter, the Government took a more demanding attitude toward health care. It encouraged growth of hospital facilities through the Hill-Burton Act and then focused on access to health care. With passage of the Medicare and Medicaid laws, the Government became a major direct purchaser of health services. Although passage of the Medicare and Medicaid laws had originally been resisted by organized medicine, they proved to be a bonanza that ensured a high level of earnings to both the physician and the hospital. The provision of capital reimbursement over and above the Hill-Burton monies set the stage for the development of technologically advanced hospital departments of radiology that could not be matched by private funding.

Present-day concerns are directly related to many of the

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factors that had seemingly solved the earlier problems. Initiatives to make health care more available and more effective have escalated health-care expenses to 10.5% of the gross national product. Now there is emphasis on cost containment, and the attitude of the Government and industry toward the medical profession has become less sympathetic. Ceilings have been placed on payments, as opposed to the previous retrospective reimbursement policies, and competition between health care providers is looked on with favor. Tightened reimbursement schemes and an increasing physician population have, in essence, re-created some of the problems that postwar prosperity once eliminated.

Corporate enterprise has entered medicine, raising the possibility that medical care judgments may be influenced directly by economic considerations. The advent of the diagnostic related groups (DRGs) has sharply reduced the number of radiologic examinations performed in hospitals. For-profit free-standing outpatient imaging centers have proliferated in response to the opportunity. Physicians are now being asked to become involved in marketing their services and those of the institutions they serve. Traditional professional ethics, which carefully separated service from cost, are under pressure to become more business oriented.

As in the past, the array of challenges to be met is formidable, but it is not insurmountable. Businessmen, paramedicals, and cultists cannot replace physicians, but physicians must assume the initiative rather than reacting to the planning of others. While it is doubtful that they will ever again experience the degree of autonomy that characterized the immediate postwar era, they must acquire an information base that permits them to deal confidently with representatives of government and business. This will require a departure from tradition and a realistic economic attitude that initially may be uncomfortable for many.

Nietzsche noted that every tradition grows evermore venerable and the more remote its origin, the less certain its original rationale becomes. Such is the case with some of the icons of medical practice. The fact that something is traditional does not necessarily make it ethical or immutable. The reluctance of physicians to become involved in the marketing of their practice has both traditional and ethical roots; yet, when defined as the business of knowing what is necessary to keep its constituency (patients) satisfied, marketing presents no ethical barriers. The fact that a professional service is placed on a businesslike basis does not make it unethical. A businessman is not unethical simply because he is in business, but if he is an unethical man, he may also be an unethical businessman. Unfortunately, the same can be said of physicians.

As can be seen by Dr. Groover's comments, the problem of nonradiologists performing radiologic examinations is not a new one. It is difficult to compare eras, but unquestionably the economics of the moment is the dominant factor. There was little complaint from radiologists about the intrusion by other specialties between 1950 and 1980. During that 30-year span, neuroradiology, cardiovascular radiology, and a large array of interventive procedures were developed at the expense of neurologists, internists, and surgeons. More recently, largely successful struggles have been waged to maintain the new imaging methods within radiology. However, this monopoly is now being challenged. Increased competition among physicians will result in intensified "turf battles."

Economic aspects aside, the changing structure of medicine cannot be overlooked. Few specialties are static; they respond to the expanding pool of knowledge, and radiology is an outstanding example. It is possible that some of the simpler examinations heretofore within the domain of radiology will, perforce, be shared with other specialties. In practice, some already are. This does not necessarily deprive radiologists of their consultative role and it does encourage expansion of the specialty into evermore sophisticated techniques.

It is probable that the environment of medicine will not stabilize within the foreseeable future. However, if radiology is not bound by traditions whose origins are no longer valid, it will survive and adapt as it did in its early years. The base of the specialty is now much firmer than in the postwar years, and the radiologist has assumed a much more important role in everyday practice.

Our institutions must change to meet the challenges of the times. It may be expected that physicians will rely on their professional organizations to guide them in accommodating to these challenges. Unquestionably innovative approaches are needed, but these should not be beyond our grasp if both the organizations and the individual physicians keep the interests of the patient paramount. If the patients' interests dominate our thinking, patients will receive their due, medicine will flourish, and the solution of the problems of today will evolve in a responsible manner. Our traditions can be bent to fit the marketplace, provided customer satisfaction is both our ethic and our goal.

REFERENCE

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