

In Memoriam: Ernest Ropiequet Hilgard, 1904-2001

Ernest Ropiequet Hilgard, one of the 20th century's leading psychologists and a central figure in the modern revival of hypnosis, died in Palo Alto, California, on October 22, 2001, at the age of 97. He was professor emeritus in the Department of Psychology at Stanford University, where he had been on the faculty for his entire academic career.

Jack Hilgard, as he was known to everyone, was born on July 24, 1904, in Belleville, Illinois. His father, a physician, volunteered for service in World War I and died in France. Originally oriented toward a career in medicine himself, Jack graduated in 1924 from the University of Illinois with a degree in chemical engineering. After a year working in the national office of the YMCA, he received a Kent Fellowship for a year's graduate work in religion and social ethics at Yale Divinity School. He then turned to psychology, which he once characterized as a "Hegelian synthesis" between the science of chemistry and the nonscience of religion, and entered the doctoral program at Yale. There the psychologist James Rowland Angell, one of the founders (with William James and John Dewey) of functionalism, was president and a new Institute of Psychology (later renamed the Institute of Human Relations, an interdisciplinary effort involving sociologists and psychiatrists as well as psychologists) promised the opportunity to study personality and human motivation with rigorous experimental techniques.

Although Hilgard's involvement with hypnosis research has sometimes led to the inference that he was a student of Clark Hull, who had moved from Wisconsin to Yale in 1929, in fact he worked with Raymond Dodge on conditioned responses and other aspects of learning. Dodge organized the Ninth International Congress of Psychology in New Haven in 1929, which afforded Hilgard the opportunity to meet most of the luminaries of the field. That same year, while still a graduate student, he became an instructor of psychology at Yale. Hilgard took his doctoral degree in 1930 and remained on the faculty at Yale for two more years, spending some time with Robert M. Yerkes at Yale's primate laboratory in Florida. In 1931, he married Josephine Rohrs, who took her Ph.D. in developmental psychology under Arnold Gesell in 1933.

In 1933, the Hilgards moved to Stanford, where Josie entered medical school. By 1938, Jack had been promoted to full professor in the Department of Psychology with a joint appointment in the education school, fulfilling a longstanding desire to combine theory and practice. Except for occasional sabbaticals, the Hilgards remained at Stanford for the rest of their lives. Josie died in 1989. Jack is survived by a son, Henry, of Santa

Cruz; a daughter, Elizabeth, of San Luis Obispo; five grandchildren, and six great-grandchildren.

True to his functionalist roots, Hilgard's earliest contributions were in the field of learning, where he combined careful experimentation with a talent for expository writing. His research showed that conditioned behaviors, previously considered to be unconscious and automatic, could be placed under deliberate, conscious control. With Donald Marquis, he wrote *Conditioning and Learning* (1940), a summary of the field that quickly became required reading for graduate students; among other theoretical contributions, they coined the term "classical conditioning," to distinguish Pavlov's work from the "instrumental" or "operant" conditioning studied by Thorndike and Skinner. *Theories of Learning* (1948), which went through five editions (the later ones coauthored with Gordon H. Bower, Jack's Stanford colleague), created a central course in the undergraduate psychology curriculum and set the pattern for theory-oriented survey courses and texts in developmental, personality, and social psychology. Ever attuned to the practical implications of basic theory, Hilgard also edited *Theories of Learning and Instruction* (1964) for the National Society for the Study of Education.

Hilgard was an important figure in the transition from learning theory to cognitive psychology. Even in the first edition of *Theories of Learning*, he distinguished between a behavioral psychology focusing on motor behavior and associations and a cognitive psychology emphasizing perceptions and thoughts, and he was critical of stimulus-response theories in general. By rejecting the behaviorists' "abhorrence of the subjective," Hilgard laid the foundation for the cognitive revolution by emphasizing the role of ideas as mediators between stimulus and response, and he demonstrated a willingness to treat phenomenal experience as scientifically respectable. While agreeing that animal research was relevant to the human case (after all, his early research was on rats, dogs, and monkeys), his eyes were always focused on the human case. Hilgard argued for a reversal of Lloyd Morgan's canon, that in order for a process to be scientifically reputable it must be demonstrated to occur in nonhuman animals. To the contrary, he argued that only if a process demonstrable in human learning can also be demonstrated in nonhuman animals is the comparative method useful in studying it. In this way, he extended the cognitive point of view to the understanding of learning and behavior in nonhuman animals. Thus, Hilgard interpreted the organism's response on the first learning trial as a "provisional try," rather than merely the product of preexisting habits and innate behavioral tendencies. From his point of view, both human and nonhuman learners are engaged in problem solving and hypothesis testing.

Hilgard had a real talent for expository writing. Successive generations of undergraduates cut their teeth on his *Introduction to Psychology* (1953), which was by far the most popular introductory textbook of its

time and set the standard by which all other introductory texts are judged. In addition to presenting the fundamental concepts, principles, and methods of scientific psychology, the introductory text indulged Hilgard's proclivity and talent for "psychologizing." In an expository style modeled on the writings of James and William McDougall (who had encouraged him to take his graduate studies at Harvard rather than Yale), Jack broke through the confines of empirical facts to make observations that set out new problems for investigation—for example, on the relation between emotion and motivation or on the roles of development and interaction in personality—a theme that reappeared in his and Josie's account of the development of hypnotizability. The book is now in its 13th edition (2000) and written by Rita L. Atkinson, Richard C. Atkinson (Hilgard's former colleague, now president of the University of California), and a team of former colleagues from Stanford. It will keep Jack's name on the minds of undergraduates for many years to come.

Jack Hilgard lived the history of psychology in the 20th century. He met Pavlov, argued with Skinner, and nurtured many of the first generation of cognitive psychologists at Stanford. All of his work was informed by a consciousness of the past. His masterly *Psychology in America: A Historical Survey* (1987) is at once both a history of the field and a general textbook of psychology. This book, full of the psychologizing that he did so well, will remind future psychologists of their distinguished past for a long time to come.

Hilgard's contributions to hypnosis flowed from his curiosity about psychodynamic theories of motivation in personality. When, in the 1950s, the Ford Foundation was planning to support mental health research, its advisors (including Jack, Merton Gill, and David Shakow) proposed that hypnosis might serve as a laboratory model for the study of unconscious processes. The Ford Foundation was intrigued and handed Jack the money to do the job. He invited André Weitzenhoffer, who had recently published a comprehensive survey of hypnosis research and clinical application, to join him at the Center for Advanced Study in the Behavioral Sciences, where they read everything they could get their hands on. Hilgard's comprehensive bibliography of hypnosis research, which he maintained on index cards until 1979, laid the foundation for the *Hypnosis and Related States Research Database* maintained on the World Wide Web by Jean Holroyd at UCLA (www.hypnosis-research.org).

The program of hypnosis research began in Hawthorne House, a former residence on the Stanford campus, in 1957, and in 1971 the laboratory moved into the psychology department's new quarters in Jordan Hall. Initially supported by a grant from the Ford Foundation, the laboratory later received continuous funding from the National Institute of Mental Health for research on "Developmental and Interactive Aspects

of Hypnosis" (Grant #MH-03859, 1961-1979). Weitzenhoffer remained at Stanford for several years, and Josephine was part of the project from the beginning. Others who worked for long periods with Jack and Josie included Helen Joan Crawford, Samuel LeBaron, Hugh Macdonald, Arlene Morgan, and Martha Newman.

The result, detailed in *A Saga of Hypnosis: Two Decades of the Stanford Laboratory of Hypnosis Research, 1957-1979*, Jack's unpublished terminal report to NIMH, was a model of systematicity. Because of the wide individual differences in response to hypnotic suggestion, it became immediately apparent that the first job of the laboratory would have to be the development of appropriate instruments for measuring hypnotizability. Building on earlier work by Friedlander and Sarbin, the result was the Stanford Hypnotic Susceptibility Scales, Forms A, B, and C, and the Stanford Profile Scales of Hypnotic Susceptibility, Forms I and II. Along with the Harvard Group Scale of Hypnotic Susceptibility, itself derived from the Stanford Form A, these performance-based tests put hypnosis on a firm quantitative basis and permitted laboratories to replicate, and extend, each other's work. More than 40 years later, these scales and their translations and adaptations remain in use throughout the world and are the gold standard against which alternative measurement procedures are evaluated.

The Stanford scales permitted hypnotizable subjects to be selected for experimental research, but they also permitted hypnotizability to be studied as a cognitive trait of personality, much like intelligence or cognitive style. Hilgard's 1965 monograph, *Hypnotic Susceptibility*, summarized what had been learned from the standardization of these scales: the distribution of hypnotizability, its factorial complexity and correlates in the wider domain of personality, the effects of hypnotic induction, and the possibility of negative sequelae. A chapter by Josie laid out a developmental-interactive theory of hypnotizability that counts as an early example of work on person-situation interactions, and in 1970 she published the results of her careful interviews of the subjects in the standardization samples in *Personality and Hypnosis: A Study of Imaginative Involvement*.

But *Hypnotic Susceptibility* is more than a massing of distributions and correlation coefficients. If one administers enough standardized scales, one sees just about everything hypnosis has to offer. Accordingly, Hilgard filled his monograph with detailed analyses of individual items, providing the first in-depth analysis of direct and challenge suggestions, positive and negative hallucinations, age regression, posthypnotic amnesia, and posthypnotic suggestion. What did not make it into the book is archived in a set of more than 150 *Hawthorne House Research Memoranda*, later renamed *Hypnosis Research Memoranda*. Originally intended for private distribution to mark progress in various studies, they some-

times recorded interesting observations that might be followed up in later systematic research.

Work on the measurement and correlates of hypnotizability continued throughout the lab's operation. There were studies of the modification of hypnotizability, of self-hypnosis, and of the role of relaxation. There was a twin study offering some evidence of a genetic component to hypnotizability and a family study that revealed a fascinating age-by-sex interaction. With Hugh Macdonald, Arlene Morgan, Helen Joan Crawford, and others, Hilgard explored the relationship between brain lateralization and hypnotizability. As late as 1979, he showed that the Stanford Form C could be "tailored" for special screening purposes without losing any of its psychometric properties, and Josie (with Arlene Morgan) published two new Stanford scales, one for adults and one for children, short enough to permit the efficient assessment of hypnotizability in clinical settings. Jack's last empirical paper, published in 1989 with his Stanford colleague Philip Zimbardo and the late Carlo Piccione, documented the stability of hypnotizability in a 25-year follow-up of individuals who had participated in the original standardization studies of the Stanford scales.

Beginning in 1966, Hilgard began an intensive study of a single hypnotic phenomenon, hypnotic analgesia. Analgesia was chosen partly because it dramatically illustrated the alteration in consciousness achieved through hypnosis but also because of its potential for clinical application. As with the work on hypnotizability, the analgesia studies were highly systematic, beginning with a set of psychophysical studies that convincingly identified magnitude estimations, as opposed to physiological indices, as the most reliable and valid indices of cold-pressor and ischemic muscle pain. Although this work in itself was a lasting contribution to sensory psychophysics, the methods developed in these studies were then used to document the reduction in felt pain that could be achieved through hypnosis. A study with Goldstein was the first to show that naloxone failed to reverse hypnotic analgesia, thus eliminating endorphins as a possible mechanism for the effect. Together, Jack and Josie wrote *Hypnosis in the Relief of Pain* (1975), which remains the best available summary of the experimental and clinical literature. Later, Josie and Sam LeBaron successfully brought the laboratory findings into the clinic with a book reporting their study of *Hypnotherapy of Pain in Children with Cancer* (1984).

In his 1974 autobiographical essay, Hilgard had expressed some regret that he would be remembered more for his expository writing and his status as a generalist and a statesman within the field, than for his specific experimental discoveries or theoretical system. This self-assessment was probably inaccurate, but even if it were true, his "neodissociation" theory of divided consciousness, which began to

emerge in 1973, surely corrected the situation. Jack proposed that consciousness could be divided, so that a person might not be aware of, or perceive any control over, certain mental and behavioral activities. The primary experimental evidence for these dissociations came from the laboratory study of hypnosis and particularly from Jack's own research on hypnotic analgesia. In his interpretation, analgesia occurred because the hypnotized subject was not aware of pain that was nonetheless registered in his perceptual-cognitive system. In a series of studies of hypnotic analgesia and deafness employing the "hidden observer" technique, he showed that it was possible to gain access to mental representations of pain that would otherwise be inaccessible to conscious awareness. Although neodissociation theory made use of a concept that had been popular around the turn of the century in the work of Pierre Janet and Morton Prince, the prefix *neo-* was intended to distance Hilgard from the excesses of earlier formulations. For example, studies by Jane Knox and James Stevenson, performed in Hilgard's lab, used an updated technique of "automatic writing" to show that the dissociated stream of consciousness, while temporarily inaccessible to conscious awareness, nevertheless continued to interfere with ongoing cognitive processes.

The final version of neodissociation theory, as presented in *Divided Consciousness: Multiple Controls in Human Thought and Action* (1977), was sweeping in its scope, connecting hypnosis not just with the "abnormal" psychology of hysteria, multiple personality, dreams, and the like but also with the "normal" cognitive psychology of late versus early attentional selection, automaticity, and the modularity of mind. In a very real sense, it laid the basis for the "consciousness revolution" in psychology and cognitive science. Just as important, it freed the notion of the unconscious from its association with Freud and psychoanalysis and laid the foundation for the scientific rediscovery of unconscious mental life that occurred beginning in the 1980s.

Hilgard found hypnosis interesting in its own right, but he was also interested in what hypnosis could tell us about other things—in particular, in the problem of levels of awareness and the relation between voluntary and involuntary control processes. Neodissociation theory laid the foundation for the revival, in the 1980s, of interest in multiple personality and other dissociative disorders. Hilgard was critical of the excesses of the "dissociative disorders" movement, just as he had been critical of the earlier excesses of dissociation theory. Still, in this way, his scholarly career came full circle. He was also an early exponent of experimental psychopathology, seeing it as a research enterprise that would unite the study of normal mental processes with abnormal mental processes, as well as basic with applied psychology and scientific with professional work. He consistently sought clinical material that would contribute to

psychological theory. In the 1930s, long before the advent of behavior analysis and behavior therapy, he applied conditioning techniques to the assessment of both organic and functional psychological disorders. He and his colleagues successfully treated a case of hysterical paralysis by classical conditioning and published studies of lesions in the striate cortex of monkeys that anticipated the later discovery of "blindsight." The second edition of *Theories of Learning* construed Freudian psychoanalysis as a learning theory, and he coedited a book of readings on *Psychoanalysis as Science* (both 1956).

Hilgard's openness to Janet and Freud epitomized his general intellectual approach, as outlined in his contribution to *A History of Psychology in Autobiography* (1974). Both, like Jack's principal models, James and McDougall, were avid psychologizers. Hilgard took his ideas where he found them, without prejudice, and their proof was pragmatic—not so much whether they were true but whether they led inquiry in interesting new directions. Hilgard had a real talent for understanding other theorists' proposals, even when their exposition (or, for that matter, their ideas) was muddy, and he had a real facility for seeing the relations among ideas. Hilgard disparaged eclecticism as diffuse and unparsimonious, but he was even more deeply suspicious of monoideist theories that missed more than they hit of what was really interesting about experience and behavior and of finished systems in science that led to exaggerated claims and premature closure. As a scientist, he promoted the virtues of open inquiry, and he approached research with a sense of wonder before the unknown. He preferred to discover scientific laws rather than enforce them.

Although his research ranged from the eye-blink response in dogs to the hidden observer in hypnosis, there is a core theme that runs through his research from the first paper to the last: a desire to understand the motivational processes involved in planning, choice, and voluntary behavior. His earliest research showed that conditioned reflexes could be voluntarily controlled, and his last research demonstrated how control could be relinquished in hypnosis and other dissociative states.

In addition to his scholarly activities, Hilgard's career was marked by a lifetime of service to psychology and the public. As an undergraduate and graduate student, he was involved on the national level with the YMCA; later, he was a supporter of teachers' unions and was involved in both the Consumer's Union and the American Civil Liberties Union (during the 1950s, he had an unpleasant but brief brush with McCarthyism). During World War II, he was posted to the Office of War Information, first in the Domestic Branch and later in the Bureau of Overseas Intelligence; he also conducted consumer surveys for the Office of Civilian Requirements. Afterward, he advised General MacArthur on the reorganization of the Japanese school system and served as an educational

consultant in West Berlin and at Hebrew University, Jerusalem. As dean of the Graduate Division, he helped establish the Center for Advanced Study in the Behavioral Sciences at Stanford. He helped the Ford Foundation develop its programs in the behavioral and social sciences and served on the National Advisory Mental Health Council, which oversees the National Institute of Mental Health. He chaired the committee that wrote the new constitution and bylaws merging the American Psychological Association (APA) with the American Association of Applied Psychology. He was one of the founders of Annual Reviews, Inc., nonprofit publishers of the *Annual Review of Psychology*, among other such volumes, and served as its board president for many years.

Hilgard received almost every honor that can come to a psychologist, including the Warren Medal of the Society of Experimental Psychologists (1940) and the presidency of the APA (in 1949). He also served as president of the Society for the Psychological Study of Social Issues (1944) and of Division 26 (History of Psychology) of the APA (1981). He was an Honorary Fellow of the British Psychological Society. Hilgard was elected to the Society of Experimental Psychologists (of which he was chairman in 1972), the National Academy of Sciences, the National Academy of Education, the American Academy of Arts and Sciences, and the American Philosophical Society. In 1972, he received the Wilbur Cross Award from Yale University, recognizing distinction among those who held graduate degrees from that institution, and the National Academy of Sciences Award for Scientific Reviewing (1984). In 1969, Hilgard received the Distinguished Scientific Contribution Award from the APA and, in 1978, the Gold Medal of the American Psychological Foundation for "scientific contributions to nearly every field of psychology." In 1991, more than 20 years after his formal retirement in 1969, he was listed by the *American Psychologist* as one of the 10 most important contemporary psychologists. In 1994, he was recognized by the APA for outstanding lifetime contributions to psychology. He received honorary degrees from Centre College, Colgate University, Kenyon College, Northwestern University, and the University of Oslo.

Within the hypnosis community, Jack Hilgard served as president of Division 30 (Psychological Hypnosis) of the APA (1970), the International Society of Hypnosis (1973-1976), and the Society of Clinical and Experimental Hypnosis (1979-1981). In recognition of his contributions to the field of hypnosis, he received the Franklin Gold Medal of the International Society of Hypnosis (1980) and the Division 30 Award for Distinguished Contributions to Scientific Hypnosis (1993); he also saw several hypnosis awards named after Josie and/or himself.

Jack Hilgard's career spanned the development of psychology as both a science and a profession, and both the science and the profession were importantly shaped by his influence. He made it possible for the rest of

us to do hypnosis research and for that research to be published in the world's leading journals of psychology and medicine. There will never be another like him. All we can do is try to follow his example.

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