A Tale of Specialization in 2 Professions: Comparing the Development of Radiology in Chiropractic and Medicine

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ABSTRACT

Objective: The purpose of this article is to describe the development of radiology as a specialty in chiropractic with a comparison to the development of the specialty of radiology in medicine.

Discussion: Specialization in medicine has been notably successful, with advanced training and enhanced capabilities in specialized skills leading to better outcomes for patients and increased prestige for practitioners. However, with chiropractic, as with other complementary and alternative medicine professions, no specialization has been recognized within it. Specialist radiology training in chiropractic bears a resemblance to that of medicine, with competitive entry for residencies, certification exams, and the creation of a journal and specialist professional organizations. To facilitate the comparison, I have divided the development of radiology into 4 phases from the chiropractic perspective. Phase 1 started with the discovery of x-rays in 1895, in which medicine adopted them but chiropractic did not. Phase 2 began in 1910 when B. J. Palmer introduced radiography to show chiropractic subluxations. Phase 3 started in 1942 when Waldo Poehner advocated for the mainstream diagnostic use of radiography in addition to subluxation analysis. Phase 4 started in 1957 when an examining board for certification in diagnostic radiology was assembled and many chiropractors began to embrace the mainstream medical use of radiography.

Conclusion: In this tale of 2 professions, radiology gained official specialty designation in the field of medicine. The medical profession had a monopoly on health care, and thus had few internal and external barriers to overcome. Chiropractic was oppressed by organized medicine, which helped to create the unofficial specialty of chiropractic radiology but which also later helped to limit the specialty. Chiropractic radiology has maintained its independence and autonomy, but also remains on the fringe of mainstream health care. (J Chiropr Humanit 2019;26C:3-18)

Key Indexing Terms: *Specialization; Professional Practice; Radiology; Chiropractic; History of Medicine*

INTRODUCTION

Division of labor has existed since preindustrial days and has increased productivity and efficiency in many fields, including medicine. New ideas, though, are not always immediately accepted. Initially, medical specialization encountered resistance.¹ Some resistance was based economically on the grounds that more practitioners meant less money in the fee-for-service model that dominated.² Some of the opposition was based on the perception that specialization denigrated general practice.³ There was also public distrust of “specialist” practitioners, who before the 20th century were often laypeople, achieving suboptimal results in areas like tooth pulling or the treatment of sexually transmitted infections.⁴ Societal changes helped break down the attitude favoring general over specialty practice during the industrial revolution as

specialization increased in other fields like manufacturing and farming. Medical specialization became firmly established in the mid-19th century, although the debate continued into the 20th century.⁵ The physician versus the surgeon was the basic divide, and subdivisions were established in both areas. One of the first specialties, ophthalmology, became part of medical practice when a few determined physicians like Samuel Cooper and William Lawrence advocated for the idea that diseases of the eye were a proper occupation for medical practitioners, particularly surgeons.⁶ Further, they stated that patients could be best served by people with detailed knowledge of disease in general, rather than by lay practitioners.^{5,7} Similarly, treatment of genitourinary diseases languished due to social mores associating many of those diseases with the concepts of shame and sin.¹ Again, the advocacy of individuals like Hugh Cabot and Ernst G. Mark first established urology as a legitimate specialty, practitioners of which had been previously referred to as “clap doctors.”¹ Later, specialization increased as biomedical knowledge expanded with discoveries in disease etiology and treatment methods, and then rapidly accelerated with the technological advancements of the late 19th and 20th centuries.⁸ It became increasingly difficult for one person to know everything about all diseases and treatments. Physicians

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eventually discovered that benefits of specialization included increased fees, less onerous working hours, and the prestige of being an expert.⁷

The history of medical radiology as a specialty has been written largely focusing on technology and the scientific achievements that have allowed ever more detailed visualization of internal anatomical structures and function.⁹⁻¹⁶ Radiologists are doctors who coordinate the insights they glean from images with other doctors, who then provide treatment based on that information. But it was not technological advancement that created this familiar specialty; rather, it was the conscious effort of individuals and groups to develop radiology within medicine as a specialty. In medicine, the success is evident; in chiropractic, however, this has not been the case. The purpose of this article is to describe my opinions about actions of people attempting to create a radiology specialty in chiropractic compared with the creation of a radiology specialty in medicine.

METHODS

I examined key individuals, associations, and publications in both chiropractic and medicine and considered the difficulties of starting a specialty in these professions. For this paper, I have defined success as the official recognition of a specialist's skills by registration/licensing boards and accreditation agencies. This recognition exists in medicine; however, it is not recognized in chiropractic.

Chiropractic has a substantial challenge that is not found in medicine, in that there is no profession-wide agreement on the basic principles that govern health and disease. There is lack of homogeneity in the use of radiographs in the chiropractic profession. Some chiropractors use x-ray films to identify chiropractic vertebral subluxations (CVSs), whereas others only use radiographs to rule out pathology, and still others use them to do both. This makes it difficult for those in a specialty that focuses on pathology, and nearly impossible for those in radiology, to gain acceptance, because the primary use of radiography varies with a chiropractor's health care paradigm as either traditional or biomedical. The granting of specialty status within a profession involves demonstrating that the specialty is useful, necessary, and congruent with the profession's overarching identity. This is usually accomplished through a process of professionalization in the specialty.

In this article, I will examine the attempted creation of the specialty of diagnostic radiology in chiropractic, comparing radiology in chiropractic with radiology in medicine over time and examining the forces that have led to the different outcomes. This article will focus mainly on the United States, because the United States is home to most chiropractic radiologists, about 190 in total.¹⁷ Only a handful are found elsewhere, in Canada, the United

Kingdom, Australia, and New Zealand.¹⁷ This may be because the United States has the highest concentration of chiropractors in general, and because this is the location where chiropractic radiology originated. The relevant events in chiropractic will be compared with concurrent events in medical radiology, demonstrating differences in the forces acting upon each and the outcomes achieved.

Much of the development of the specialty of radiology in chiropractic was chronicled in a monthly publication, the *Journal of the National Chiropractic Association* (NCA) and later the *Journal of the American Chiropractic Association* (ACA). To augment this, I drew on interviews and other personal communications with the surviving members of the earliest generations of chiropractors certified in radiology by the American Chiropractic Board of Radiology (ACBR), in addition to relatives and colleagues of deceased chiropractors who were involved with organizing biomedically oriented radiology in the profession. Ethical approval for interviews, surveys, and access to private archives was granted by the Murdoch University Human Research Ethics Committee, permit number 2012/152. Signed consent forms were collected from interviewees.

The history of radiology can be divided into 4 phases based on how chiropractors most closely involved with diagnostic radiology and radiography viewed its use within the profession. These phases demonstrate the evolution of x-ray use in chiropractic from a traditional and vitalistic use (to identify CVS) toward a mainstream and biomedical use (to identify biomedical pathology). This is shown to parallel the movement in chiropractic from alternative to complementary practice.

The suggested phases are artificial boundaries, not clear demarcations of change, and there is overlap between them, but the years listed below have been chosen because in each of them a prominent figure or group broke from what had been the norm up to that point. The phases of the chiropractic radiology specialty are as follows:

- Pre-chiropractic radiology (1895-1910)
- Separate and distinct (1910-1942)
- Transition (1942-1957)
- Biomedically oriented (1957-present)

HISTORICAL REVIEW

Pre-chiropractic Phase (1895-1910)

Medicine. Röntgen's December 1895 paper proclaiming the discovery of the x-ray circulated rapidly around the world. "This announcement produced a sensation not only in scientific circles but also in the medical profession and even among laymen."¹⁸ In medicine, the technology was immediately recognized for its potential diagnostic benefit and many doctors began experimenting with it clinically.

Heber Robarts had a larger vision and took some of the first steps toward helping create radiology as a medical specialty. Robarts was an eclectic practitioner of electrotherapy, a mine sanitation inspector, and a railroad surgeon from St. Louis, Missouri. His imagination was captured by the possibilities of the x-ray. In 1896, he created the first publication on the subject in the United States, the *American X-Ray Journal*.¹⁹ In 1899, Johann (John) Rudis-Jicinsky, a physician in Cedar Rapids, Iowa, wrote to Robarts, encouraging him to form a society to explore the medical use of x-rays. Forty invitations were sent and 15 physicians met in Robarts's office, forming the Roentgen Society of the United States. Robarts was elected as the first president and Rudis-Jicinsky as secretary. The *American X-Ray Journal* was created as its official organ. Subsequently, 2000 letters were sent to physicians and members of scientific societies, inviting them to the first annual meeting in New York in December of that year. The meeting was described as having a good literary program in addition to many exhibits and speakers. Five committees were formed, including one on standards, one on medicolegal status, and one on scientific research.¹⁹ After a battle between physicians and non-physicians in 1902, electrotherapeutists gained control of *The American X-Ray Journal*; physicians who were aligned with the American Medical Association (AMA) held the Society, although it remained independent of the AMA. The name was changed to the American Roentgen Ray Society (ARRS).²⁰

Within medicine, radiology was not valued initially as a legitimate specialty of medicine. It was viewed by some as nothing more than an amusing novelty,¹¹ and so an issue of perception had to be overcome before radiology was considered a health care procedure. There were *studios* run by laypeople, at which *customers* could have a *sitting* for an x-ray *photograph*.²¹ In addition to the nature of these businesses, the use of these terms was more akin to artistic endeavor than medical procedure.²¹ X-ray machinery was set up at carnivals and expositions like the Crystal Palace Exhibition in London in 1896, promoting "the greatest scientific discovery of the age" and allowing visitors to see through a block of wood, or have coins counted while still in their purses.²¹

But there were also many advocates for adopting the x-ray as a physician's tool. In the preface to the first edition of his text *The Roentgen Rays in Medicine and Surgery* in 1901, Francis Williams noted that he had intended to add a list of all papers published on the medical uses of the x-ray to that point, but had to omit it because it would have added 100 pages to the book.²² Egbert Rankin, a medical doctor in New York, had William Diffenbach, an electrician and electrotherapeutist, write the x-ray chapter for his 1905 textbook *Diseases of the Chest*. Diffenbach noted that the value of the x-ray in diagnosis was slowly being recognized and applied.²³ Arthur Christie, an editor of the *American Journal of Roentgenology*, later wrote of the time: "The

Society has jealously guarded the ideal that the practice of radiology is the practice of medicine; thus its practitioners must be broadly trained in general medicine; that they, like other physicians, must maintain a close personal relationship with their patients..."²⁴

In the early 20th century, there were no regulations restricting the use of x-rays. In 1901, Heber Robarts wrote that he was surprised that quacks had not taken them up.²⁵ But these mysterious rays, generated by complicated machinery, penetrating human tissue to the bone, did not fit with the paradigm of natural healing. Around the turn of the 20th century, there was no evidence that chiropractors considered that the x-ray could be useful as a diagnostic aid in their practices.

Chiropractic. Chiropractic was founded in 1895 by Daniel David (D. D.) Palmer as an alternative to medicine.²⁶ His initial chiropractic theory was that vertebrae could impinge on nerves, causing an alteration the transmission of a vital force he called Innate Intelligence.²⁶ He referred to these as "luxations" or "subluxations."^{26,27} He proposed that health depended on the flow of innate intelligence, and when subluxations were corrected, health naturally restored itself in the body.²⁶ Thus, the aim of chiropractic treatment was to replace the vertebra with a manual thrust called an *adjustment*.²⁶ This approach was similar to other alternative health care systems during that time, such as homeopathy, naprapathy, naturopathy, Thomsonianism, Christian Science, and particularly osteopathy.²⁸ Until his death in 1913, D. D. Palmer was adamant that chiropractic palpation and adjustments were to be done by hand. No tools other than the chiropractor's hands were necessary. D. D. listed the appropriate contents of a chiropractor's room: a bifid table. There was to be nothing else, no electrical therapeutic devices such as vibrators, no osteopathic tables or "instruments of torture," microscopes, drugs, or mortar and pestle with which to mix substances.²⁶ This antitechnology attitude may be why his students hesitated to adopt the use of x-ray. Thus, from 1895 until 1910, x-ray diagnosis advanced in medicine, although chiropractors may have viewed radiology as outside their purview.²⁹

Separate and Distinct Phase (1910-1942)

Medicine. Although chiropractic was starting to organize the dissemination of information on radiology and setting the most basic standards for the use of x-rays, the medical profession made major advances in radiology. But the path to acceptance was not easy. In the 1910s and 1920s, questions remained as to whether radiology was a proper activity for doctors or a technical exercise more suited to tradespeople. "Those who possessed special knowledge in electricity, engineering and photography progressed more than their fellows who had not had such advantages."¹⁸ Physicians who saw the potential of the x-ray

as a tool augmenting items like the stethoscope, microscope, and chemical blood tests argued to acquire it. Howard Ruggles and George Holmes, authors of a popular radiology text and faculty at University of California and Harvard, respectively, cautioned that interpretation of x-ray images was fraught with sources of potential error. Those sources included the use of divergent rays, the fact that 3-dimensional structures are projected on to a 2-dimensional image, that scatter may reduce quality, patient clothing may create shadows, and anatomical structures are only seen when they vary in density from nearby tissues. Because of these factors, they wrote, "The necessity of medical training as a prerequisite in this field is, of course, recognized ... [and] a knowledge of pathology is as essential to the roentgenologist as anatomy to the surgeon."³⁰ W. Edward Chamberlain noted: "Radiology is a kind of medical practice, and not simply a group of technical procedures."³¹ With this statement in 1929, he was not just vying for control of the practice of radiology by the medical profession but also arguing for its recognition by them as a legitimate branch of medicine. To emphasize the latter, he continued his narrative, bemoaning the referral of patients by doctors to radiology laboratories run by laypersons, rather than by other doctors with specialized knowledge of radiological procedures and diagnosis. By failing to integrate radiology as a medical practice, the medical profession was stifling its growth and relegating its development to other groups.³¹

There were also arguments made against radiology as a medical specialty on economic grounds, in that hospitals could employ technicians more cheaply than physicians. Sometimes the physicians would interpret the images, but sometimes the technicians would interpret them. This made practical sense. Those staff working with the equipment were the most intimately familiar with the process that created the images, and they also saw more images than many physicians. When interpretation was performed by physicians, often they were internists or surgeons with little training in radiology.¹⁸ By the late 1920s, radiology and radiography were beginning to become separate professions, although debate continued through the 1930s.³² Radiographers (radiographic technicians) began writing books specializing in the technical aspects of using x-rays for diagnosis.³³ They established their professional identity in the realm of creating the highest-quality radiographs to provide the most diagnostic information for radiologists to interpret.³⁴

Professionalization of medical radiology increased during this time. In 1911, the ARRS increased the requirements for membership to include 2 years of x-ray work after graduation and 3 letters of recommendation from members and physicians. It maintained strict membership requirements and eventually the ARRS gained the reputation of a prestigious organization. A new journal was started, which became the *American Journal of Roentgenology* in 1913, and medals for outstanding work in the field were awarded at meetings.¹¹ There were issues with the

ARRS, but they were geographic, not professional. Physicians in western states complained that too many of the group's activities occurred in eastern cities. Despite efforts on the part of the ARRS, westerners formed their own organizations, including the Western Roentgen Society (WRS) in 1915 and other organizations whose membership requirements were less stringent than those of ARRS. In 1919, WRS was rapidly expanding its membership, becoming more nationally representative than ARRS, and the name was changed to the Radiological Society of North America (RSNA). It offered refresher courses in radiology and awarded medals for outstanding work. There was little animosity between the groups, though; in 1919, the RSNA Gold Medal went to Heber Robarts, who had been affiliated with the ARRS. In 1918, WRS president Benjamin H. Orndoff started its official publication, the *Journal of Roentgenology*, and in 1923, after an intermediary name change, it became *Radiology*.¹¹

By 1922, RSNA membership was greater than ARRS, but RSNA did not have the same level of prestige. Albert Soiland of Los Angeles, an innovator in radiation therapy and then president of RSNA, proposed an honorary and highly exclusive society, the American College of Radiology (ACR). For its first 11 years, it functioned primarily to bestow prestige on its fellows, honorary fellows, and chancellors. Soiland was also instrumental in expanding the AMA's 15 specialty sections to include radiology as the 16th in 1924.³⁵ In 1935, ACR president W. Edward Chamberlain began an expansion of the College. He increased the number of categories of membership and changed the ACR's mission to that of advancing the practice of radiology through attention to standards in radiology practice, radiation protection, education, public health, health insurance, radiological technologist issues, and hospital radiology unit concerns.¹¹ Membership expanded and the ACR became a true professional organization.³⁶

The American Board of Radiology (ABR) was a joint effort of the ARRS, RSNA, ACR, AMA Section on Radiology, and the American Radium Society in 1934.³⁶ Before the creation of specialty boards, any physician could limit practice to any area of medicine and present oneself as a specialist. Board certification allowed the public to distinguish between specially trained and qualified specialists and those who just had a special interest in an area.¹¹ In addition to helping ensure a high standard of practice, this move had political motives. It was anticipated that state licensing authorities might begin regulating entry to specialties as they did for medicine in general. The prospect of dealing with a different specialty authority for each state was unpalatable, so steps were taken to demonstrate high standards of self-regulation, including improvements in training and certification. The first radiology residency program was started by George Holmes at Massachusetts General Hospital in 1915, formalizing what had previously

been an apprenticeship-like arrangement.³⁷ Since its inception, standards have been continually raised by the ABR, and the types of certifications have multiplied as technology and techniques have advanced.³⁸ All physicians certified by the American Board of Radiology became eligible to join the ACR. Membership of the ACR grew into the thousands through the years as the ABR continued certifying radiologists.¹⁶ The increasing professionalization of radiology and participation of its members and organizations on government panels and international congresses helped solidify radiology's specialty status in medicine.²⁰

Chiropractic. In 1910, B. J. Palmer was an early adopter in the use of x-ray technology for chiropractic. He claimed to be the first chiropractor to use x-ray imaging.³⁹ He stated that the only purpose was to prove the existence of chiropractic subluxations; he wrote that he was unconcerned with using x-rays to find pathology:

The original Chiropractic purpose was not to use the X-Ray for therapeutic purposes, to ascertain normal or abnormal tissues, the character of a fracture or whether there was renal calculi [sic] or a bullet in the body. We had already settled how a cure occurred; we did not care much about pathological plates ... the advent of the X-Ray into Chiropractic was to prove that vertebral subluxations did actually exist.⁴⁰

To differentiate radiographs used by chiropractors from those used by medical doctors, Palmer called his images "spinographs."⁴¹ He declared them the supreme method of subluxation detection in November 1910.⁴² He wrote that palpation was 75% wrong, and that full spine radiographs should be taken on all patients, with adjustments being based on these x-ray images. "The spinograph means the difference between failure and success: No results and results. Guess and knowledge. Doubt and positiveness. Theory and fact."⁴⁰ Further, he claimed that all the chiropractic adjustments that had been successful before the visualization of subluxations on radiographs were due to luck. The odds of determining by palpation the spinal levels that were out of alignment were no better than guesswork without x-ray, and many adjustments had been misapplied as a result.⁴⁰ This changed in 1924, when B. J. adopted a temperature-sensing device known as the neurocalometer, which then took precedence, but did not completely supplant radiography.⁴³

Chiropractors used the term "separate and distinct" as a legal defense against allegations of practicing medicine without a license in the early 20th century. The phrase applies well to this era of radiology in chiropractic. During this phase, chiropractors used radiography solely to try to support chiropractic theories.^{40,44}

From 1902 when he took over the Palmer School until his death in 1961, B. J. Palmer's voice was a strong influence on chiropractic identity. He retained vitalism in his theories, but was unafraid to reshape elements of those theories to suit his changing purposes.⁴⁵ In the x-ray, B. J. saw the potential to direct the profession and to prove his

theory of chiropractic subluxation.⁴⁶ He proposed the use of the x-ray as a form of diagnosis, or in the parlance of chiropractic, *analysis*.⁴⁷ Over time, a number of chiropractors developed slight variations on how best to find CVS on radiographs, and they created systems around those theories in which chiropractic adjustments were based on the visualized changes.⁴⁸ Prominent chiropractor Clarence Gonstead, who advocated full-spine radiographs for CVS analysis, was notable for his quote that encapsulated this approach to health care: "Find the subluxation, accept it where you find it, correct it and leave it alone."⁴⁹

After B. J. Palmer introduced x-rays to chiropractic, others helped spread its use. Ernest A. Thompson was B. J. Palmer's main radiographer, or spinographer, from 1915 to 1925 at the Palmer School of Chiropractic (PSC). He authored several editions of *Chiropractic Spinography*, which was first published in 1918.⁵⁰ Much of this book was devoted to the details of using x-ray equipment to obtain quality radiographs. In this way, it was similar to the medical versions of x-ray books of the day. It differed in that there was no discussion of pathology but rather a sole focus on the depiction of CVS in various areas of the spine. Thompson was also president of an early chiropractic x-ray organization, the American Spinographic Society, which formed in 1928 on the East Coast of the United States. Little is known about the group, which was likely the second attempt at a national organization of its type after the Universal Spinographic Society. As their names indicated, they were dedicated to the chiropractic-specific use of the x-ray,⁵¹ but it brought together people holding similar interests within the profession.

Warren L. Sausser was an inventor and organizer for radiology in chiropractic.⁵² He was devoted to traditional chiropractic and B. J. Palmer. After graduating from the PSC in 1917, Sausser learned of a limited-time induction to the Army leading to commissioned officer status in roentgenology and took it. After completing the training, he was stationed in France and New York City. In 1918, he wrote a letter to B. J. about his experiences in the army, decrying the surgery and medicine he saw practiced on soldiers and advocating chiropractic as a panacea.⁵³ After being discharged, Sausser started a referral spinography practice for other chiropractors in greater New York by setting up the Metropolitan X-Ray Laboratory at 200 West 72nd Street. The tag line for its advertisement was "Results obtained with patients are as good only as your spinographic readings."⁵⁴ New York state law required all x-ray facilities to be operated by medical doctors, so Sausser found one who consented to being a silent partner, signing the papers for the permit, but leaving Sausser with operational control.⁵⁵

In 1922, Sausser considered that chiropractic had 2 needs. First was a voice in the political process and second was a way to help ensure best practices in the use of the x-ray. He enlisted the assistance of Waldo Poehner of

Chicago and other chiropractors with an interest in x-ray.⁵⁵ In 1923, they formed the Universal Spinographic Society. However, by this time, B. J. Palmer had introduced the neurocalometer. B. J. demanded that the Spinographic Society join with his Neurocalometer organization to form the Neurocalometer and Spinographic Society. This arrangement was found untenable by all and the organization dissolved shortly thereafter.⁵⁶

Sausser attempted to gain a license to operate x-ray equipment under his own name, filed lawsuits, and eventually arrived at the Supreme Court of New York. He argued that he was not using radiographs for medical diagnostic purposes, but for chiropractic and biomechanical purposes, and that he should be granted a limited license to obtain radiographs owing to his training and expertise in the field. On January 12, 1926, the Court ruled in his favor.⁵⁵ In 1932, Sausser tried again to form an x-ray organization. He enlisted Ernest Thompson and Arthur W. Schweiert of Sioux Falls, South Dakota, creating the Board of Counselors of Spinographers and X-ray Operators as a new committee within the NCA.⁴⁴ There were several advantages to this affiliation with the NCA. Members of the new board could call on the expertise of others in the organization when necessary, and they had audiences for their work in the form of conference attendees and subscribers to its magazine, *The Chiropractic Journal*, to which they regularly contributed a column entitled “Spinograph and X-Ray.” This group began professionalizing by setting standards for radiographic analysis, establishing of a code of ethics for x-ray operators including guidelines on the use of advertising, and adopting an emblem, “which would be symbolic of the highest type of X-ray service.”⁵⁶ In 1934, at the NCA conference, the name was changed to the National Council of Chiropractic Roentgenologists (NCCR). They also developed a certificate of membership in the Council and an x-ray marketing brochure.⁵⁶

In 1938, B. J. Palmer acolyte Percy A. Remier published *Modern X-Ray Practice and Chiropractic Spinography* while working at the PSC. The main content of the book was similar to Thompson’s but reflected Palmer’s new “upper cervical” theory. It claimed that all disease was traceable to CVS in the uppermost part of the spine, that is, the articulations of the atlas and axis vertebrae and the occiput. In addition to the technical details of obtaining radiographs such as focal-film distance, x-ray beam factors, and the recently developed stereoscopy, Remier’s book focused on how these could be maximized to visualize CVS in the upper cervical spine.⁵⁷

During this phase, radiography was not used to prompt the development of knowledge. Rather, the use of the x-ray by early chiropractors was limited to providing evidence that spinal misalignments were the cause of ill health. Although the writings of the authors cited here contained frequent reference to science, their understanding and use of the term *science* was different to that of others. It is true that science has matured since the early 20th century, but it has

also been noted that chiropractors have often used their own understanding of “science.”^{58,59} The chiropractic x-ray/spinography groups were made of those who believed in traditional chiropractic principles. They shared refinements of their technique with a sincere belief that they were helping humankind. Dye noted that communication between chiropractic organizations concerned with spinography and the PSC improved into the 1930s, and that starting around 1925 there were “various associations of X-ray technicians for the purpose of improving Chiropractic X-ray technique” and “... clubs and societies holding monthly or biweekly meetings for discussing Chiropractic in relation to adjusting for various types of dis-ease.”⁶⁰

Transitional Phase (1942-1957)

Medicine. During this period, medical radiology consolidated as a legitimate specialty and continued to grow. Private and public third-party systems reimbursed claims for radiology services performed by certified medical specialists.^{61,62} Thirty new radiology organizations were established between 1940 and 1970.¹¹ The ARRS began to allow ABR or equivalently certified physicians to join without additional requirements, and its membership expanded.²⁰ By 1940, medical radiologists were physicians with additional training in radiology. Thomas wrote in 1930 that “it has long since reached a plane where no one can achieve recognition as a roentgenologist who has not had a complete course in an approved medical school in addition to special instruction in the science and art of radiology.”¹⁴ Medical radiologists were called into service in World War II. By 1943, the US Army had 400 radiologists and the US Navy 100.¹⁶ By 1951, there were 3000 board-certified radiologists practicing full time in the United States, and all general hospitals with more than 50 beds and three-fourths of hospitals with fewer than 50 beds had x-ray equipment.¹¹ Medical schools had a standard 4-year curriculum, and in 1955 the ABR enacted a rule requiring 3 additional years of full-time study and clinical work to qualify to sit the ABR exam.¹⁶ Throughout the 1950s, about 300 candidates per year took the ABR exam, and in 1957, the ABR had a roll of 5966 certified radiologists.¹⁶

Chiropractic. Waldo Poehner made the first substantial change in attitude toward radiography in 1942. He graduated from the PSC in 1918 and practiced in Chicago. Poehner held offices in state and national chiropractic organizations, helped organize the NCCR in 1945, and conducted what is acknowledged as the first chiropractic postgraduate course on radiology in 1946.⁶³ In the early 1940s, he began to express an advocacy for critical thinking within the profession. The first indication of a change in attitude away from radiography for subluxation analysis alone and toward its use for diagnosis of pathology came in a column Poehner wrote in 1942, entitled “Let’s Consider Arthritis.” In it he wrote:

We have all gone through the period of coming out of school with a bright new outlook on life with courage and conviction of bringing help to a sick world, and confident that our particular method of approach was the ultimate, only to find that we were entering a disorganized field of many ideas and techniques built upon the true Chiropractic principle as expounded by Dr. Daniel David Palmer. The regrettable part of this situation was that each and every one felt that his particular interpretation of our science was the only correct one.⁶⁴

Poehner directly acknowledged the issue that few in the profession wanted to face, that most of their chiropractic knowledge was derived from the epistemologies of “appeal to authority” and “appeal to tradition.” In addition, he specifically characterized the people involved with diagnostic imaging as well positioned to make change:

Yes, progress is difficult. It was ever so, because of those who remain in ruts, hold back and act as a millstone on the neck of those who have the courage to think and go ahead. The X-ray Council [NCCR] is comprised of a progressive type of men or it would not be so forward looking and so consistent in its radiographic endeavors. It is gradually winning its way into the minds and hearts of those who are seeking sound progress.⁶⁵

He also argued for adoption of the biomedical model of disease and against the one cause, one cure dogma of chiropractic⁶⁵ and those who would use radiography purely to detect CVS, noting that “[pathological conditions are] the most dangerous thing with which we deal.”⁶⁶ Poehner indicated an open-mindedness regarding the acquisition of health care information and recommended a number of medical books in his column in *The Journal of the National Chiropractic Association*. Some readers wrote letters to the editor objecting to his recommendations but Poehner maintained that anatomy, physiology, and pathology in medical books were useful, and he rebuked those who objected in a subsequent issue of the journal.⁶⁵

Poehner may have been moving toward a scientific approach, but he maintained some elements of traditional chiropractic. He argued that there were 2 ways to take and interpret radiographs and that both should be employed. He recommended that “analytical” radiographs were full spine, always upright, weight-bearing, and used to determine postural alterations. “Diagnostic” radiographs were to be used for purposes of finding pathology such as tumor, infection, and arthropathy.⁶⁵ Although chiropractic traditionalism was still evident, there was a shift of thinking toward a biomedical understanding of health and disease. Poehner was an advocate of this shift, and used his positions and public voice to try to persuade the profession to move in that direction.

By the late 1940s, movement toward the general diagnostic use for radiography was becoming more evident. At the January 1948 meeting of the Council on Education of the ACA, members resolved that “greater emphasis should be placed upon the teaching of diagnostic roentgenology, the opinion being expressed that the teaching of spinography alone or as a major in X-ray could not be sufficient.”⁶⁷ However, practical considerations sometimes out-pressured attempts to reform educational standards that more closely

resembled their medical counterparts. For instance, in 1955 a proposal was put to the ACA’s Council on Education to require 2 years of tertiary education as a prerequisite for entry to chiropractic schools. The proposal failed because Council members asserted that several schools would not survive financially.⁶⁸ Western States Chiropractic College (WSCC) instituted the requirement independently. In an interview on December 28, 1999 with the author, long-time WSCC radiology instructor Appa Anderson suggested that the college reached a dire financial situation because potential students chose schools with lesser entrance requirements. Also in 1955, Council member and future chiropractic radiologist Leo Wunsch proposed that the NCCR should take greater control over the chiropractic teaching institutions’ radiology curricula.⁶⁸ At the July meeting of the ACA Council on Education, he advised the members that the Council on Roentgenology wanted to inspect the x-ray departments of all accredited chiropractic schools.⁶⁸ In December 1957, the National College of Chiropractic (NCC) announced that it would offer a 126-hour course in radiology and radiography.⁶⁹ The course included instruction in how to take quality radiographs and the interpretation of pathology in bones, joints, the chest, and the abdomen, obstetrics and gynecology, postural studies of spine, pelvis, and feet, but did not include CVS analysis; it was accredited by the NCCR.⁶⁹ The NCCR would continue to exert efforts to move away from the traditional chiropractic paradigm and toward a biomedical model.

Joseph Janse, a chiropractic radiologist and longtime president of NCC, worked to create a rational basis on which to rest chiropractic, but his thinking included an element of vitalism or traditionalism. He argued for the therapeutic appropriateness of chiropractic manipulation for patients with various diseases such as polio and meningitis.⁷⁰ He advocated higher professional and educational standards, including accreditation, but also that all practice styles should be accommodated and that chiropractic should remain separate and independent, not integrated with mainstream health care, asserting that: “There is an ever-increasing evidence for the need of an alternative primary contact practitioner ...”⁷¹ He also expressed the opinion that “... chiropractic practice does not lend itself to a great deal of specialization, simply because the basis of the chiropractic concept is that of systemic correction.”⁷² Janse was a champion for scientific chiropractic, yet he also embraced broad-scope approaches to chiropractic care that included traditional chiropractic concepts, which were sometimes beyond the conventional biomedical model. This reflects the transition that chiropractic, and radiology within it, was going through at this time.

At this time, the AMA forbade its members from referring to or from chiropractors. In an interview with the author on October 25, 2015, chiropractor Joseph Howe said that individual chiropractors sometimes had cooperation from local doctors/hospitals, but this was not the norm.

To take radiographs on patients, chiropractors either needed to find a cooperative local medical physician or hospital, or consider investing in x-ray equipment for their own offices. By this time, many states had licensed chiropractors to take radiographs, so the latter became a viable option. Because of medical exclusion, because radiology was an established specialty in medicine, and because some chiropractors were moving beyond traditional beliefs about health and disease, some chiropractors began to consider the need for a radiology specialty of their own.

Biomedical Phase (1957-Present)

Medicine. In 1958, the Association of University Radiologists had 74 members at 38 institutions.¹⁶ They requested membership on the ABR to provide input on educational matters and were accepted,¹⁶ improving communication and cooperation between academia and clinical practice. Starting around 1960, medical radiology entered its golden age,¹⁶ augmenting its status as a recognized specialty and expanding exponentially with new technologies, such as computed tomography and magnetic resonance imaging, and with improved techniques in nuclear medicine, diagnostic ultrasound, and contrast enhancement. Chiropractors have been involved with these advances in limited ways. During the mid-1960s, the AMA enacted its “contain and eliminate” policy against chiropractic in the United States, and similar events occurred in Australia.^{73,74} This meant that many medical physicians would neither accept referrals from chiropractors nor refer patients to them, thus limiting chiropractic access to medical radiologists and x-ray facilities. Chiropractic’s scope of practice prohibition on invasive techniques and continued lack of inclusion in hospitals, imaging centers, and national health reimbursement schemes meant that many chiropractic radiologists based their practices mainly on plain radiographs referred by chiropractors who took them in their own offices.^{75,76}

Chiropractic. The first chiropractic radiology board exam began organizing in 1957. During the 1950s, the NCCR developed a radiology specialty to focus on mainstream pathological diagnosis. Other specialties, such as orthopedics, were also being considered around this time.⁷⁷ Since the NCCR was governed by the NCA, it needed approval by the larger organization. Hillary W. Pruitt, former secretary of the NCCR, first presented the idea of postgraduate certification in x-ray for chiropractors to the midyear meeting of the education committee of the NCA in 1957.⁷⁸ The NCA established a committee to determine requirements for eligibility and examination procedures, naming Michael Giammarino as chair, with the other members being Ed Kropf (then president of the NCCR), Waldo Poehner, and Leonard G. Van Dusen from Sodus, New York.⁷⁹ The initial requirements for eligibility to sit a certification exam included having used x-ray in

practice for at least 5 years, 100 hours of postgraduate study in x-ray, and having graduated from a school recognized by the NCCR. The National Examining Board of Chiropractic Roentgenology was created and included Poehner and Giammarino, as well as senior members of the NCCR, Fred Baier of St. Louis, Leo E. Wunsch from Denver, and Duane Smith from Huntington Beach, California.⁸⁰ The exam consisted of written and viva parts. Topics included osseous and soft-tissue pathology of the skull and sinuses, gastrointestinal and genitourinary tracts, lung and heart, myelography, arthropathies, spinography, extremities, gall bladder, osseous pathology of the spine and pelvis, and radiation safety factors. Chiropractic vertebral subluxation was not included, and only 3 of the first 15 candidates passed.⁸⁰

Initially, the postgraduate training was mostly offered in weekend seminars, some led by Giammarino. In 1965, Lincoln College of Chiropractic, under the direction of Earl Rich, started a course to meet all the required hours.²⁹ Shortly thereafter, the NCC, Los Angeles College of Chiropractic (LACC), WSCC, and the Northwestern College of Chiropractic (NWCC) also started postgraduate radiology courses.²⁹ Over subsequent decades, the educational requirements to take the exam were increased from 100 hours to 240, then 300, and finally candidates were required to participate in a 3-year full-time radiology residency program at an accredited chiropractic teaching institution before becoming eligible to sit the exam.^{81,82}

On July 2, 1964, reflecting a combination of political factors and a strengthening of educational requirements, the NCCR was dissolved and the American Council on Chiropractic Roentgenology (ACCR) was formed in its place.⁸³ This new organization was affiliated with the American Chiropractic Association, which was formed from the old NCA. Chiropractic radiology trainees were called *residents*, the same term used by medical radiology trainees. Successful chiropractic radiology candidates were referred to as *diplomates*, that is, Diplomates of the American Chiropractic Board of Radiology (DACBR), similar to the medical Diplomates of the American Board of Radiology. The ACCR grew out of the membership of the American Council on Chiropractic Roentgenology and consisted of those members who successfully completed the ACBR examinations and were thus recognized as diplomates. Membership in the Council did not require the status of DACBR, only that members were also members of the ACA. Membership in the ACCR required the status of DACBR and required membership in the ACA.⁸³ Both the ACCR, which was the educational and administrative body, and the ACBR, the certifying body, were technically governed by the ACA’s Council on Roentgenology. It was later renamed the Council on Diagnostic Imaging and largely consisted of members of the ACCR. These structures and practices were similar to the medical community’s structure of radiology organizations with the

ACR and its certifying body, the ABR, but were instituted more than 2 decades after their medical counterparts.⁸⁴

The ACCR assumed the role of providing annual refresher courses for its members at its conferences, much as the RSNA had. They did not limit their speakers to chiropractors and invited medical radiologists to present. The minutes and agendas of the annual conferences of the ACCR from 1975 through the 1990s show a number of medical radiologists as speakers, including some of high esteem, like Stephen Rothman, Deborah Forester, and Donald Resnick. The ACCR chiropractic radiologists also sought other avenues of association with medical radiologists, such as having their residents observe radiology practices in hospitals and attend radiology rounds at institutions like the University of California, Los Angeles. According to chiropractic radiologist Reed Phillips in an email to the author dated October 3, 2018, several institutions adopted this type of interchange between their chiropractic radiology residents and medical radiology training programs, including LACC, NCC, and NWCC in the United States and at the Philip Institute of Technology in Melbourne, Australia.⁸⁵

The opportunities for chiropractic radiology residents to learn in medical settings relied on the personal connections created between individuals, not formal institutional agreements. This education did not represent interprofessional integration and was dependent on the largesse of individual medical practitioners who donated their time and other resources to accommodate chiropractors. In these programs, the chiropractors typically only observed, rather than acting as participants in diagnosing patients. These were tenuous, fragile links, reflecting that chiropractic was not perceived as legitimate by mainstream medicine or that the *Wilk v AMA* trial had not yet been resolved. My firsthand perception of this situation is that some medical doctors were happy to teach anyone who wanted to learn. However, because I was a chiropractor, I could never be considered an equal colleague with them.

However, the DACBR's focus on diagnosis of pathology rather than CVS and the strength of some of the personal connections meant that a few medical radiologists were able to accept them as colleagues. For example, chiropractic radiologist John Taylor coauthored a book with Donald Resnick.⁸⁶ Other chiropractic radiologists collaborated with medical radiologists as contributing authors.^{87,88} Chiropractic radiologists Joseph Howe and Terry Yochum initiated and developed a professional relationship with Donald Resnick. In the 1980s, this resulted in radiology residents at the LACC observing Resnick's practice at the San Diego Veterans Administration Hospital once a week for over 2 decades.⁸⁵ In addition, the relationship with Resnick allowed several chiropractic radiologists to participate fully in fellowships in osteoradiology at UCSD, alongside medical radiologists.⁸⁹ These efforts demonstrate the DACBR's attempts at professionalization and integra-

tion with mainstream health care, lifting the status of radiology in chiropractic.

In the 1950s, as the ACCR became the dominant chiropractic radiology group and was beginning to take a position of advocacy for the biomedical model, the members were conscious that public perception was important to their identity. The ACCR worked to separate themselves visibly from vitalistic practitioners. In 1959, an admonition was given to members of the National Board of Roentgenological Examiners (precursor to the ACBR) who were participating in training students at a vitalistic institution.⁹⁰ They were told during an association meeting that they should not "lend themselves in any way to the educational endeavors of any non-accredited school or group."⁹⁰ Leo Wunsch, one of the first certified chiropractic radiologists, argued for promotion of the group within accredited institutions. He suggested that all chiropractic institutions should have a chiropractic radiologist on staff, and that such a program would strengthen both the schools and the specialty of chiropractic radiology.⁹¹

The institutions with chiropractic radiologists such as WSCC in Oregon with Appa Anderson, NCC in Chicago with James Winterstein, LACC with Joseph Howe, and NWCC with Vinton Albers later included evidence-based education in their curricula. Throughout the 1970s and 1980s, all chiropractic schools that were accredited by the Council on Chiropractic Education had DACBRs teaching radiology.⁸⁵ Those schools adopted medical radiology teaching methods including using the ACR (medical) teaching file on radiographic pathology.^{92,93} Winterstein bemoaned the difficulty he believed traditionalism was causing chiropractic: "Again because of the old dogma that chiropractors are completely and totally different from allopaths and the practice of chiropractic is unique and separate from any other form of health care, the position taken by these members of the profession is that there cannot be real integration which is, on its face, counter-productive to good chiropractic practice."⁹⁴

Joseph W. Howe was another advocate for adopting the scientific paradigm of health and disease into chiropractic. A 1952 graduate of PSC, he worked as a radiographer in the Army Medical Corps for 2 years. Then, while in private practice, he studied under Michael Giammarino and what he characterized as "semi-cooperative" local medical radiologists to improve his radiographic interpretation of pathology.⁶³ Howe reached for links with the medical community, creating opportunities for his radiology residents to observe several world-renowned medical radiologists. In addition to Donald Resnick, these included Deborah Forrester at the University of Southern California School of Medicine; William Glenn, pioneer in multiplanar imaging (magnetic resonance and computed tomography); and neuroradiologist Stephen Rothman. Howe took residents to the annual conference of the RSNA in Chicago every year. He also advocated integration with the

mainstream medical community: “The separatism of chiropractic from the rest of healing arts has not served chiropractic, other healing arts, or the public well.”⁹⁵ He was the first to hold the post of radiological health consultant, created in 1968 by the ACCR. In this capacity, he acted as liaison to the National Center for Radiological Health, a division of the United States Public Health Service.⁹⁶ By speaking a common scientific language with other health professionals, Howe was able to gain some collegiality from medical radiologists and to have a voice in a national forum. These efforts to adopt mainstream values for radiology can be interpreted as professionalization, negotiating and reinterpreting traditional chiropractic concepts to gain cultural authority and acceptance.⁹⁷

Another element in the professionalization of a specialty is the creation of organs of information dissemination,⁹⁸ such as through textbooks and scientific journals. Of those, Resnick’s *Diagnosis of Bone and Joint Disorders*⁹⁹ is likely the most significant for chiropractors. In contrast to medicine, chiropractors and chiropractic radiologists have written only a few books on mainstream radiographic pathology or radiography. Before the Taylor and Resnick chiropractic-medical coproduction, Earl Rich of the Lincoln Chiropractic College wrote the first substantial book on radiographic pathology for chiropractors in 1965. It was a red 3-ring binder called the *Atlas of Clinical Roentgenology* and was published in the thousands.¹⁰⁰ Divided into sections by body area, it included high-quality photos of the radiographic appearance of pathological conditions of bones, joints, and soft tissues, including chest, gastrointestinal, and genitourinary systems. However, in these example texts, the evaluation for CVS was not included. Terry Yochum and Lindsay Rowe wrote the first edition of *Essentials of Skeletal Radiology* in 1987. Since then, the book has sold over 110 000 copies in 3 editions and is used in 50 chiropractic courses and over 100 medical schools.⁸⁷ Yochum has lectured around the world and taught skeletal radiology at the University of Colorado School of Medicine.¹⁰¹ Roy Hildebrandt was founding editor of the *Journal of Manipulative and Physiological Therapeutics* but was not a chiropractic radiologist. In 1980, he authored *Chiropractic Spinography*.¹⁰² It was partially evidence-based but did promote full-spine radiography. Dennis Marchiori wrote *Clinical Imaging* in 1999, which took a different approach to teaching radiographic pathology, but was still essentially a competitor to Yochum and Rowe’s book.⁸⁷ In 1982, Ray Sherman and Felix Bauer authored *X-Ray X-pertise — from A to X*, which focused on radiographic technique and quality assurance.¹⁰³

In 1993, the Council on Diagnostic Imaging started a radiology journal, *Topics in Diagnostic Imaging*, edited by chiropractic radiologist John Sities. It was primarily an outlet for radiology residents to develop the skills for scholarly publishing, and they were nominally paid for contributions. But contributions were inconsistent and the journal was

discontinued in 2007. The *Journal of Chiropractic Medicine*, which is indexed in PubMed, now takes the place of *Topics in Diagnostic Imaging* with a diagnostic imaging section.¹⁰⁴ Figure 1 provides a timeline overview of radiology specialties in medicine and chiropractic.

DISCUSSION

As part of their developing identity and professionalization, chiropractic radiologists from the ACCR sought education from mainstream health care. Embracing the biomedical model has affected the way complementary and alternative practitioners, such as chiropractors, communicate with each other, adopting biomedical-type structures for conferences and presentations.¹⁰⁵ Isomorphism and behavior mimicry have been used by alternative practitioners to gain legitimacy.¹⁰⁶ The subordinate group generally follows organizational and behavioral patterns of the dominant groups in their field as part of their attempt to achieve acceptance.¹⁰⁷ As an example, the structures and names of the chiropractic organizations are similar to those of their medical counterparts. The surviving senior chiropractic radiologists that I was able to contact recalled no conscious effort to adopt the structures or principles of the ACR/ABR. However, chiropractic radiologists Reed Phillips, James Winterstein, and Gary Guebert all acknowledged that most of those decisions had been made before their time.

Chiropractic radiologists were not simply mimicking the outward appearance of the medical groups. The rigor of the exams and the iterative increases in the candidate requirements for eligibility to sit those exams indicated a sincere desire to be recognized as experts in diagnostic imaging. These structures and the requirements for qualification exerted a force on the profession to move away from its vitalistic origins and toward a more biomedical identity. Professionalization may act as a subtle hegemonic process, causing alternative practitioners to internalize some of the philosophical premises, therapeutic approaches, and organizational structures of biomedicine.^{108,109}

Biggs noted that “in the process of gaining legitimacy, chiropractic has adopted a scientific discourse.”¹⁰⁹ In addition, “Chiropractic increasingly adapted its knowledge base to conform both in terms of its structure and content with scientific knowledge.”¹¹⁰ Although internalization of the biomedical model occurred over time for the chiropractic radiologists and the chiropractic profession, a vitalistic component still remains.¹¹¹

Reasons for Lack of Official Recognition of Chiropractic Radiology

Adopting the biomedical model seems to have made some ACCR members peripherally acceptable to some medical doctors, but at the same time it may have alienated some vitalistic chiropractors. Some chiropractors who take their

Fig 1. Timeline comparison of a selection of professional developments in chiropractic and medical radiology. Organizations are referred to by their current names for ease of reference, but may not have been initially founded under the name on this timeline (eg, RSNA was founded as WRS in 1915 but became RSNA in 1919). Journal names are italicized; books are underlined. RSNA, Radiological Society of North America; WRS, Western Roentgen Society.

own radiographs and analyze them for CVS refer these radiographs to chiropractic radiologists for pathological interpretation. However, some chiropractors have told me that they see no necessity in referring to a radiologist, particularly when third-party payers will not reimburse them for the consultation service. I have observed that others are actively hostile toward radiologists for diagnosing pathology rather than focusing on the using radiography to find CVS or postural changes.¹¹² For example, after publication of one of my papers indicating the lack of evidence for CVS identification on radiographs, a leader of a chiropractic technique system that requires radiographs on all patients addressed me publicly with angry profanity at a conference. Some of my colleagues and I have received ad hominem attacks on social media for our refutation of traditional CVS theory.¹¹³⁻¹¹⁶ Thus, by focusing on the biomedical model of disease, the ACCR refutes the traditional identity of chiropractic, which focuses on identification of CVS. By doing so, this has raised the ire from some of the traditionalists and vitalists in the profession.

The tension between the vitalistic and biomedical factions has resulted in the lack of support for chiropractic radiologists, and this may have contributed to limiting the development of a radiology specialty within chiropractic. The growth of the chiropractic radiology specialty may

have also been limited by the chiropractic patients themselves. Patient self-selection may have resulted in nonspecialist chiropractors being comfortable with interpreting their own radiographs. Chiropractic radiologist Gary Guebert noted that people with serious illnesses or acute trauma generally report to hospitals or their primary care medical doctors, not their chiropractors.

Structural reasons may also be at the root of absent recognition of chiropractic radiology as a specialty by registration or licensing bodies and third-party reimbursement organizations. Chiropractic radiologists have lacked the resources of their medical counterparts, both in numbers of practitioners and finances to lobby for specialty status. Only about 250 chiropractors have become certified chiropractic radiologists since the inception of the program in 1958, and as of 2017, ACCR Executive Assistant Traci Heagey estimated in an email to the author that about 190 are active. There are an estimated 77 000 chiropractors in the United States,¹¹⁷ about 3000 in the United Kingdom,¹¹⁸ and about 5000 in Australia.¹¹⁹ This means chiropractic radiologists comprise less than one-half of 1% of all chiropractors. Medical radiologists are about 2.5% of the physician workforce in the United States.^{120,121} In the United Kingdom, clinical radiology comprises 5.4% of the Specialist Register.¹²² Responding on December 20, 2017

to an email query by the author, Norman Kettner, former ACCR president, could recall no concerted effort by DACBRs to achieve specialty status. Longtime officer of the Council on Diagnostic Imaging of the ACA Larry Pyzik noted that little money was available “to pursue accreditation” for chiropractic radiologists. Reed Phillips, chiropractic radiologist and former president of LACC, indicated that there was a desire on the part of chiropractic specialists to establish those credentials with external authorities, but there was an inability to achieve recognition even within the chiropractic profession. Phillips stated, “I don’t think state regulatory boards or even the National Board had the expertise to offer any recognition of specialty training,” and that “I don’t think any of the specialty groups had the horsepower and resources to mount any sustained effort.”

Chiropractic scope of practice limitations (ie, being unable to perform invasive procedures such as contrast administration, imaging-guided injections, and biopsies) may further diminish the possibility of recognized specialization. Although professionalized and generally esteemed by much of the chiropractic community, chiropractic radiology has not proved itself necessary to its own profession, and therefore has been limited in its development. The services provided by chiropractic radiologists may not be different enough for registration boards and accreditation bodies to elevate them above other chiropractors. Bruce Walker, veteran of chiropractic registration boards and former head of chiropractic at Murdoch University in Australia, described the perspective of governing bodies verbally to the author on December 4, 2017. Specialties had been considered in the state of Victoria during his time there. One of the issues for radiology was that in medicine, radiologists inject contrast media and perform other special procedures that general practitioners do not. For the Victorian chiropractic registration board, Walker said that the question they asked any group seeking specialty status was, “What skills and knowledge differentiate the practice of a specialty from those required by a standard registered chiropractor?” This test was then applied to all special interest groups in chiropractic that requested recognition as a specialty. The results of this test were that radiology, orthopedics, pediatrics, and other groups in chiropractic did not add sufficient value to the practice of chiropractic to be considered for a special category of registration. No further attempts at developing specialties have been seriously considered in Australia. James M. Cox, past president of the Council on Diagnostic Imaging, expressed a similar sentiment: “We lack a definite addition to imaging interpretation that is recognized by organized medicine and the public we serve.”¹²³ Conversely, imaging interpretation is a high-level, specialized skill that is unlikely to be practiced well by generalists, and it may be inflexibility of thinking on the part of these authorities that inhibits progress on this front.

Comparably, specialty groups have failed to achieve recognized specialty status in medicine. One example is health promotion specialists (HPSs) in the United Kingdom. In this case, the specialists struggled to agree on their tasks and how to go about them.¹²⁴ They also never found a place in the National Health Service (NHS). Finally, medicine lay claim to public health and put health promotion within this realm.¹²⁴ Unlike HPSs, chiropractic radiologists largely agreed on their tasks; however, the other reasons HPSs failed do apply to chiropractic radiology. No chiropractic radiologists work in the National Health Service, nor are they reimbursed by Medicare in the United States or Australia for radiological reporting. In addition, chiropractors can usually find imaging centers or hospitals that will accept referrals for radiological investigations and interpretations.

The issue of chiropractic radiology as a specialty has not been permanently decided. Halpern, in her study of American pediatrics, noted that specialties were dynamic and constantly changing.¹²⁵ Miller¹²⁶ and Brosnan¹²⁷ have also indicated that professional identity is negotiated with different constituencies, and is fluid over time. Chiropractic radiology will continue to negotiate its status within its larger profession, the community of patients, physicians, and the owners of independent imaging facilities. Political power must be acknowledged in health care, and organized medicine has had the control. Chiropractic radiology has maintained its independence and autonomy and currently remains on the fringe of mainstream health care.

Limitations

This article reflects my thoughts and interpretation of historical writings and theories; others may offer differing viewpoints. I attempted to provide detail about the development of the specialty of radiology within chiropractic. It is possible that I may have missed sources of information that would alter some of the viewpoints offered in this paper. It cannot be said with certainty what may or may not have caused the profession’s lack of embrace of the radiology specialty. Further and more systematic research would be necessary to answer these questions.

CONCLUSION

In this tale of 2 professions, radiology gained official specialty designation in the medical profession. Those involved worked diligently to gain exclusive status and demonstrated that their services were useful, necessary, and congruent with medicine’s identity. They started within the medical profession, which had a monopoly on health care, and thus had few internal and external forces to overcome. Chiropractic was initially oppressed by organized medicine, which helped to create the unofficial specialty of chiropractic radiology, but this then later helped to limit it.

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Practical Applications

- The specialty of medical radiology developed in an environment with few internal and external obstacles to overcome.
- Chiropractic was initially oppressed by organized medicine, which helped to create the unofficial specialty of chiropractic radiology, but this then later helped to limit it.
- Chiropractic radiology has maintained its independence and autonomy despite facing many barriers.

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