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## Explorer on the Run

Raymond B. Cattell and Frank W. Warburton (with the assistance of Fred L. Damarin, Jr. and Arthur B. Sweney)

*Objective Personality & Motivation Tests: A Theoretical Introduction and Practical Compendium.* Urbana: University of Illinois Press, 1967. Pp. xi + 687. \$20.00.

Reviewed by LEWIS R. GOLDBERG

Those few psychologists who may not know of Raymond B. Cattell, Research Professor at the University of Illinois, will be so informed in the review. Frank W. Warburton, his collaborator, is Professor of Experimental Education at the University of Manchester in England. Fred L. Damarin, Jr., a '56 Chicago PhD, worked with Cattell from 1958 to 1960 when he moved to Educational Testing Service. Arthur B. Sweney, after a '58 PhD from Houston, was at Illinois with Cattell until 1962, then went to Texas Technical College.

The reviewer, Lewis R. Goldberg, has appeared on these pages before (CP, 1964, 9, 199-201). He has remained at the University of Oregon and Oregon Research Institute, where he studies the processes involved in personality assessment, clinical judgment, and college teaching. Last year he spent his first sabbatical as a Fulbright Professor at the University of Nijmegen in the Netherlands.

THE SENIOR AUTHOR of this volume is America's (and perhaps the world's) most productive psychologist; he has averaged one book or published

test, one chapter in others' books, and 10 journal articles and/or technical reports per year, over a period of nearly 30 years. His contributions to psychology are now so enormous that the present review must be viewed as part of a continuing dialogue (see CP, 1958, 3, 323-325; CP, 1963, 8, 467-468; CP, 1966, 11, 236-238; CP, 1966, 11, 508; CP, 1967, 12, 40-41) concerning the influence (or lack thereof) of Cattell's genius on the scientific study of personality.

This book—like most of Cattell's works—is simply impossible to review sensibly in 2,000 words, for the volume contains at least two "books," both of considerable importance to psychologists studying personality and motivation. One of the "books" is a compendium of 412 tests, with descriptions of the 2,366 test scores that Cattell and his associates have derived from those tests (1 to 50 scores from each test), factor loadings of each test score (when available and above an arbitrary criterion), the psychologist's—and the subject's—test title, the appropriate age range for the test, some estimate of testing time, brief directions for test administration and scoring, a short extract of the test



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materials themselves—and, most importantly, a paragraph or two about the theory leading up to the development of the test, the rationale for its construction, and the stages of design and modification of the final test. Each test—and each of the test scores—has been given a number; five indexes list the 412 tests (a) by test number, (b) alphabetically by test title, and (c) by their manifest content, and list the 2,366 test scores (d) by variable number, and (e) by the factors on which they load. As a result of their efforts, the authors:

"... hope in launching this imperfect Compendium . . . that it will stimulate other psychologists to proceed with similar inventiveness . . . to expand the behavioral horizon of objective tests available to us for determining the dimensions of personality" (p. 6-7).

While the test compendium was put

together by Warburton (based largely on tests devised by Cattell and his associates), the other "book" within this volume is pure Cattell—plus two chapters authored by Sweney. Included within Cattell's eight chapters are three that have some major relevance to the compendium: Chap. 3 ("The System of Describing and Indexing Tests and Behavioral Variables"), Chap. 7 ("Some General Psychological Principles in the Designing of Objective Personality Tests"), and Chap. 8 ("Designing Tests for Validity against Explicit Concepts"). The remaining five chapters, dealing with general principles of personality structure and measurement (including an interesting taxonomy of tests, and Cattell's most recent views on test validity, reliability, and usefulness), really belong elsewhere if they are to be read by the audience Cattell seeks to capture.

AND they should be read! For what emerges out of these loosely organized and (seemingly) hastily prepared chapters is a glimmer of Cattell as psychology's master strategist. No one else has Cattell's scope of the entire panorama of personality structure—and few are so poor at sharing their vision of the forest with most of us who peer solely at a few trees. Virtually all previous criticism of Cattell has focused upon Cattell the tactician and has brushed aside Cattell the strategist—a fault akin to ignoring Freud on the grounds that free association is a poor measurement technique. Cattell has been roundly criticized because his efforts to chart "the whole domain of personality structure" have prevented him from focusing concerted attention on any one delimited portion of the total task. For Cattell is a broad-band psychologist, while most of his colleagues today are narrow-band ones. Cattell attempts to be psychology's Linnaeus—the great taxonomist—the sprinting explorer whose goal is the discovery of all the major sources of covariation in behavior. Cattell defends his taxonomic bent:

"The aims and values of a comprehensive, nonsubjective taxonomic scheme, expressed in concepts of wide theoretical or practical negotiability . . . are



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not merely to achieve academic neatness. On the contrary, as in the periodic table in chemistry, or, in a more abstract way, the covariation chart in psychology, we soon perceive that a valid scheme for ordering existing material or methods is commonly very fertile in producing new concepts and practical possibilities. It reveals underlying laws, suggests new principles, and permits extrapolation from existing limited elements to unrealized new combinations, which would otherwise only be found slowly and fragmentarily by the course of merely random exploration" (p. 87).

And Cattell is certainly no random explorer. For the past 30 years he has proceeded "by an explicit representative framework, combining logically possible parameters systematically, as an early geographical explorer might extrapolate a framework of latitude and longitude to be covered by his voyages in search of land . . ." (p. 74).

COMBINED with this strategic genius, however, one finds in Cattell's work some research tactics that leave much to be desired. As just one example, why should a man so enamored of objectivity in science ("replicability is the essence of scientific transactions" [p. 4]) favor judgmental—albeit "blind"—rotational procedures to analytic ones? Equally exasperating, moreover, is Cattell's writing style, that contains at least three qualities almost bound to infuriate the reader. First of all, there is Cattell's famous penchant for neologisms (e.g., "exviant," "inviant," "cortertia," "pathemia," "comention," etc.). Related to this practice is Cattell's apparent willingness to ignore

the definitions commonly used by other psychologists; for example, in an otherwise excellent discussion of test reliability, Cattell systematically interchanges the standard definitions of the terms "consistency" and "reliability" (p. 36). But perhaps the aspect of Cattellian style that most distracts his readers is his penchant for addressing snide innuendos at other psychologists, while describing with an astounding lack of humility the efforts of his own research group. Other people's work is termed "magpie research," "myopic research," "pedestrian," "bankrupt," "cut and dried," "sadly misguided," "stereotyped," "delusions," "very barren," "panaceas," and "grandiose fantasy," and their instruments are described as "favorite gadgets," "gadget measures," "toys," "parlor games," and "museum pieces." The work of Cattell and his associates, on the other hand, is handled a bit more gingerly; e.g., "It seems unlikely that any existing personality test of relevance or importance slipped through the theoretical net of our initial systematic approach" (p. 110).

Now each of us has a right to his own peccadillos, and a mind as fertile as Cattell's must be granted an extra share. But, the tragic consequence of this particular egocentricity is that Cattell becomes all the further cut off from those of us "myopic magpies" who most need his direction. As one of the many possible examples of Cattell's poignant alienation from the psychometric mainstream, let us consider the question most likely to be raised by potential users of the compendium—namely, the nature and content of the "objective tests" included within this volume.

What is an "objective test?" As the term has been used by psychologists over the past 30 years, at least three major meanings have emerged; "objective" may refer to: (a) the use of some pre-selected set of response options (e.g., true-false, multiple-choice), as compared to any "open-ended" procedure; (b) the provision of some explicit scoring key, as compared to any more judgmental scoring procedure; or (c) the use of some "maximum performance" type of instructions, so that subjects can only change their "true score" in one direction (e.g., subjects might score lower than they "deserve"—as they might be motivated to do on a selective service

aptitude test—but can not [without gross cheating] score higher than their “true” score).

Since psychologists have never agreed among themselves as to which of the three criteria constitutes a definition of an objective test, a good deal of the banter about such tests in the psychometric literature has been somewhat less than clarifying. And Cattell may have added to the confusion by explicitly rejecting *all three* criteria. To Cattell, a test—objective or otherwise—may be defined as “. . . an artificial, portable, standardized situation, which the subject recognizes as such and voluntarily enters, agreeing to respond (by a mental set) within specified qualities of response limit set by instructions, and the responses to which are measured or classified according to rules agreed upon by psychologists and capable of giving an acceptable consensus in scoring” (p. 16). Thus, Cattell rejects criterion (b) as an essentially trivial aspect of objectivity and instead incorporates it as what he calls “conspic” or “conspicive” reliability within the definition of a test itself. Cattell also rejects criterion (a), as merely one of some 11 facets of test response (e.g., restricted vs. unrestricted, inventive vs. selective, single vs. repetitive, ordered vs. unordered, homogeneous vs. heterogeneous) by means of which *all* tests can be classified. Furthermore, in Cattell’s hands, criterion (c) suffers the same fate, being considered as simply another facet of test response, termed “natural vs. willed-limit” in his over-all test taxonomy.

Cattell defines an objective test as one on which “. . . the subject does not really (he may believe he does) know for certain in what way his behavior is being measured or what kinds of personality inference will be drawn from his test reactions” (p. 16).

“. . . the real art of the psychologist . . . is to produce the kind of test which disguises (from the subject) what it measures!” (p. 35).

Disregarding the *ethical* implications of defining the psychologist’s “art” as somehow to fool the subject—and I believe these ethical concerns are of considerable importance—let us simply examine Cattell’s definition of “objective” from a technical point of view. First of all, his definition shifts the criteria for establishing objectivity from the test materials and instructions to the introspections of each individual being tested. A test—by Cattell’s definition—is objective if the subject doesn’t know the tester’s scoring rationale; consequently, for any given test and testing session, some of the subjects may be

administered an objective test while others may not. Moreover, for any one test, some scoring keys will be objective (for some subjects) and other keys will not. Of even greater significance, Cattell’s redefinition of objectivity places the concept outside the usual domain of scientific usefulness—since most psychologists are unwilling to concede knowledge of the inner thoughts of other individuals.

On the other hand, one might argue that even if Cattell’s definition is technically and/or ethically ambiguous, it might still be true that those tests that were included in this compendium are clearly different from those that were not. One way to verify this hypothesis is to examine the content and instructions of the 412 tests—a job that few psychologists other than the authors and this reviewer are going to take the time to do. Consequently, a breakdown of the tests in terms of the authors’ classification of their “manifest content” may help the general reader:

MANIFEST CONTENT	NUMBER OF	
	TESTS	SOME EXAMPLES OF TESTS IN EACH CATEGORY
Ability tests	186	Numerical Ability; Balloon Blowing
Aesthetic tests	11	Poetic Preferences; Autistic Projection
Games (and doodles)	6	Hare & Hounds game; Poker game
Opinionnaires	39	Ideal-Self Values; Humor Test
Perceptual tests	22	Reaction Times; Hidden Pictures
Performance tests	14	Mazes; Tapping; Altruism
Physical tests	12	Body Sway; Dynamometer
Physiological tests	17	GSR; EEG; Hand Tremor
Preference tests	7	Smell Preference; Paranoid Ideas
Projection tests	17	Rorschach; Criticalness of Drawings
Questionnaires	76	Health Inventory; Self-Concept; Acquiescence
Situational tests	5	Classroom Behavior; Suspiciousness

WHILE the reader should judge for himself, it is the reviewer’s opinion that there is no simple rule that would allow someone outside Cattell’s laboratory to decide for a given test whether it is objective or not. The Rorschach, by Cattell, is objective; the MMPI, with its hundreds of different scoring keys (on not *all* of which could any subject “really know for certain what kinds of personality inference will be drawn from his test reactions”) is not. Clearly some other criterion than Cattell’s will be necessary if independent investigators are going to classify tests with even a minimal amount of “conspic reliability.”

Regardless, however, of the name (or set of names) that eventually will be ascribed to these tests, the fact that they have been collected in one volume should prove of enormous significance. In the authors’ words:

“To the basic researcher, test measurements are laboratory procedures, the ultimate aim of which is the discovery of personality structure and the precise elucidation of the laws by which personality operates and develops. As soon as a certain degree of such personality factor structure appears, manipulative (controlled) univariate and multivariate experiments become possible upon the origins, effects, and interactions of the unitary traits, provided the tests have led to valid batteries for various factors. The applied psychologist, also, desires such batteries, and in contributing to his predictions of clinical, industrial, and so on, criteria they achieve such criterion associations as add

strongly to our basic understanding of the personality factors” (p. 27).

Since the present volume completes Cattell’s trilogy of major works on personality structure (the first being Cattell’s 1957 volume, *Personality and Motivation Structure and Measurement*, and the second being the 1965 volume by Hundleby, Pawlik, and Cattell, *Personality Factors in Objective Test Devices*), the time is ripe for some intensive research on the over-all scientific utility of Cattell’s global strategy. For only by means of controlled experiments using Cattell’s “unitary traits” will we be able to test the extent to which Cattell, the global explorer, has succeeded in mapping the major features of man’s personality space.