that body projection as reflected in the D-A-P was more closely related to personality in men than in women. With self-portraits drawn from the mirror by adolescents, Stewart ⁷ found that girls' portraits were more stereotyped than those done by boys and that the same stylistic graphic variables had very different relationships to personality traits in boys and girls. He noted that the opposite poles on some drawing items were indicators of a similar personality makeup and that the distributions of stylistic variables in the population were of unusual types for which most of the popular tests of statistical significance might be inappropriate. Do these findings on self-portrait apply to the Machover technique? If it is found to be so, approaches to its validation will need modification. There is an urgency for published data on distributions of population samples on graphic variables on the D-A-P.

Since the D-A-P technique is so frequently included in diagnostic test batteries in spite of uncertainty about its reliability and validity, clinicians appear to be impressed by the extent and congruency of its contribution to the evaluation of personality. In the hands of experienced clinicians with their checking on internal consistency and weighting of evidence from various tests in the battery, there is little danger of naïve reliance upon the D-A-P. The many negative findings in the literature should make clinicians more concerned about avoiding a mechanical or reflex type of application of Machover's hypotheses to the interpretation of drawings. The user of the D-A-P test may gain greater exactness and precision in approach by following some of the recommendations made by Buck 8 in his rather overlaborious and highly quantitative approach for his House-Tree-Person test. Inexactness in the description of graphic signs, looseness in exposition of principles of interpretation, and absence of published normative data are the most formidable obstacles to placing the D-A-P technique on the firm foundation that it deserves.

For reviews by Philip L. Harriman and Naomi Stewart, see 4:111; for excerpts from related book reviews, see 4:112.

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Make A Picture Story. Ages 6 and over; 1947-52; individual; I form ('47, 22 background pictures and 67 figure cutouts); figure location sheet ('48, 4 pages); manual ('52, 96 pages, see 27 below); no data on reliability and validity; \$17 per set of test materials, 25 figure location sheets, and manual; \$2 per 25 figure location sheets; \$2.50 per manual; \$16.50 per theater (optional); postpaid; (45-90) minutes; Edwin S. Shneidman; Psychological Corporation. *

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logical Approach to the Analysis of Test Data." J Proj Tech

25:390-403 D'61. *

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The MAPS test is a thematic apperception test—a kind of do-it-yourself TAT—in which the subject makes up his own pictures and then tells stories about the pictures. The test materials consist of 22 pictorial backgrounds, including a blank card, of varying degrees of structure (a living room, a bedroom, a bathroom, a cave, a schoolroom, etc.). These pictures $(8\frac{1}{2})$ by II inches in size) are held upright in a wooden frame. The dramatis personae are 67 cutout cardboard figures—male and female adults, nudes, children, minority figures such as Negroes, Mexicans, and Orientals, animal figures, legendary and fictitious characters (e.g., Santa Claus), silhouettes, and figures with blank faces. The figures are held upright by insertion into a wooden base. The

⁷ Stewart, Louis H. "The Expression of Personality in Drawings and Paintings." Genet Psychol Monogr 51:45-103 F'55. (PA 30:628) 8 BUCK, op. cit.

examiner places a background picture before the subject and asks him to select any figures he wishes to put into the scene and to make up a story about it in much the same manner as subjects are instructed to do for the TAT. Usually not more than 10 of the scenes are used. Even then, the test is very time consuming, usually requiring from 45 to 90 minutes. A study (35) of the clinical use of the test with 64 children from ages $3\frac{1}{2}$ to 16 indicates that 12 clinicians used on the average 8 scenes, with a range from 2 to 12. The average number of figures used by the subjects was 3.9 per card.

The MAPS protocol can be subjected to various elaborate formal scoring schemes (18, the protocol is most often interpreted in a anamnestic data. holistic, impressionistic manner in much the same way as the TAT is approached. Detailed examples of how the test is interpreted by experts may be found in the book edited by Shneidman (18), the inventor of the MAPS.

Because the MAPS is much more cumbersome to use than the TAT and does not seem to yield anything substantially different from true also for the TAT.) On a set of 117 truethe kinds of psychological insights gained through the TAT, it has not gained widespread popularity as a clinical instrument. Clinicians who have acquired subjective "norms" through judges ranged from -.19 to .67, with a mean extensive use of the TAT are reluctant to take the time required to develop a "feel" for the MAPS. A nationwide survey 2 on the use of correlations with their original interpretations psychological tests in clinical practice showed that among 62 tests the MAPS ranks 26th in On a set of 100 true-false factual items from frequency of usage.

The MAPS has inspired comparatively little research. There are no satisfactory normative data (35), and, indeed, norms would be extremely difficult to establish because of the tremendous variability in the stimulus situation for every subject. Even if norms did exist, it is doubtful that they would serve any practical purpose. Normative data on the TAT, for example, are rarely referred to in clinical practice. The aim of these unstructured tests is to judge with himself 10 days later ranged from yield protocols that can act as projective materials for the play of the clinician's own intuitions. The clinician's written report of the

1 Fine, Reuben. "A Scoring Scheme for the TAT and Other Projective Techniques." J Proj Tech 19:306-9 S '55. * (PA 30:4571)

interpretation, in turn, might be regarded as projective material for the psychiatrist to whom it is addressed. The question is, how much does it really add to anyone's knowledge of the patient?

RELIABILITY AND VALIDITY. The best study of the reliability and validity of MAPS interpretation is provided by Little and Shneidman (41), who had 12 experts in the use of the MAPS perform a number of interpretive tasks on the protocols of 12 patients equally divided among the categories of psychiatrically normal, psychotic, neurotic, and psychosomatic. (Experts of the Rorschach, TAT, and MMPI performed the same tasks for comparative purposes.) The same interpretive tasks were 27, 35) which require a great deal of the carried out by 23 psychiatrists and one clinical examiner's time. In clinical practice, however, psychologist on the basis of very thorough

> The reliability was assessed in terms of the agreement among the MAPS judges and the agreement of each judge with himself when performing the same interpretive tasks on the same protocols 10 days later. In the assignment of diagnostic labels there was no greater than chance agreement among the judges. (This was false personality items typical of the statements in psychological reports, the correlations between the MAPS judges and the anamnestic of .33. The same interpretive task performed 10 days later by the MAPS judges produced ranging from .48 to .94, with a mean of .77. the patients' case histories, the MAPS judges produced correlations ranging from -.22 to .50, with a mean of .16. Correlations between interpretations performed 10 days apart ranged from .38 to .91, with a mean of .77. The judges also performed Q-sorts of 76 items typical of interpretive statements found in psychological reports. The correlations among the Q-sorts of the MAPS judges ranged from .07 to .71, with a mean of .35. The correlations of each .19 to .94, with a mean of .60. Correlations between Q-sorts of the MAPS judges and of the anamnestic judges ranged from -.39 to .53, with a mean of .13. There was an average correlation of .22 among the Q-sorts of different patients rated by the same judge, indicating that the judges tend to make their in-

² Sundberg, Norman D. "The Practice of Psychological Testing in Clinical Services in the United States." Am Psychologist 16:79-83 F '61. *

terpretations in a stereotyped manner more or less independent of the subject.

summary. The MAPS is a highly unstructured projective technique similar in purpose and product to the TAT. The inter-judge reliability of interpretations based on the MAPS is in the region of .30 to .40 for experts. The validity of interpretation is represented by correlations in the range of .10 to .20 for experts. Validity such as this, of course, is useless for individual assessment. At present there is no basis for recommending the MAPS for any practical use.

For reviews by Albert I. Rabin and Charles R. Strother, see 4:113; for excerpts from related book reviews, see 4:114.

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*Miner Sentence Completion Scale. Adults, particularly managers and management trainees; 1961-64; I form ('61, 4 pages); scoring guide ('64, 64 pages); scoring sheet ('61, I page); no data on reliability and validity; \$8.50 per set of 50 scales and 50 scoring sheets; \$2.75 per scoring guide; postpaid; specimen set not available; [30] minutes; John B. Miner; Springer Publishing Co., Inc. *

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*Minnesota Percepto-Diagnostic Test. Ages 8–15, 18–65; 1962–63; brain damage and emotional disturbances; individual; I form ('62, 6 cards and protractor); manual ('63, 33 pages, reprint of I below); separate profiles ('62, I page) for children, adults; \$3.50 per set of testing materials; \$2.50 per 50 profiles; \$2.50 per manual; postpaid; administration time not reported; G. B. Fuller and J. T. Laird; Journal of Clinical Psychology. *

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2. UYENO, ENSLEY. "Differentiating Psychotics From Organics on the Minnesota Percepto-Diagnostic Test." Abstract. J Consult Psychol 27:462 O'63. *

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The Minnesota Percepto-Diagnostic Test (MPD) utilizes two of Wertheimer's well known designs. Since each of these appears in three different orientations, the test contains a total of six stimulus figures. The subject is asked to copy the figures, as in Bender's Visual Motor Gestalt Test, and his reproductions are scored for amount of rotation.

The test rests on a theoretical rationale like that underlying Bender's test, but its aim is

the more limited one of differentiating such broad diagnostic classes as organic brain damage, functional disturbance, and clinical normality. To further this aim, the authors have focused on the score variable which offers greatest promise and, in the course of systematic research, have selected the figures yielding best discrimination in terms of this variable. Obvious virtues of the test are a well standardized procedure, simplicity and brevity of administration, and an objective scoring system.

The manual does not purport to provide research findings in detail, but the details it does provide are sometimes misleading. In places, impressive significance levels are cited without the information on statistical procedures, specific comparisons made, and subgroup sample sizes that the reader would need to attach a clear meaning to the probabilities. In the summaries of two preliminary studies, critical scores devised for differential prediction are presented, without proper designation, in lieu of the data from which they are derived. The reader is thereby given the false impression that, without exception, "organics rotated 60 degrees or more, those with a personality disturbance both psychotic and neurotic, rotated from 21 to 59 degrees, and normals rotated under 21 degrees." The critical scores themselves may be appropriate, depending on what errors of diagnostic classification one seeks to minimize, but the manual would have been strengthened by a separate section dealing with the rationale and procedures employed in their derivation. A questionable bit of statistical logic appears in the discussion of a table presumably consisting of correlations (the statistic itself not being explicitly identified). Here the authors suggest that a high and significant relationship between rotation and IQ may be an artifact attributable to the narrow range of intelligence in the sample.

The usefulness of the manual as a whole could have been increased by more careful editing. Here and there, communication is hampered by oddities of grammar and expression. ("Correlations in terms of one score being compared to a retest score lowers the statistical relationship" and "The protractor placed on the base line would have the line extend through degree 90.") Both in the body of the text and in a table, a *positive* value of .40 is reported for the correlation between rotation and IQ in a normal sample. Yet it is stated that