

PSYCHOLOGY

Chairman: ROBERT BRUCE, Wabash College

G. A. Zirkle, Hanover College, was elected chairman for 1951.

ABSTRACTS

Hoarding in the white rat under isolation and group conditions. V. H. DENENBERG, Purdue University.—Sixteen male CF Wistar rats, reared under group conditions and ranging in age from 43 to 57 days at the start of the experiment, were the subjects. The rats were randomly divided into four groups and allowed to hoard under four different sequences of isolation and group conditions (I-I-G-G; G-G-I-I; I-G-I-G; and G-I-G-I) for a period of twenty consecutive days. The rats were fed a deprivation diet of two Purina Dog Chow pellets per day during the experimental trials.

The purpose of the experiment was to investigate two opposing hypotheses of hoarding—Morgan's "deficit hypothesis" which states that there is competition between eating and hoarding, and Bindra's hypothesis which maintains that the same factors which influence eating also influence hoarding—and also to determine whether there was differential hoarding as a function of the different sequences of isolation and group conditions.

An analysis of variance technique was used to analyze the data. It was found that the rats hoarded significantly more under isolation conditions than group conditions. It is suggested that this result was due to social facilitation of eating under group conditions. It was concluded that when deprivation is used as the motivating variable, there is competition between eating and hoarding and the results are interpreted as lending support to Morgan's hypothesis.

It was also found that there was a significant increase in the number of pellets hoarded under the second group condition as compared to the first one. It is suggested that this increase was due to "emotional adjustment" of the rats.

Generalization of a muscle action potential response to tonal duration. JOHN B. FINK, Indiana University.—*Problem:* To investigate the stimulus generalization gradient, when the stimulus is tone, varied in the dimension of duration, and the dependent variable is a muscle action potential of the extensor digitorum muscle of the preferred arm.

Subjects: Twenty-five students with one year or less of psychology courses.

Procedure: Ss were presented with three series of tones. In

Series I, a control series designed to determine the extent to which size of action potential is a function of tonal duration before training, three presentations each of five durations were given randomly; i.e. fifteen presentations in all. The durations were 2.0, 2.25, 2.5, 3.0 and 4.0 seconds. Series II was a training series in which ten presentations of the 2-second duration were given. In Series I and II, Ss were instructed to press key at every presentation. In Series III, the experimental series, ten presentations each of both the 2-second tone and one of the five test durations was given to each S. In this series, Ss were instructed to press key only when tones like those in Series II were presented.

Results: (1) Analysis of variance for action potential response measures in Series I indicated that for durations between two and four seconds muscle action potential did not seem to be a function of tonal duration before training. (2) Analysis of variance for response measures in Series III indicated that for durations between two and four seconds, action potential was a declining function of difference between test duration and training duration. (3) By treating the action potential responses at the various stimulus durations as normal distributions, and by locating a "critical pressing value" in the first of these, it was possible to predict, very closely, the per cent of key pressings for the other durations. This suggests that there are responses which form a stimulus generalization gradient, these being only occasionally (when they are large enough) manifest as overt responses.

Implications for psychotherapy as derived from learning theory. LEE GUREL, Purdue University.—The aim of this paper is roughly twofold: (1) to point up the often cited need for research into the nature of therapy and therapeutic techniques; to propose as a medium for this study those learning and behavior theories both known to general psychology and those in need of further elucidation and formulation; to cite the values of this medium and give examples of its applicability; and (2) within the framework tentatively outlined, to point out some of the assumptions involved in our therapeutic practice and theory; to examine some of the implications of these assumptions; to suggest further hypotheses and how they might be clarified; and finally, to examine some of the current points of disagreement among therapists of divergent orientations.

Investigations of the behavior of *Paramecium aurelia*: I. Modification of behavior after training with reinforcement. B. GELBER, Indiana University.—It was the purpose of this study to investigate learning in a protozoan by the use of a more or less classical design which had yielded adequate results with metazoa. Two experiments are reported. For each experiment, 12 cultures of about 128 homozygous *Paramecium aurelia* each were divided into 2 groups of 6 cultures each. In each case, an experimental culture was matched by a control culture of heredity and environment as close to identical as possible. In Experiment I, 6 cultures were given 40 training trials with one third periodic

reinforcement under hunger motivation, while matching cultures in each instance were given no training. Training trials consisted in lowering a platinum wire into the culture for 15 seconds, with 25 seconds between trials. Reinforcement consisted in wiping a very small amount of food or bacterial suspension on the wire before it was lowered. Experiment II was the same as Experiment I, except that no reinforcement was given during training.

Tests for learning were made by counting the number of animals which adhered to the sterile wire after it had remained in the culture for three minutes. Curves for mean responses during training of both reinforced and non-reinforced groups are shown. Final test scores for all groups are evaluated by a t test. The following conclusions are drawn:

1. Significant differences in final scores existed only in the reinforcement group, which gave a value of t significance at almost the .005 level when compared with their own controls and a value of t significant at better than the .01 level when compared with the non-reinforced group.

2. Training without reinforcement did not have any detectable effect.

3. The behavior of *P. aurelia* is modified after training with reinforcement of this sort.

Some implications of the class concept for clinical psychology. ROBERT S. ORT, Wabash College.—The training of clinical psychologists for the past several years has been chiefly in the “practical” or applied areas of psychology. This type of training has resulted in the slighting of at least two other areas of psychology. These being; social psychology and learning theory.

Psychologists and sociologists have been developing various systems for the differentiation of the American Culture into its sub-cultures. The two men that have the clearest systems to date are Warner and Centers. Centers' approach is more of an economic breakdown, whereas Warner's system is suggestive of various learning environments.

Warner sees the American Culture as consisting of six general divisions, which he has termed class. These classes are the upper-upper class, lower-upper class, upper-middle class, lower-middle class, upper-lower class, and the lower-lower class. The classes then fall into three general forms of learning environments. These learning environments often permit individuals to learn overt behavior that appears to be similar even though the individuals have learned the behavior in different learning environments. Thus a middle-class child may display aggressive behavior that is similar to the behavior that is displayed by a lower-class child. The aggressive behavior, however, is indicative of a relatively “healthy” adjustment when displayed by a lower-class individual, whereas, this same behavior is indicative of maladjustment when displayed by a middle-class child.

The same problem holds true in the attempted diagnosis of social

behavior and intelligence. From this we must conclude that clinical psychologists must have some awareness of the social structure in order to accurately diagnose behavior. The same conclusion may be reached in terms of therapy. The aggressive lower-class individual must be taught social structure since his problem does not result from lack of contact with reality, but rather from not understanding "enough" of reality. On the other hand, the aggressive middle-class individual must be supplied cues to the causes of his behavior which is not reality oriented.

The usefulness of the integration of the class concept and clinical psychology has been grossly oversimplified in this paper, but as a step towards such an integration the author feels that the oversimplification is justified.

Resistance to extinction of a lever pressing response in white rats as a function of number of reinforcement. L. B. WYCKOFF, Indiana University.—Six groups of white rats, on 22 hours water deprivation, were given different numbers (0, 2, 4, 6, 12 and 100) of water reinforcements for lever pressing. The animals were subjected to experimental extinction immediately following the reinforced trials. The mean numbers of responses to extinction for the six groups were 32.6, 42.1, 56.0, 77.7, 84.4, 127.6, respectively.

The relationship between resistance to extinction and number of reinforcements can be described fairly adequately by the simple growth function:

$$R = 96.6 (1 - e^{-.075n}) + 31$$

in which R represents the responses to extinction and n the number of reinforcements. A comparison of this curve with those obtained by Williams and Perin indicates that the form of the relationship between resistance to extinction and number of reinforcements is relatively independent of the kind of reinforcement used (food vs. water) and other experimental conditions which differed in these experiments. Both the data of this experiment and those of Williams' study exhibit small but possibly systematic deviations from a simple growth function which merit further investigation.