both the general reader and a diverse audience of specialists should be attracted by it. Regrettably, it is overpriced.

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Shaping a Discipline

Clinical Psychology as Science and Profession. A Forty-Year Odyssey. DAVID SHAKOW. Aldine, Chicago, 1969. xiv + 354 pp. $12.50. Modern Applications in Psychology.

For two decades almost all candidates for the Ph.D. in clinical psychology in this country have followed a four- or five-year graduate curriculum designed to prepare them for *both* research and clinical service. This basic educational design, the result of a unique attempt to affect the character of a burgeoning postwar discipline, is to a large extent the brainchild of the author of these collected essays. Shakow is a senior research scientist at the National Institute of Mental Health and erstwhile chief of its Laboratory of Psychology; prior to his service with the federal government, he was chief psychologist and director of psychological research at Worcester State Hospital and held research and teaching positions at the University of Illinois and the University of Chicago. He is not only a major architect in the shaping of clinical psychology but also a major investigator of psychopathology and a major contributor to the evaluation of Freud, having co-authored with David Rapaport *The Influence of Freud on American Psychology* (1964).

The present volume is a collection of 27 of Shakow's papers, the earliest—"An internship year for psychologists"—dated 1938, the latest a perceptive and only gently barbed 1968 paper "On the rewards (and, alas, frustrations) of public service." His 60 or so research papers are published elsewhere.

Those who are familiar with the development of clinical psychology are likely to appreciate the high drama and frequent audacity represented in this collection. Over the years, Shakow successively took on institutional psychiatry, the research-oriented university departments of psychology, and the American Psychoanalytic Association, among others. His weapons were of a piece with his principles. Although he was constantly arguing for clinical psychology, exactly the same principles he fought for could be applied with profit to the other mental health disciplines. With calm logic and candor, he espouses a clinical psychology devoted to the welfare of the patient, to the imperative need for more knowledge, and to the ultimate improvement of society. It is the quality of the research, the quality of the student, and the quality of the practitioner, not the aggrandizement of his own discipline, that occupy him in these essays.

The occasion for drama lay in the attempts of clinical psychology, encouraged by its wartime expansion, to intrude into some parts of the mental health field which until then had largely been the property of psychiatry. No entrenched profession, and perhaps least of all medicine with its proprietary albeit genuine concern for the health of its patients, welcomes competition from an untested stranger. Shakow's papers describing the qualifications of the clinical psychologist for both research and practice informed many psychologists as well as psychiatrists about the rapidly developing new discipline.

His interest in educating clinical Ph.D.'s for both research and service first appears in his 1938 paper and continues through his evaluation of a national conference held in 1965. That conference again reaffirmed the need for such double preparation. Many academic psychologists had been anything but happy when a committee of the American Psychological Association, chaired by Shakow, issued a report in 1947 recommending the combined training. Nonetheless, the principle was adopted officially by the APA in 1949, and it has been followed in one fashion or another by most of the major American universities which offer Ph.D.'s in psychology (now numbering over 70). The principle is still under attack, but its opponents encounter difficulty trying to outline a curriculum for any kind of psychologist in the latter half of the 20th century which omits a background in research.

The great need for research in psychoanalysis was the basis for Shakow's 1962 paper, "Psychoanalytic education of behavioral and social scientists for research," in which he challenged an earlier edict of the psychoanalysts that excluded all but M.D.'s from training analyses in their institutes. He won.

In order to forestall some chiding from the author, I must hasten to insist that his battles were not fought single-handed but with considerable help from psychiatrists and psychoanalysts, as well as his fellow psychologists. He may also object to the word "audacity" as used above. The only impassioned word in his book is "illegitimati," which Shakow refuses to apply to government bureaucrats on the grounds that it accurately describes only bureaucratic *settings* and *acts*.

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Numerals and Languages

Number Words and Number Symbols. A Cultural History of Numbers. KARL MENNINGER. Translated from the revised German edition (Göttingen, 1958) by Paul Broneer. M.I.T. Press, Cambridge, Mass., 1969. xiv + 482 pp., illus. $15.

Menninger's *Zahlwort und Ziffer* was first published at Breslau in 1934. A much expanded and more lavishly illustrated revised edition appeared in two volumes at Göttingen in 1957–1958 (it was reviewed by D. J. Struik in *Mathematical Reviews* **19**, 517–18 [1958] and **20**, 804 [1959]). The first volume, subtitled "Number Sequence and Number Language," is devoted primarily to a linguistic analysis of counting and numerical word formations somewhat similar to, but broader than, the article by A. Seidenberg on "The ritual origin of counting" (*Archive for History of Exact Sciences* **2**, 1–40 [1962]). The second and stouter volume, with subtitle "Number Symbols and Calculation," describes the origins of systems of numerals and computational methods. Calculations involve integers almost exclusively, and not even the oddities of Egyptian manipulations of unit fractions are included. These two absorbing volumes now have been combined into an English version in a single oversized volume which is as attractive to the eye as to the mind. The typography is excellent, and the wide margins accommodate many of the almost 300 illustrations that grace the text. One regrets, however, that the bibliographies and the chronological table which added to the usefulness of the German edition have not been reproduced here.

The author's evident enthusiasm for his subject is well tempered by sound-