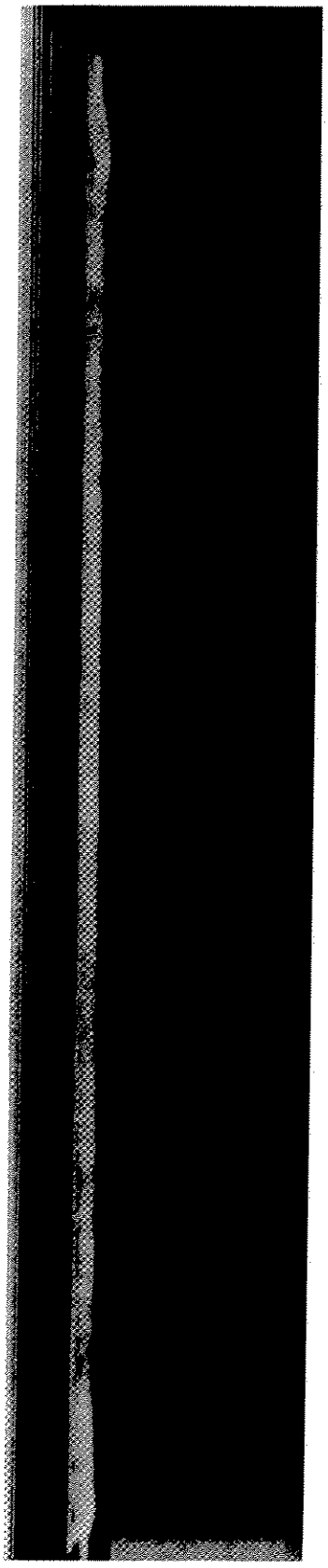

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Psychological Clinical Science: Why and How We Got to Where We Are

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With apologies to Charles Dickens, these are the best of times and the worst of times for clinical psychology. There have been impressive advances in our understanding of psychopathology, methods for assessing individual characteristics, and the development of treatments based on principles of change for a variety of applications. Many of the most exciting advances have been interdisciplinary and have come at the interfaces between clinical psychology and subdisciplines within psychology, such as cognitive and emotion psychology, health, social, developmental, forensic psychology, and methodology and evaluation, as well as with nonpsychological disciplines such as linguistics, anthropology, sociology, computer science, genetics, and neuroscience. We have new methods, such as neural imaging, behavioral genetics, computational modeling, and graphical data analysis, that expand our understanding and lead to new opportunities for application.

At the same time, there are countervailing practical concerns within professional clinical psychology, including licensing, employment opportunities, attempts to expand and articulate the scope of practice, reimbursement parity with physicians, hospitalization privileges, continuing education requirements, and liability insurance, among others that often

create a chasm between clinical scientists and clinical practitioners. This is seen most vividly in the increasingly divergent training models for clinical psychologists and the recurrent battles over accreditation standards.

To the nonpsychologist, this strain within the field is hard to understand. Similar distinctions between clinical scientists and clinical practitioners in other fields, such as medicine, nursing, pharmacology, and dentistry, do not appear to produce the same degree of acrimony among members of the same field who work to advance knowledge with those who attempt to apply that knowledge. Is there something different about clinical psychology?

There have been dramatic changes in clinical psychology as a profession over the past 100 years. At times it appears that today's conflicts between science and practice are unique. However, the integration of science and application has waxed and waned since the very beginnings of the separation of psychology from its predecessor disciplines of philosophy and physiology. We explore here the changing roles of research and practice during this history as a means of understanding the choices that present themselves today.

In this volume, dedicated to the contributions of Richard M. McFall, it is with considerable pleasure that I acknowledge the substantial influence that Dick McFall has had on me individually, as well as on the field more generally. Dick McFall has played a central role in articulating the importance of the integration of science and practice in clinical psychology and in initiating methods for doing so. His contributions are highlighted throughout the chapter. But first, how did we get to where we are?

FROM 1879 TO WORLD WAR I

The beginning of the new discipline of psychology is usually identified as 1879 because that was the year when Wilhelm Wundt, a professor of physiology at the University of Leipzig, Germany, established the first laboratory dedicated to the study of psychology (Boring, 1957; Hothersall, 1995). Before Wundt's laboratory, there were many philosophers, physiologists, physicians, and naturalists who studied psychological phenomena, such as Hermann von Helmholtz (perception), Gustav Fechner (psychophysics), Charles Darwin (evolution), Paul Broca and Carl Wernicke (language and the brain), and Jean Charcot (hysterical disorders).

Wundt's unique contribution was that the focus of his laboratory was on psychological phenomena. He and the many students attracted to work with him labored to found a new discipline. Among those who studied with Wundt were Emil Kraepelin, G. Stanley Hall, James McKeen Cattell, Hugo Münsterberg, Edward Titchener, and Lightner Witmer—all recognizable for their contributions to the founding of psychology as a scientific discipline.

Contrary to the idea that early psychologists were narrow experimentalists with little interest in the application of psychological knowledge, many of the founders of psychology in Europe and the United States had broad interests and were interested in application, including in what came to be called clinical psychology. Edward Titchener, who insisted that the new science of psychology be a laboratory science based on the specialized methodology of introspection, was the exception (Hothersall, 1995).

Emil Kraepelin, whom Hans Eysenck referred to as the "father of clinical psychology" (Wittling, 1972), established a psychological laboratory dedicated to the study of mental illness and how psychopathology was related to basic psychological processes. In addition to his well-known work on psychiatric diagnosis, Kraepelin was the first to study the effects of alcohol, nicotine, and drugs on human behavior (Wittling, 1972).

G. Stanley Hall received his PhD at Harvard with William James and then went to Germany to study with Wundt. When he returned to the United States, Hall established what many consider the first psychology laboratory in the United States in 1881 at Johns Hopkins University. Some list James as having founded the first psychology laboratory at Harvard University in 1874 (e.g., Garvey, 1929). Although he was an influential force within the newly developing psychology, James was not as active an empirical researcher as were Wundt and Hall.

Hall founded and was the first president of the American Psychological Association (APA) in 1892. He established a number of journals that reflected his broad interests, including his interest in developmental psychology. The journals included the *American Journal of Psychology*, the *Journal of Genetic Psychology*, and the *Journal of Applied Psychology*.

James McKeen Cattell, who was the first American to receive his PhD with Wundt in 1886, continued to work with him on studies of intellectual assessment. These studies focused on cognitive processes as measured by reaction time and other measures of the processes, rather than the

outcomes of cognition. This method for evaluating intellectual assessment was eventually overshadowed by the assessment of complex intellectual behaviors and outcomes as reflected in the work of Alfred Binet in France.

In 1888, Cattell returned to the United States to become the first professor of psychology in the nation at the University of Pennsylvania. He moved to Columbia University in 1891, where among his PhD students were Edward Lee Thorndike, Robert S. Woodworth, and Edward K Strong, of the Strong Vocational Interest Test (Hothersall, 1995). Cattell cofounded the *Psychological Review* in 1894 and bought the rights to *Science* in 1895.

Cattell was a vocal advocate for the application of psychology. As early as 1904, he predicted that psychology would be both a science and a profession (Watson, 1978). An example from his own career was that, in 1921, Cattell founded the Psychological Corporation, which continues to this day to market psychological tests and promote the application of psychology.

Hugo Münsterberg received his PhD in 1885 with Wundt and then moved to the University of Heidelberg, where he received his MD in 1887. In a statement that foreshadows the scientist-practitioner training model, Münsterberg recommended that getting both a PhD and an MD was ideal preparation for a career in applied psychology (Hothersall, 1995).

Münsterberg published an action theory of consciousness in which he stated that muscle sensations were the basis of awareness and consciousness. William James was impressed with Münsterberg's research and saw similarity to his own theories of emotion. In 1892, James recruited Münsterberg to take over the Harvard psychology laboratory (Hothersall, 1995). James, who was later elected president of the American Philosophical Association as well as president of the APA, expressed interest in spending less time in the laboratory and more time in philosophy.

Münsterberg had broad applied interests, including the study and treatment of mental illness. He saw patients in his laboratory at Harvard. In 1909, he wrote a successful popular press book, *Psychotherapy*, intended to dispel myths about mental illness and the new psychological treatments by Sigmund Freud and others.

Münsterberg was an advocate for expanding the boundaries of psychology. In addition to his interest in clinical psychology, he was a pioneer in research in industrial organizational psychology, eyewitness

testimony, group decision making, lie detection, and, later in his life, film theory. In each of these areas, descriptions of Münsterberg's research and conclusions (Hothersall, 1995) sound current. For example, he railed against the use of eyewitness testimony. To illustrate his position, Münsterberg would stage demonstrations of disruptive assaults during classes or lectures. He would have the audience members write detailed descriptions of what occurred (Hothersall, 1995). By pointing out the contradictions that occurred between different witnesses to the same event, he would demonstrate the fragility of memory under stressful conditions.

In an interesting parallel to today's conflicts, Münsterberg's expansive view of the boundaries of psychology drew criticism. Edward Titchener, who, like Münsterberg, received his PhD with Wundt and then immigrated to the United States, said of Münsterberg, "Dr. Münsterberg has the fatal gift of writing easily—fatal especially in science, and most of all in a young science where accuracy is the one thing most needful" (Titchener, 1891, p. 594; cited by Hothersall, 1995). Over 50 years after Münsterberg's death, Robert Watson wrote of him, "It is probable that his [Münsterberg's] present lack of influence can be attributed to the fact that he turned to fields for the application of psychology before they had a research basis on which to operate" (Watson, 1978, p. 410).

What is the appropriate balance between psychology's knowledge base and its applications? Throughout the history of psychology, many have seen policy implications in psychological research knowledge. It is not sufficient to justify policy from basic research alone. Applications and policy must, themselves, be evaluated (Bootzin & Ruggill, 1988; Campbell, 1969; Sechrest & Bootzin, 1996).

Münsterberg's professional activity was one of the many threads that contributed to the development of clinical psychology. Others were interested in the diagnosis and treatment of mental illness. Among the more influential were Pierre Janet, Sigmund Freud, Emil Kraepelin, and Morton Prince. Another thread was the early effort to describe individual differences in intellectual capabilities, including the work of Francis Galton, James McKeen Cattell, and Alfred Binet. Related to this work was the interest in applications from child development for parenting, including the influence of J. Stanley Hall, Lightner Witmer, John Watson, and Mary Cover Jones. There was also a thread involving research on learning, including the works of Ivan Pavlov, Edward Thorndike, John Watson, and, later, B. F. Skinner and Clark Hull.

The first psychology clinic in the United States was established in 1896 at the University of Pennsylvania by another of Wundt's Americans, Lightner Witmer. Just as the establishment of Wundt's psychology laboratory marks the beginning of the science of psychology, the establishment of Witmer's psychology clinic marks the beginning of clinical psychology in the United States. For Witmer, the clinic was his laboratory. It provided an opportunity to both apply the knowledge of the discipline and generate new knowledge (Kihlstrom & Kihlstrom, 1998; Woody & Robertson, 1997). Witmer performed what he called *small experiments* on his patients and thus anticipated the use of single-case designs within clinical psychology.

In 1908, Witmer founded the journal, *The Psychological Clinic*, which was published through 1935. For Witmer, science and application were intricately tied together. Witmer was not only the founder of clinical psychology, but also a forefather of today's emphasis on psychological clinical science.

Witmer was not alone in the newly emerging field of clinical psychology. A major figure in the developing field of abnormal psychology at the turn of the 20th century was Morton Prince, a neurologist, who in 1906 founded and was the first editor of the *Journal of Abnormal Psychology*. Prince, like Charcot and Janet, was interested in dissociative disorders, particularly multiple personality disorders. He provided detailed descriptions of the personalities of normal individuals, as well as of patients. Prince founded the Harvard Psychological Clinic in 1927. Two years later, upon Prince's death, Henry Murray took over directorship of the clinic and expanded Prince's work on personality.

One of the case studies published by Prince (1912) provided an analysis of a woman with anxiety disorders and panic attacks. As noted by Otlmanns and Mineka (1992), Prince's description and analysis anticipated current cognitive and social learning explanations of panic disorders with agoraphobia. Prince identified the fear of panic as critical in many phobias and commented as follows on the importance of what have come to be called *safety cues*:

> There is no fear, properly speaking, of an open place, or of a closed place, or of a train, or of a theater. The true fear is of having an attack in a situation where, owing to the circumstances of the environment, the patient cannot obtain relief.... These patients with phobias all have anticipatory fear of an attack, and this is particularly intense in anticipation of a situation where help in an attack cannot be expected. None of these phobia cases is afraid to be in these situations provided he is accompanied by a physician, or a person in whom he has confidence. (p. 276)

Looking back from today's perspective, it is surprising that Prince did not have more influence in clinical psychology. As Oltmanns and Mineka (1992) point out, Prince was first and foremost a clinical scientist. Although he was influenced by and expressed respect for the work of those associated with the two movements that were sweeping clinical psychology in the United States, psychoanalysis and behaviorism, he considered himself a member of neither. In a letter to a colleague in England, he wrote,

> in science there cannot be "schools." School means dogma. Science means facts of observation and logical inductions.... For myself I consider everything, my own theories and all, as only provisional and someday may be knocked into a cocked hat by new discoveries. After all, "all is opinion and opinion be dammed." (p. 4; quoted in Oltmanns & Mineka, 1992)

FROM WORLD WAR I TO WORLD WAR II

Clinical psychology continued to develop during the first two decades of the 20th century. During World War I, more than 25% of APA members served in World War I in special branches (Griffith, 1922), and many psychology laboratories at universities aided the war effort. The APA set up 12 committees to mobilize and organize help from psychologists in different areas. The work having the most impact included (a) help provided to the air service in research and evaluation of perception in prospective aviators, and in the status of mental states under low oxygen pressure (Griffith, 1922); and (b) the development and use of intelligence and aptitude testing to select and place soldiers and officers throughout the military. The first mass intelligence tests were developed during World War I. A third area, a successful effort to diagnosis and treat "war psychoses," was the focus of psychologists from England, France, and Germany (Griffith, 1922). Psychology's successful role in the war effort provided a stimulus for a stronger focus on applied psychology.

In 1917, clinical psychologists found that the APA was unwilling to provide assistance in developing standards for clinical practice. Thus, in order to have an organization that would develop standards for clinical practice and fortified by an increasing number of clinical psychologists, the American Association of Clinical Psychologists (AACP) formed independently of the APA.

There was considerable acrimony about founding a second professional organization and fear that the existence of AACP would undermine the

growth and health of APA. As noted by Routh (1994), a prophetic exchange about the future battles involving training was made in the APA Council meeting in 1918. Robert M. Yerkes stated that, "certain educational institutions should specialize in applied psychology and that others should continue with general instruction." In response, E. L. Thorndike stated that "he believed that in 20 years there would be as many 'doing' as teaching psychology, but that both groups must be scientific. He saw no reason why the PhD in psychology should not represent both types" (Psychological Bulletin, 1919; cited in Routh, 1994).

Yerkes' position anticipated the development of professional schools of psychology. In contrast, Thorndike's position anticipated the scientist-practitioner model and the subsequent development of the psychological clinical science model.

The AACP was short-lived. In 1919, just 2 years after its founding, members of AACP joined APA as a separate section after receiving assurances that APA would commit itself to improve the quality of clinical psychology training. The APA leadership promised to develop certification standards to identify those clinical psychologists who had the appropriate training to provide clinical services. At the time, the focus of practice of clinical psychologists was primarily on the diagnosis of mental disorders, and intellectual and personality assessment. Some clinical psychologists also provided psychotherapy, but it was a small, although growing percentage, after World War I. APA committees worked on attempts to provide certification, but in 1927 the effort was ended, 8 years after AACP joined APA. Only 25 clinical psychologists were ever certified (Routh, 1994).

State associations, composed mostly of applied psychologists, were growing in number. Clinical and other applied psychologists within the APA, in conjunction with the support of psychologists from the state associations, lobbied the APA to support the profession, not only the science, of psychology, and to provide more representation for applied psychologists in the governance and annual program of the APA. In 1937, when no satisfactory accommodation could be reached, the clinical psychology division of the APA disbanded and members were encouraged to join the newly formed American Association of Applied Psychology (AAAP; Routh, 1994). The AAAP initially had four sections: clinical psychology, consulting psychology, educational psychology, and industrial and business psychology. A section for military psychology was added later.

Although there were two separate organizations—APA and AAAP—many of the clinical psychologists continued to belong to both, and annual conventions were held together in all but 1 year so that members could attend both conventions (Routh, 1994). Interest in clinical psychology continued to grow in both academic and applied settings. Despite the separation into its own organization, the proportion of papers in clinical psychology presented at APA continued to increase. At the 1940 APA meeting, clinical psychology papers comprised 25% of all papers and were the largest number of any substantive area (Fernberger, 1943).

THE GROWTH OF CLINICAL PSYCHOLOGY FOLLOWING WORLD WAR II

The need for appropriately trained clinical psychologists became clear and urgent during World War II. Emotional and mental disorders accounted for more than half of the patients receiving care from the Veterans Administration (VA) in the year following the end of World War II, and there was a shortage of clinical psychologists available to provide care (Benjamin, 2005).

In 1944, a joint commission of the APA, the AAAP, the VA, the U.S. Department of Public Health (USDPH), and the newly formed National Institute of Mental Health (NIMH) was held to consider how to provide clinical psychologists to meet the projected mental health needs of the returning veterans. The VA, USDPH, and NIMH agreed to provide funding for the doctoral training of clinical psychologists. Only about a third of clinical psychologists in the community held doctorates, whereas 60% of APA members did (Routh, 1994).

The focus on APA as an organization of psychologists with PhDs appears to reflect the beginning of the policy that psychology, including the application of psychology, requires a doctoral degree. The requirement of doctoral training for clinical psychology was not the model accepted in other parts of the world. In many Western countries, such as those in Europe and the British Empire, the PhD was reserved for training in research. Psychological clinical practice was mostly carried out by individuals who had bachelor's and master's degrees.

The VA agreed to fund doctoral training and employ the newly graduated clinical psychologists. The next year, in 1945, the VA wrote a letter to the APA asking for a list of doctoral programs in clinical psychology so

that it could offer traineeships to those programs (Sears, 1947). The AI surveyed programs and responded with an initial list of 22 programs. T VA responded quickly, and in the first year of the program there were 2 students from the 22 programs on VA financial support. In subseque years, the VA increased the number of traineeships, and NIMH began offer training grants for clinical psychology graduate programs. T prospect of financial support for training from the VA and NIM coupled with the commitment by the VA to hire the trained clinical p chologists, served as a major impetus for the growth of the field.

At the same time, in 1945, the AAAP rejoined a reorganized APA. accommodate the interests of clinical and other applied psychologis each of the AAAP's sections became an APA division, and the AP. mission was expanded from advancing the science of psychology advancing "Psychology as a science, as a profession, and as a means promoting human welfare" (Wolfle, 1946, p. 3). A new journal to refl the profession of psychology was started, *The American Psychologist*. It w subtitled, "The Professional Journal of the American Psychologi Association, Inc."

To take advantage of the new funding initiatives for the training of cl ical psychologists, there was a need for a model of training. Carl Roge elected president of the APA in 1946, appointed David Shakow to chair APA committee to establish guidelines for training clinical psychologis The other committee members were Ernest R. Hilgard, E. Lowell Kel Bertha Luckey, R. Nevitt Sanford, and Laurance F. Shaffer. The comm tee's report (Hilgard et al., 1947) recommended a curriculum involvi course work and training in research, assessment, and psychothera throughout the PhD graduate program. A full-time internship was reco mended to take place in the third year of the 4-year program. Reflecting t focus of clinical psychology in the 1940s, the course work included wh many would now see as anachronisms, including course work on projecti tests and training in the psychodynamics of personality.

The APA started implementing the committee's recommendatic immediately by moving to an accreditation system. Programs filled questionnaires and were site-visited by members of the committee. programs that had been identified in the 2 years prior to the VA w considered accredited for the first year. In the first round of accreditati of clinical psychology programs by the APA, 36 programs were continu as accredited, and 7 new programs were added (American Psychologi Association, 1948).

In August 1949, a conference on graduate education in clinical psychology sponsored by NIMH was held at the University of Colorado at Boulder. The conference endorsed the scientist-practitioner model, which came to be known as the Boulder Model. This was the same model of training recommended by the APA Shakow committee, in which science and practice would be integrated and interdependent.

As published in the 1949 report of accreditation guidelines (American Psychological Association, 1949), some of the same complaints about the accreditation process that surfaced later were heard during the first year of accreditation. For example, there was confusion about whether the recommended curriculum was required. Committee members who conducted site visits often had to explain that the recommendations for the clinical psychology curriculum were not required, but were only recommendations. However, each of the curriculum recommendations had been listed separately in the committee's report (American Psychological Association, 1949), along with other requirements such as having a specialized faculty. Programs received a plus for each curriculum and program recommendation that was already in place. Although site visitors may have considered the recommended curriculum to be advisory, it would be hard to fault the program faculty for concluding that a checklist of courses was the default option.

Another familiar reaction is that some program faculty members communicated enthusiastic support about the accreditation process, whereas others communicated that they thought the accreditation committee was usurping power from the university graduate departments by mandating curriculum and insisting that specific program resources, such as practicum facilities, be provided. The familiar challenges of how to provide flexibility and innovation in training and how "voluntary" the voluntary accreditation system really was have been continuing issues from the beginning of APA accreditation. They remain so today.

The scientist-practitioner model became so ubiquitous that it is often forgotten that the Boulder conference had contemporary critics, including Hans Eysenck (1949) and Seymore Sarason (1988). Eysenck agreed with identifying training in assessment and research, but not training in psychotherapy, as foundations for clinical psychology training. In anticipation of his article on the ineffectiveness of psychotherapy (Eysenck, 1952) to be published 3 years later, Eysenck argued that there was no scientific basis for psychotherapy, and therefore it had no place in PhD programs based on the science of psychology.

Before World War II, the scope of practice in clinical psychology had been focused primarily on assessment, but had gradually come to include psychotherapy. At the beginning of World War II, about one third of psychologists included psychotherapy in their practice (Woody & Robertson, 1997). In 1942, Carl Rogers published his book on a nondirective approach to psychotherapy, and it provided an additional impetus for psychologists to include psychotherapy as part of their clinical activities.

Although organized psychiatry opposed the expansion of the psychologists' scope of practice to include psychotherapy, the combination of a national crisis in providing treatment to returning veterans and long-term trends in the expansion in the scope of practice to include treatment led to including training in psychotherapy in the accreditation guidelines. Eysenck's (1949) critique of the guidelines did not stop training in psychotherapy from becoming one of the foundations of clinical psychology training in the United States. However, a positive, and perhaps ironic, consequence of the debate was that Eysenck's (1952) analysis of the ineffectiveness of psychotherapy ushered in a revolution in therapy outcome research and the eventual development of empirically supported psychological treatments.

Another critic, Seymore Sarason, was one of the attendees at the Boulder Conference. He wrote later (Sarason, 1988) that the conference made a mistake in abandoning the application of clinical psychology with children in schools and other community settings to shift the focus of the field to adult psychiatric disorders. From the beginning of clinical psychology in the United States, with the opening of Witmer's clinic, the focus of clinical research and practice centered on children. Similar critiques were made in the years following the Boulder conference by Nicholas Hobbs (1964) and George Albee (1969, 2000). Hobbs hoped the community mental health movement of the 1960s would broaden the focus of clinical psychology to improve mental health care in the community and reduce the focus on a disease model of mental illness. Albee also considered the Boulder Model to be overly narrow, based as it was on the psychiatric medical model. Albee (2000) blamed the influence of David Shakow, who had worked mostly in psychiatric settings. Albee argued that clinical psychology lost an opportunity to develop an educational model based on responses to stress, rather than a training model based on diagnostic categories.

Many of the criticisms of the Boulder Model resonate even more powerfully today. The current interest in many areas developed despite the

curriculum confines of the dominant clinical psychology training model. Included would be interest in positive psychology, family psychology, child and adolescent psychology, health psychology, transdiagnostic reactions to stress, community interventions, and prevention psychology.

Despite the qualms about the accreditation process, clinical psychology programs proliferated and were accredited during the next decades. By 1970, there were 81 accredited clinical psychology programs (American Psychological Association, 1970). In the 1960s, applied jobs were plentiful. There were seven positions for every graduate being trained (Wright, 1983). In 1963, the Community Mental Health Act expanded employment opportunities for psychologists by shifting the emphasis of the treatment of mental illness from inpatient hospitals to outpatient care in community clinics.

The surplus of positions, compared with the number of clinical psychologists being trained, led to the development of professional schools. The first doctoral program based on a scholar-practitioner, rather than a scientist-practitioner, model was founded by Gordon Derner at Adelphi University in 1951 (Benjamin, 2005; Routh, 1994). In 1968, the University of Illinois established a professional school under the direction of Donald Peterson. A new doctoral degree was awarded, the Doctor of Psychology, abbreviated as PsyD. A year later, the California School of Professional Psychology (CSPP) was established, under the leadership of Nicholas Cummings, who had been a graduate of the Adelphi program, as the first freestanding professional school (Benjamin, 2005; Routh, 1994).

Changes were occurring in the science of clinical psychology as well. During the 1940s and 1950s, many faculty members in clinical psychology who followed the scientist-practitioner model engaged in two different and separate enterprises—one on research topics such as personality, psychopathology, assessment, developmental psychology, and learning, and the other on training in clinical practice activities. This led to what McFall (1991) called "the two-headed psychologist," in whom the activities of science and practice were separate and not well integrated.

There were two battles going on in psychology. One was the extent to which training for application belonged in psychology departments. Many psychologists held the conviction that training for application was a burden for those programs interested primarily in advancing knowledge. An elegant statement by Cronbach (1957) pointed out that the clash was

between two different disciplines of scientific psychology—experimental and individual differences psychology—that used different methodologies and frequently asked different research questions. Cronbach's statement helped clear the air and provide legitimization for an individual differences psychological science that had been associated with application and had been an important theme from the beginning of scientific psychology in the work of Galton, Kraepelin, James McKeen Cattell, and Binet, among others.

The second battle was within clinical psychology. What began to change in the 1950s and 1960s was that an alternative to the two-headed clinician became possible. The goal of developing a science of clinical psychology was seen in the work of many during the 1950s, notably the work of Paul Meehl (1954) in his review of clinical versus statistical prediction and the work at Ohio State University of Julian Rotter (1954) in social learning and George Kelly (1955) on personal constructs.

A major training program in clinical psychology developed at Ohio State University. Carl Rogers had been director of the psychology clinic there during World War II, before he moved to the University of Chicago in 1945. Following Rogers at Ohio State were George Kelly and Julian Rotter. During the 1950s and early 1960s, Ohio State was a center of research in clinical psychology. A generation of scientists in clinical psychology was trained there, including Rue Cromwell, Herb Lefcourt, Brendan Maher, Walter Mischel, Lee Sechrest, Mark Stephens, and many others. Dick McFall, who was influenced by both Kelly and Rotter, received his PhD at Ohio State in 1965 and was the last graduate student to get his PhD with Kelly before Kelly left for Brandeis, ending an era. Rotter had moved to the University of Connecticut 2 years earlier.

The development of the science of clinical psychology continued in the 1960s with, for example, Walter Mischel's (1968) book on the role of trait versus situational determinants in assessing personality characteristics and Albert Bandura's (1961, 1969) watershed reviews of principles of behavior change. In these and other examples, the science of clinical psychology drew on the work of researchers across areas of psychology, but stood on its own in advancing psychological clinical science.

The proliferation of training programs, many of which focused more on clinical practice than on knowledge acquisition, led to strains within some departments of psychology and conflicts in accreditation. Some leading private universities (e.g., Harvard University, Stanford University, and

Northwestern University) changed their programs from clinical psychology to experimental personality and/or psychopathology to emphasize that their programs provided a focus on training for knowledge acquisition rather than on clinical service. Northwestern University reestablished its clinical psychology program 10 years later, in 1980, and Harvard reestablished its clinical psychology program in 2000.

At the same time, there was increasing dissatisfaction expressed with the scientist-practitioner model because some viewed it as unrealistic for clinical psychologists in practice also to be researchers (Woody & Robertson, 1997). An alternative practitioner-training model, in which clinical psychologists would be taught to understand and apply research, but would not learn the skills needed to be a researcher, was proposed. This practitioner professional model, the scholar-practitioner model associated with the awarding of a PsyD, was endorsed along with the scientist-practitioner model, associated with the awarding of a PhD, at a conference held in Vail, Colorado, in 1973.

Scholar-practitioner programs have been more commonly found in freestanding professional schools of psychology rather than in university-based programs. There has been variation, even among professional schools, however, as some award PhDs, and not PsyDs, and some describe their programs as scientist-practitioner, irrespective of the degree awarded.

DEVELOPMENT OF THE PSYCHOLOGICAL CLINICAL SCIENCE MODEL

Although the vast majority of university-based clinical psychology programs subscribed to the scientist-practitioner model from the 1970s through the 1990s, there was enormous variability in the extent to which different programs emphasized science or practice. As Edward Katkin (1982) observed, "'Scientist-practitioner' can be pronounced with a silent 'scientist'" (p. 9).

The pendulum in clinical training has swung to one end of the scientist-practitioner continuum and back again. Although there was a general drift toward clinical service with the development and proliferation of professional schools, there were also some noteworthy landmarks toward a reemphasis on the science of clinical psychology. As early as 1971, Julian Rotter, expressing frustration about an accreditation system that was more concerned about process than outcome, said

> If psychologists are not more active and more explicit in their evaluation of techniques of intervention, they will find themselves restrained from the outside...as a result of their own failure to do what ethical and scientific considerations require. (Rotter, 1971, p. 2)

In 1982, the APA Task Force on the Evaluation of Education, Training, and Service in Psychology released its report that emphasized that, despite the need for accountability in training, there was remarkably little cumulative knowledge regarding training. The report stated, "There is no evidence that any specific educational or training program or experience is related to professional competence" (American Psychological Assocation, 1982, p. 2).

It is informative to see a list of the committee members: The chair was Lee Sechrest, and members included Sol Garfield, Ronald Kurz, Neal Miller, Donald Peterson, and Janet Taylor Spence. This was a distinguished group, but its report had little impact on the methods of training, or its evaluation, within clinical psychology programs.

Six years later, in a review of training for behavior therapy, Bootzin and Ruggill (1988) noted that the landscape for the evaluation of training had changed little, but the skills of research were beginning to be recognized as important for the development of effective practice. For example, McFall (1985) identified the skills of keen observation, critical thinking, and methodological rigor combined with inventiveness when putting conceptualization to the empirical test and following the lead of empirical evidence as skills that are just as important to the application of knowledge as to its generation.

Methods that were commonplace in research were recommended for use by training programs to develop and evaluate clinical skills. Among these methods were the importance of ongoing measurement in assessing change; the development of reliable and valid assessment instruments; the teaching of therapeutic skill through manuals, models, simulations, role playing, and supervision; and verification methods for assessing the extent to which therapeutic procedures were being implemented (Bootzin & Ruggill, 1988; Kazdin, Kratochwill, & VandenBos, 1986).

To provide an adequate evaluation of the development of effective treatments or of therapeutic training, it is important to recognize that what is being evaluated is not just a set of treatment interventions. It is also a collection of "small theories" (Lipsey, 1990) about how problem behavior occurs and how treatments affect behavior. It is theories such as these that guide the selection of assessment instruments, the specification

of treatment priorities, and the hierarchy of treatment interventions (Bootzin & Ruggill, 1988).

The importance of theory in guiding applied research, as opposed to the "costly, inefficient, and limited method of trial and error" (Lewin, 1944/1951, p. 169), has been long recognized. As Lewin (1944/1951) famously said, "there is nothing so practical as a good theory" (p. 169). This point has been expanded and emphasized by Donald T. Campbell (1971/1988) in his writings on the experimenting society and by Sechrest and Bootzin (1996) in discussions of the policy implications of research and its evaluation. Theory, including small theories of treatments, is critically important for advancing knowledge in clinical psychology.

In the late 1980s, academic researchers became concerned about the increasing growth of the number of psychologists from professional schools and the increasing focus of the APA on professional issues or what were often described as *guild* interests. These included issues such as equal reimbursement for psychologists and physicians, improved reimbursement for mental health services, licensing of psychological services, and hospitalization and prescription privileges for psychologists.

In 1988, there was an attempt to reorganize APA so that academics and researchers would have increased influence in the governance of APA. The proposed reorganization failed to pass an APA membership vote, and, as a result, about 400 APA members left to form a separate organization to represent psychological science, the American Psychological Society (APS). Charles Kiesler, a former executive director of APA, was the founding president, and Janet Taylor Spence, a former president of APA, was the first elected president. Alan Kraut, then Executive Director for Science at APA, accepted the position of executive director of the newly formed APS. The APS flagship journal, *Psychological Science*, was edited by William Estes. Over the years, *Psychological Science* has become one of the leading journals of the field.

APS grew quickly and had more than 5,000 members within the first 6 months and grew to more than 16,000 members by 2005. In January 2006, APS changed its name from the American Psychological Society to the Association for Psychological Science to emphasize the primary focus of the association.

In a move related to the formation of APS, the American Association of Applied and Preventive Psychology (AAAPP) was formed in 1991 to provide an organizational home for research clinical and prevention psychologists. The AAAPP held its annual meetings at the same place and

time as APS. The acronym, AAAPP, was purposely chosen to reflect the earlier history of a separate organization for applied psychologists, AAAP. The organizers of the AAAPP included former APA presidents George Albee, Logan Wright, and Bonny Strickland. The AAAPP was an active organization for more than a decade, but by 2004, membership had decreased substantially, and its major continuing asset was its journal, *Applied and Preventive Psychology*.

One likely reason for the lack of long-term success of the AAAPP was that there were other organizations, old and new, committed to the science of clinical psychology, such as Section III of Division 12 of APA and the Academy of Psychological Clinical Science ("the Academy"). The development of the Academy is discussed in a later section. Section III of the clinical psychology division (Division 12) of the APA had been founded as the Section for Clinical Psychology as an Experimental-Behavioral Science in 1966. The organizing committee, under the direction of Leonard Krasner, included prominent clinical psychology researchers Albert Bandura, Cyril Franks, Arnold Goldstein, Fred Kanfer, Peter Lang, Robert Rosenthal, Kurt Salzinger, and Irwin Sarason (Routh, 1994). In 1971, the section started an annual Distinguished Scientist Award, and the first recipient was David Shakow (Routh, 1994), a distinguished researcher in schizophrenia as well as the driving force behind the development of the Boulder Model.

Twenty years later, in 1990, during Dick McFall's presidency, Section III, although keeping ties with APA, became an independent organization, the Society for a Science of Clinical Psychology (SSCP). Membership was open to psychologists regardless of whether they belonged to APA. McFall's presidential address, "Manifesto for a Science of Clinical Psychology," was published in the Division 12 newsletter, *The Clinical Psychologist* (McFall, 1991), and has become the defining statement for the importance of a clinical psychology based on science.

THE ACCREDITATION BATTLE

In parallel with the substantial advances being made to integrate science and practice, the more science-based clinical psychology programs and their home departments were becoming increasingly frustrated with APA accreditation of clinical psychology programs. In the late 1980s and early 1990s, the accreditation process appeared to be so unfriendly to programs that emphasized clinical science that there were discussions about

programs withdrawing from the Committee on Accreditation (CoA) of APA and setting up an alternative accreditation process under the auspices of the APS.

In 1992, a Summit on Accreditation, sponsored by the APS and the Council of Graduate Departments of Psychology (COGDOP), with funding from the National Institute of Mental Health (NIMH), was held in Chicago. The steering committee consisted of Marilynn Brewer (chair), Richard Bootzin, Emanuel Donchin, Virginia O'Leary, and Richard Weinberg. At the summit, Dick McFall gave a rousing address on the need to have accreditation reflect the scientific foundation of clinical psychology.

As a result of the summit, a steering committee for alternative accreditation was established, and its members were Marilynn Brewer, Emanuel Donchin, Steve Elliot, Don Fowles, Elizabeth Holloway, Richard McFall, and Virginia O'Leary. The committee was often described as working on developing "a lifeboat" in case proposed reforms in accreditation being discussed within the accreditation system were not forthcoming.

The CoA accreditation structure was simultaneously restructured as the result of an agreement by the APA, COGDOP, the Council of University Directors of Clinical Psychology (CUDCP), and others. Because there was some overlap in membership between the Brewer committee and the reorganized CoA members who were developing new CoA guidelines, many of the recommendations of the Brewer committee found their way into the operating principles of the restructured CoA that were approved in 1995.

Among the important principles in the new accreditation guidelines were that programs would be evaluated according to their own stated training model and that expertise did not need to be demonstrated through a checklist of courses. A danger from accreditation is the addition of new "desirable" requirements that have the inevitable effect of lengthening the training program and reducing time for learning to be a first-rate researcher. If the accreditation process remains sensitive to the needs of programs to develop scientific, as well as clinical, expertise, and supports innovation in training, as opposed to using a course-dominated checklist process of evaluation, then it can be a desirable tool for enhancing training (Bootzin, 2004).

Because the new CoA appeared to be adopting standards that allowed science-oriented programs to be treated fairly within the current system, the Brewer committee went into recess, to be called back into session in

the future if needed. In 2005, the organizations that had negotiated t reorganization of the CoA in the 1990s (the APA, COGDOP, CUDC and others) held a conference to restructure again. Because of concer that the clinical science programs would be disadvantaged, the Brev committee was called out of recess, and discussions of the possibility alternative accreditation are again in the air.

With the prospect of a negotiated truce in the accreditation battle the 1990s, clinical science moved forward dramatically on two rela fronts: identifying treatments that work, and tackling issues related to t dissemination of treatment. On the first of the two fronts, David Barl as president of Division 12, appointed Dianne Chambless to lea Division 12 task force to develop guidelines for identifying empiric supported treatments in 1993. The first task force report was published 1995, and additional revisions and refinements followed (Chambless Ollendick, 2001). The movement for identifying empirically suppor treatments continued to develop and evolve in psychology as it has medicine.

The second front focused on dissemination. In any attempt to ar ulate a model of a science-based clinical psychology, it is important consider how treatments can be disseminated into community settir Dick McFall has been an advocate and innovator for training in b the acquisition of knowledge and the application of clinical science 1996, McFall proposed that community treatment centers might c sider establishing clinics to apply psychological treatments that l been demonstrated to be effective in randomized controlled clin trials.

McFall's innovation was what he called *benchmarking*; that is, published outcomes from the efficacy literature could be used as ben marks for outcomes in the community. Is it possible that if the com nity centers adopted the methods employed in research, including same primary assessment measures, the same manuals used in the stud and the same type of training and supervision for the therapists, t would produce the same outcomes? Many critics of the effort to iden empirically supported treatments would be likely to assert that such effort would be bound to fail due to various considerations, including ferences in patients due to comorbid problems, differences in therapist commitment to manualized treatment, and differences in resou needed to free up therapist time to focus on specific clinical probl within a busy community treatment center (e.g., Levant, 2004).

Those arguing that empirically supported treatments would not succeed in community settings were wrong, and there has now been a series of demonstrations that the same degree of improvement shown in well-controlled efficacy studies can be obtained in effectiveness studies in community settings (e.g., Wade, Treat, & Stuart, 1998, for panic disorder; Franklin, Abramowitz, Kozak, Levitt, & Foa, 2000, for obsessive-compulsive disorder; Tuschen-Caffier, Pook, & Frank, 2001, for bulimia; Lincoln et al., 2003, for social phobia; Merrill, Tolbert, & Wade, 2003, for depression; Weersing, Iyengar, Kolko, Birmaher, & Brent, 2006, for adolescent depression).

ACADEMY OF PSYCHOLOGICAL CLINICAL SCIENCE (APCS)

Building on the momentum developed by the activity of science-based clinical psychology programs in accreditation, Dick McFall organized the Bloomington Conference, "Clinical Science in the 21st Century," cosponsored by APS and NIMH in 1994. It was attended by representatives from 25 of 35 invited academic departments. The conference authorized a steering committee (Richard McFall [chair], Richard Bootzin, Don Fowles, Robert Levenson, Beth Meyerowitz, and Gregory Miller) to develop an organization of training programs. The next year, 1995, the Academy of Psychological Clinical Science (APCS; "the Academy") was formed as a coalition of programs, not as an organization of individuals. The Academy had its first meeting at the APS convention in New York City. Representatives of 21 North American doctoral training programs met to draft a founding mission statement and bylaws for APCS. Richard McFall was elected as the first president. The following five goals were established and are still listed on the Academy web page (http://www.psychclinicalscience.org).

1. Training: To foster the training of students for careers in clinical science research, who skillfully will produce and apply scientific knowledge.
2. Research and theory: To advance the full range of clinical science research and theory and their integration with other relevant sciences.
3. Resources and opportunities: To foster the development of, and access to, resources and opportunities for training, research, funding, and careers in clinical science.

4. Application: To foster the broad application of clinical scienc human problems in responsible and innovative ways.
5. Dissemination: To foster the timely dissemination of clinical ence to policymaking groups, psychologists and other scien practitioners, and consumers.

Today, in 2006, the Academy is a coalition of 44 academic and 9 int ship programs that emphasize training, application, and the advancer of knowledge in psychological clinical science. In the decade sinc founding, it has had an increasingly important voice on training accreditation issues. One salient example was a joint conference betv the APCS and the NIMH held in January 2004 in Washington, DC training in psychological clinical science, chaired by Richard Boc from the APCS and Bruce Cuthbert from the NIMH.

The themes that were discussed provide an agenda for the future de opment of psychological clinical science. They included:

1. Objectives and challenges in research training for NIH NIMH, including (a) being part of and taking leadership in i disciplinary teams, and (b) conducting clinical science in the text of public health (e.g., developing and dissemina empirically supported treatments for the future developmer the field).
2. Exemplars of psychological clinical science training mo including among others the interdisciplinary model descr by Dick McFall (2006) and being used at Indiana Universit which students are trained simultaneously in psychological c cal science and an allied basic science area such as cogn science.
3. Evaluation and outcomes of training: What should we mea and what can we measure?
4. Dissemination and influencing the future, including: (a) Do have current models to meet the future goals for training? (b) W steps should be done to identify such models? (c) What should be done to develop such models? (d) How do we go a disseminating these models?

The APCS–NIMH conference provided a glimpse into the future which innovations in training are needed to match the exciting cha occurring in clinical science and to be responsive to the need

increased attention to dissemination and policy formulation from the developing knowledge base.

CONCLUSION

As mentioned at the beginning of the chapter, these are the best and worst of times for clinical psychology. Psychological clinical science is at an important crossroad. Perhaps surprisingly, this is not a new crossroad. Psychologists have struggled with how to both develop and apply psychological knowledge throughout its history.

In my view, if there is a lesson to be learned from our history, it is that we can be neither satisfied with the status quo nor simply armchair critics of it. We need to focus on actions that advance knowledge, including knowledge about application. We need to work to provide whatever mechanisms are needed to support those goals.

Dick McFall has been an ideal model for how to help advance a field. Time and time again, he has provided cogent analyses and, critically, has been an innovator in helping psychological clinical science advance and secure a firmer base by his efforts on accreditation, founding the Academy of Psychological Clinical Science, providing the impetus for benchmarking as a method of dissemination, and innovating with high-quality cross-disciplinary training programs. We are much better prepared to take advantage of the opportunities facing us due to McFall's many contributions to psychological clinical science.

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