

INFLUENCE OF SOCIAL REINFORCEMENT AND THE BEHAVIOR OF MODELS IN SHAPING CHILDREN'S MORAL JUDGMENTS¹

ALBERT BANDURA AND FREDERICK J. McDONALD

Stanford University

This experiment was designed to test the relative efficacy of social reinforcement and modeling procedures in modifying moral judgmental responses considered by Piaget to be age-specific. 1 group of children observed adult models who expressed moral judgments counter to the group's orientation, and the children were reinforced with approval for adopting the model's evaluative responses. A 2nd group observed the models but received no reinforcement for matching their behavior. A 3rd group of children had no exposure to models but were reinforced for moral judgments that ran counter to their dominant evaluative tendencies. Following the treatments, the children were tested for generalization effects. The experimental treatments produced substantial changes in the children's moral judgment responses. Conditions utilizing modeling cues proved to be more effective than the operant conditioning procedure.

Most of the literature and theorizing in the area of developmental psychology has been guided by various forms of stage theories (Erikson, 1950; Freud, 1949; Gesell & Ilg, 1943; Piaget, 1948, 1954; Sullivan, 1953). Although there appears to be relatively little agreement among these theories concerning the number and the content of stages considered to be necessary to account for the course of personality development, they all share in common the assumption that social behavior can be categorized in terms of a predetermined sequence of stages with varying degrees of continuity or discontinuity between successive developmental periods. Typically, the emergence of these presumably age-specific modes of behavior is attributed to ontogenetic factors rather than to specific social stimulus events which are likely to be favored in a social learning theory of the developmental process.

The stage and social learning approaches differ not only in the relative emphasis placed

upon time schedules or reinforcement schedules in explaining the occurrence of changes in social behavior, but also in the assumptions made concerning the regularity and invariance of response sequences, and the nature of response variability. Stage theories, for example, generally stress intraindividual variability over time, and minimize interindividual variability in behavior due to sex, intellectual, socioeconomic, ethnic, and cultural differences. To the extent that children representing such diverse backgrounds experience differential contingencies and schedules of reinforcement, as well as exposure to social models who differ widely in the behavior they exhibit, considerable interindividual behavioral variability would be expected. Similarly, the sequence of developmental changes is considered in social learning theory to be primarily a function of changes in reinforcement contingencies and other learning variables rather than an unfolding of genetically programmed response predispositions.

Despite the considerable attention devoted to theoretical analyses of the learning process, a comprehensive theory of *social learning* has been relatively slow in developing. By and large, current principles of learning have been based upon investigations involving simple fractional responses which are neither social nor developmental in nature, and often

¹This investigation was supported in part by Research Grant M-5162 from the National Institutes of Health, United States Public Health Service.

The authors wish to express their appreciation to Florence Mote, Charles Carver, and Nathan Kroman for their aid in arranging the research facilities, and to Peter Gumpert for his assistance with the statistical analyses. We also wish to express our gratitude to the many students who served as experimenters and as models in this project.

with animals as subjects. Although recent years have witnessed a widespread application of learning principles to developmental psychology, the experimentation has been primarily confined to operant or instrumental conditioning of responses that are modeled on the fractional responses elicited in experimentation with infrahuman organisms (for example, manipulating plungers, pressing bars, levers, buttons, etc.). Moreover, a good deal of this research has been designed to reduce complex social learning to available simple learning principles, rather than to extend the range of principles and procedures in order to account more adequately for complex social phenomena.

It is generally assumed that social responses are acquired through the method of successive approximations by means of differential reinforcement (Skinner, 1953). The effectiveness of reinforcement procedures in shaping and maintaining behavior in both animals and humans is well documented by research. It is doubtful, however, if many social responses would ever be acquired if social training proceeded solely by this method. This is particularly true of behavior for which there is no reliable eliciting stimulus apart from the cues provided by others as they performed the behavior. If a child had no occasion to hear speech, for example, or in the case of a deaf-blind person (Keller, 1927), no opportunity to match laryngeal muscular responses of a verbalizing model, it would probably be exceedingly difficult or impossible to teach a person appropriate linguistic responses.

Even in cases where some stimulus is known to be capable of eliciting an approximation to the desired behavior, the process of learning can be considerably shortened by the provision of social models (Bandura & Huston, 1961; Bandura, Ross, & Ross, 1961, 1963). Thus, in both instances, imitation of modeling behavior is an essential aspect of social learning.

In the experiment reported in this paper a social learning theory combining the principles of instrumental conditioning and imitation was applied to a developmental problem that has been approached from a stage point of view.

According to Piaget (1948), one can distinguish two clear-cut stages of moral judgment demarcated from each other at approximately 7 years of age. In the first stage, defined as *objective responsibility*, children judge the gravity of a deviant act in terms of the amount of material damages, and disregard the intentionality of the action. By contrast, during the second or *subjective responsibility* stage, children judge conduct in terms of its intent rather than its material consequences. While these stages are predetermined (for example, Piaget reports that young children are relatively incapable of adopting a subjective orientation and he was unable to find a single case of objective morality in older children), the factors responsible for the transition from one stage to the other are not entirely clear. Presumably, the principal antecedent of objective judgmental behavior is the "natural spontaneous and unconscious egocentrism" of child thought reinforced to some extent by adult authoritarianism, which produces submissiveness and preoccupation with external consequences. As the child matures, however, he gains increasing autonomy, his relationships become based upon mutual reciprocity and cooperation giving rise to the emergence of subjective morality.

The purpose of the present investigation was to demonstrate that moral judgment responses are less age-specific than implied by Piaget, and that children's moral orientations can be altered and even reversed by the manipulation of response-reinforcement contingencies and by the provision of appropriate social models.

In this experiment children who exhibited predominantly objective and subjective moral orientations were assigned at random to one of three experimental conditions. One group of children observed adult models who expressed moral judgments counter to the group's orientation and the children were positively reinforced for adopting the models' evaluative responses. A second group observed the models but the children received no reinforcement for matching the models' behavior. The third group had no exposure to the models but each child was reinforced whenever he expressed moral judgments that

ran counter to his dominant evaluative tendencies. Thus the experimental design permitted a test of the relative efficacy of social reinforcement, the behavior of models, and these two factors combined in shaping children's moral judgments.

It was predicted, for reasons given in the preceding sections, that the combined use of models and social reinforcement would be the most powerful condition for altering the children's behavior and that the provision of models alone would be of intermediate effectiveness. Since the presence of a strong dominant response limits the opportunity for reinforcement of an alternative response which is clearly subordinate, it was expected that social reinforcement alone would be the least effective of the three treatment methods.

METHOD

Subjects

A total of 78 boys and 87 girls ranging in age from 5 to 11 years served as subjects in various phases of the study. They were drawn from two sources, a Jewish religious school and an elementary public school serving predominantly middle-class communities. The research was conducted on week ends in the religious school and on weekdays in the public school facility. Female students from Stanford University served in the roles of experimenters and models.

Stimulus Items

Following the procedure employed by Piaget (1948), the children were presented with pairs of stories each of which described a well-intentioned act which resulted in considerable material damage, contrasted with a selfishly or maliciously motivated act producing minor consequences. The children were asked to judge, "Who did the naughtier thing?" and to provide a reason for their choice. An illustrative stimulus item, taken from Piaget, is given below:

1. John was in his room when his mother called him to dinner. John goes down, and opens the door to the dining room. But behind the door was a chair, and on the chair was a tray with fifteen cups on it. John did not know the cups were behind the door. He opens the door, the door hits the tray, bang go the fifteen cups, and they all get broken.

2. One day when Henry's mother was out, Henry tried to get some cookies out of the cupboard. He climbed up on a chair, but the cookie jar was still too high, and he couldn't reach it. But while he was trying to get the cookie jar,

he knocked over a cup. The cup fell down and broke.

Six of the story items employed in the present experiment were identical with those developed by Piaget except for minor modifications in wording or content to make the story situations more appropriate for American children. In addition, a set of 36 new paired items was devised to provide a sufficient number of stories so as to obtain a fairly reliable estimate of children's moral judgments at three different phases of the experiment, i.e., base operant test, experimental treatment, and posttest. In each of these story situations which were modeled after Piaget's items, intentionality was contrasted with serious consequences. These items were carefully pretested on a sample of 30 children in order to clarify any ambiguities, to gauge the children's interpretations of the seriousness of the depicted consequences, and to remove any irrelevant cues which might lead the children to judge the depicted actions in terms other than intentions or consequences.

Except for the assignment of the six Piaget items to both the operant test and the posttest set, for reasons which will be explained later, the remaining stories were distributed randomly into three different groups.

Design and Procedure

A summary of the overall experimental design is presented in Table 1.

Operant level of objective and subjective responses. In the first phase of the experiment, the children were individually administered 12 pairs of stories to furnish measures of the operant levels of objective and subjective moral judgments at the various age levels. These data provided both a check on Piaget's normative findings and the basis for forming the experimental treatment groups.

Experimental treatments. On the basis of operant test performances, 48 children who were decidedly subjective in their moral orientation (Mean percentage of subjective responses = 80), and 36 who gave high base rates of objective responses (Mean percentage of objective responses = 83) were selected from the total sample to participate in the second and third phases of the experiment. The children in each of the two classes of moral orientation were equally divided between boys and girls. They were also further categorized into younger and older children and then assigned at random to one of three experimental treatment conditions. Thus the experimental groups were balanced with respect to age and sex of child.

In the *model and child reinforced condition*, both the model and the child were administered alternately 12 different sets of story items with the model receiving the first story, the child the second one, and so on. To each of the 12 items, the model consistently expressed judgmental responses in opposition to the child's moral orientation (for example, objective responses with subjective children,

TABLE 1
SUMMARY OF THE EXPERIMENTAL DESIGN

Experimental groups	Step 1 Assessment of operant level of objective and subjective moral responses	Step 2 Experimental treatments	Step 3 Posttreatment measurement of subjective and objective moral responses with models and reinforcement absent
Subjective moral orientation I (<i>N</i> = 16)	Step 1	Model emits objective responses and positively reinforced; child reinforced for objective responses.	Step 3
II (<i>N</i> = 16)	Step 1	Model emits objective responses and positively reinforced; child not reinforced for objective responses.	Step 3
III (<i>N</i> = 16)	Step 1	No model present; child reinforced for objective responses.	Step 3
Objective moral orientation IV (<i>N</i> = 12)	Step 1	Model emits subjective responses and positively reinforced; child reinforced for subjective responses.	Step 3
V (<i>N</i> = 12)	Step 1	Model emits subjective responses and positively reinforced; child not reinforced for subjective responses.	Step 3
VI (<i>N</i> = 12)	Step 1	No model present; child reinforced for subjective responses.	Step 3

and vice versa), and the experimenter reinforced the model's behavior with verbal approval responses such as "Very good," "That's fine," and "That's good." The child was similarly reinforced whenever he adapted the model's class of moral judgments in response to his own set of items. To control for any intermodel variability in length or content of evaluative responses, the subjective and objective answers for the models' test items were prepared in advance.

The procedure for children in the *model reinforced, child not reinforced condition*, was identical with the treatment described above with the exception that the children received no reinforcement for matching the moral judgment responses of their respective models.

In the *model absent, child reinforced condition*, no model was present; the experimenter simply administered the 24 story items to the child and reinforced him with verbal approval whenever he produced an evaluative response that ran counter to his dominant orientation.

The time elapsing between the operant testing and the experimental phase of the study ranged from 1 to 3 weeks with the majority of the children receiving the experimental treatment after a 2-week period.

A total of nine experimenter-model pairs participated in the treatment phase of the experiment. To control for possible differences in experimenter or model influences across conditions or sex groups,

each pair was assigned groups of subjects in triplets, i.e., boys and girls taken from each of the three treatment conditions.

Students who served as the experimenters' assistants brought the children individually from their classrooms to the experimental session and introduced them to their experimenters. The experimenter explained that she would like to have the child judge a second set of stories similar to the ones he had completed on a previous occasion. In the conditions involving the presence of models, the experimenter further explained that she was collecting normative data on a large sample of people, including both children and adults, and to expedite matters she invited the adult subjects to appear at the school so that the items could be administered to both groups simultaneously. To add to the credibility of the situation, the experimenter read to the model the same instructions the child had received in the operant test session, as though the model was a naive subject. The experimenter then read the story situations to the model and the child who were seated facing the experimenter, delivered the social reinforcement whenever appropriate, and recorded the responses.

It was found in the preliminary pretesting of the stories that they were sufficiently structured with respect to the intentionality-consequences dichotomy so that children's identification of the naughtier story character was virtually a perfect predictor

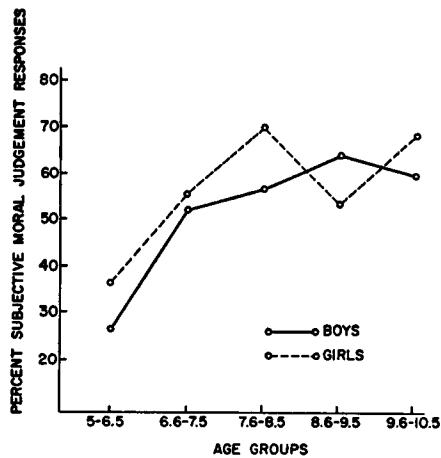


FIG. 1. Mean percentage of subjective moral judgment responses produced by boys and girls at different age levels.

that the children would provide the corresponding subjective or objective reasons for their choices. Since there is some evidence that reinforcement given immediately is considerably more effective than when delayed (Mahrer, 1956), the reinforcement value of the experimenter's approval would have been considerably reduced if administered following the children's explanations, not only because of the delay involved but also because many responses, some relevant others irrelevant, occur during the intervening period, thus making it difficult to specify the behavior being reinforced. For this reason, the experimenters reinforced the children immediately following correct choice responses, and again after they gave the appropriate explanations.

The measure of learning was the percentage of objective judgmental response produced by the subjective children and the percentage of subjective responses performed by the objectively oriented subjects.

Posttest. Following the completion of the treatment procedure, the child reported to another room in the building. Here a second experimenter presented the child with 12 additional stories to obtain further information about the generality and stability of changes in judgmental responses when models and social reinforcement were absent. The experimenter simply read the stories to the child and recorded his verbal responses without comment.

In view of Piaget's contention that moral judgments are age-specific and considerably resistant to out-of-phase changes, it was decided to repeat, in the posttest, the Piaget items included in the set of operant test stories. If the interpolated social influence experience succeeded in altering children's evaluative responses, such findings would throw

considerable doubt on the validity of a developmental stage theory of morality.

Different sets of experimenters conducted each of the three phases of the study, with a total of 10 experimenters participating in the posttesting. The utilization of different rooms and different sets of experimenters provided a more stringent test of generalization effects than if the same experimenters had been used through the investigation.

The experiment was concluded with a brief interview designed to assess the child's awareness of the behavior exhibited by the model, the social reinforcers administered by the experimenter, and the response-reinforcement contingency in the experimental situation.

RESULTS

Since the data disclosed no significant differences in operant levels or in responsivity to the social influence procedures for children drawn from the two different school settings, the data were combined in the statistical analyses.

Judgmental Responses as a Function of Age

The mean percentage of subjective moral judgment responses for boys and girls at 1-year intervals are presented in Figure 1. The normative data based on the present sample of children show that subjectivity is positively associated with age ($F = 4.84$, $p < .01$), but unrelated to sex differences at any age level. It is evident from these findings, however, that objective and subjective

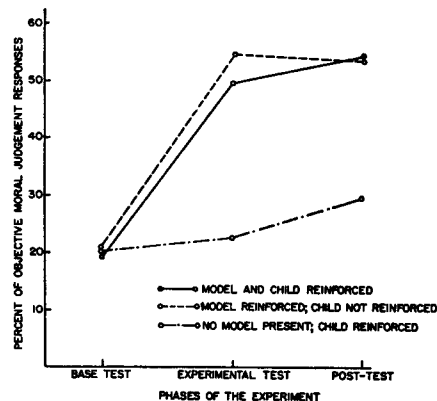


FIG. 2. Mean percentage of objective moral judgment responses produced by subjective children on each of the three test periods for each of three experimental conditions.

judgments exist together rather than as successive developmental stages. Most young children were capable of exercising subjective judgments, and a large majority of the older children exhibited varying degrees of objective morality.

Influence of Reinforcement and Modeling Cues

Figure 2 presents the curves for the acquisition and the generalization of objective moral judgment responses by subjective children in each of the three experimental conditions.

Results of the analysis of variance performed on these data are summarized in Table 2. The main effects of experimental conditions and phases, as well as their interaction effects, are highly significant sources of variance. Further comparisons of pairs of means by the *t* test reveal that subjective children who were exposed to objective models, and those who were positively reinforced for matching their models moral judgments, not only modified their moral orientations toward objectivity, but also remained

TABLE 2
ANALYSIS OF VARIANCE OF OBJECTIVE MORAL JUDGMENT RESPONSES PRODUCED BY SUBJECTIVE CHILDREN

Source	df	MS	F
Conditions (C)	2	5,226.2	3.24*
Sex (S)	1	1,344.4	<1
C × S	2	3,671.4	2.28
Error (b)	42	1,612.1	
Phases (P)	2	9,505.8	35.46**
P × C	4	1,430.3	5.34**
P × S	2	203.8	<1
P × C × S	4	747.6	2.79*
Error (w)	84	268.1	

* *p* < .05.
** *p* < .001.

objectively oriented in their post-experimental judgmental behavior (Table 3).

The provision of models alone, however, was as effective in altering the children's moral judgments as was the experimental condition combining modeling cues with social reinforcement. As predicted, the experimental conditions utilizing modeling procedures proved to be considerably more powerful than

TABLE 3
COMPARISON OF PAIRS OF MEANS ACROSS EXPERIMENTAL PHASES AND BETWEEN TREATMENT CONDITIONS

Scores	Base Test versus Experimental Phase	Base Test versus Posttest	Experimental Phase versus Posttest
	<i>t</i>	<i>t</i>	<i>t</i>
Within conditions			
Objective treatment			
Model and Reinforcement	5.31****	5.74****	<1
Model	5.84****	5.74****	<1
Reinforcement	<1	1.52	<1
Subjective treatment			
Model and Reinforcement	3.12***	3.09**	<1
Model	4.10***	2.69*	1.87
Reinforcement	2.04	<1	1.99
	Model + Reinforcement versus Model	Model + Reinforcement versus Reinforcement	Model versus Reinforcement
Between conditions			
Objective treatment			
Experimental phase	<1	2.81**	3.34****
Posttest	<1	2.68**	2.61**
Subjective treatment			
Experimental phase	<1	1.11	1.13
Posttest	<1	2.81**	2.15*

* *p* < .05.
** *p* < .02.
*** *p* < .01.
**** *p* < .001.

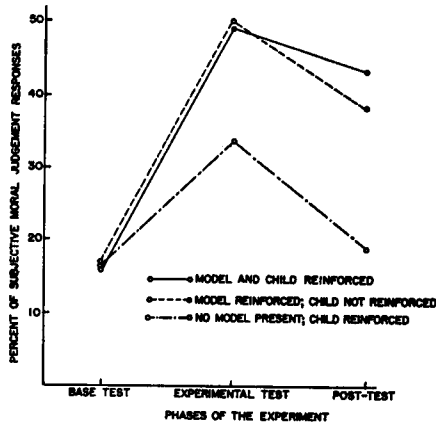


FIG. 3. Mean percentage of subjective moral judgment responses produced by objective children on each of three test periods for each of three experimental conditions.

was operant conditioning alone, which produced a slight increase in objective judgmental responses but not of statistically significant magnitude (Table 3).

Some additional evidence for the efficacy of the behavior of models in accelerating the acquisition process is provided in the finding that only 9% of the children who were exposed to the objective models failed to produce a single objective response; in contrast, 38% of the subjects in the operant conditioning group did not emit a single objective response despite obtaining twice as many acquisition trials.

The significant triple interaction effect shows that modeling combined with reinforcement exerted a greater influence on girls than on boys whereas, relative to girls, boys were more responsive to modeling cues when reinforcement was absent.

The acquisition and generalization data for objective children treated subjectively are presented graphically in Figure 3.

Analysis of variance of this set of scores reveals that the experimental treatments were highly influential in modifying the children's orientations from objective to subjective morality (Table 4). Although the differences between the three experimental groups did not reach statistical significance, evidently

the two conditions utilizing modeling procedures were the principal contributors to the main treatment effect. Comparison of pairs of means across phases yielded no significant differences for the operant conditioning group. The modeling conditions, on the other hand, produced significant and relatively stable increases in subjective moral judgment responses (Table 3).

DISCUSSION

The results of the present study provide evidence that subjective morality increases gradually with age, but fail to substantiate Piaget's theory of demarcated sequential stages of moral development. Children at all age levels exhibited discriminative repertoires of moral judgments in which both objective and subjective classes of responses exist concurrently. A recent study by Durkin (1961) provides some additional support for the specificity of children's moral judgment behavior.

The utility of Piaget's stage theory of morality is further limited by the finding that children's judgmental responses are readily modifiable, particularly through the utilization of adult modeling cues.

In most experimental demonstrations of modeling effects the model exhibits a given set of responses and the observer reproduces these responses in substantially identical form in similar or identical stimulus contexts (Bandura, 1962). The findings of the present study reveal, however, that a general class

TABLE 4
ANALYSIS OF VARIANCE OF SUBJECTIVE MORAL JUDGMENT RESPONSES PRODUCED BY OBJECTIVE CHILDREN

Source	df	MS	F
Conditions (C)	2	1,869.2	1.76
Sex (S)	1	2,821.3	2.66
C × S	2	208.6	<1
Error (b)	30	1,059.9	
Experimental phases (P)	2	7,057.5	16.38**
P × C	4	422.1	<1
P × S	2	99.4	<1
P × C × S	4	132.9	<1
Error (w)	60	430.9	

** $p < .001$.

of behavior may be readily acquired through observation of social models and consequently, the observer responds to new stimulus sensations in a manner consistent with the model's predisposition even though the subject had never observed the model respond to the same stimuli. These results illustrate the potency of modeling cues for shaping generalized patterns of social behavior.

The failure of operant conditioning procedures alone in altering moral judgment behavior is not at all surprising considering that the desired responses were much weaker than the competing dominant class of moral judgments. In many cases, particularly in the objective treatment condition, the subordinate responses occurred relatively infrequently; consequently there was little opportunity to influence them through reinforcement. In fact, the absence of a statistically significant conditions effect for children who experienced the subjective treatment largely resulted from several of the subjects in the operant conditioning group who happened to emit subjective responses on early trials and increased this behavior under reinforcement.

It is apparent, however, from both sets of data that operant conditioning procedures are particularly inefficient when there are strong dominant response tendencies and the desired alternative responses are only weakly developed or absent. In such cases, the provision of models who exhibit the desired behavior is an exceedingly effective procedure for eliciting from others appropriate matching responses early in the learning sequence and thus accelerating the acquisition process.

The results of the present study fail to confirm the hypothesis that a combination of reinforcement and modeling procedures constitutes a more powerful learning condition than modeling alone. Several factors might have accounted for the lack of differences between these two treatment conditions. In some cases the mere exposure to modeling cues produced rapid and complete changes in moral orientations and consequently the addition of reinforcement could not contribute any performance increments. This interpretation, however, does not fully account for the data since the majority of children were

not performing at or near the ceiling level. Results from a series of experiments of social learning by means of imitation provide an alternative explanation (Bandura, 1962). These studies suggest that the process of response acquisition is based upon contiguity of sensory events and that reinforcement may function primarily as a performance related variable. In the present investigation the models' responses were highly consistent and sufficiently distinctive to insure observation and imitative learning. The experimenters' positive evaluative statements, however, may have served as relatively weak reinforcers. Had more highly desired incentives been employed as reinforcing agents, it is very likely that the addition of reinforcement would have significantly enhanced the children's reproduction of the modeled judgmental orientations.

REFERENCES

- BANDURA, A. Social learning through imitation. In M. R. Jones (Ed.), *Nebraska symposium on motivation: 1962*. Lincoln: Univer. Nebraska Press, 1962. Pp. 211-269.
- BANDURA, A., & HUSTON, ALETHA C. Identification as a process of incidental learning. *J. abnorm. soc. Psychol.*, 1961, 63, 311-318.
- BANDURA, A., ROSS, DOROTHEA, & ROSS, SHEILA A. Transmission of aggression through imitation of aggressive models. *J. abnorm. soc. Psychol.*, 1961, 63, 575-582.
- BANDURA, A., ROSS, DOROTHEA, & ROSS, SHEILA A. Imitation of film-mediated aggressive models. *J. abnorm. soc. Psychol.*, 1963, 66, 3-11.
- DURKIN, DOLORES. The specificity of children's moral judgments. *J. genet. Psychol.*, 1961, 98, 3-13.
- ERIKSON, E. H. *Childhood and society*. New York: Norton, 1950.
- FREUD, S. *An outline of psychoanalysis*. New York: Norton, 1949.
- GESELL, A., & ILL, F. L. *Infant and child in the culture of today*. New York: Harper, 1943.
- KELLER, HELEN. *The story of my life*. New York: Doubleday, 1927.
- MAHRER, A. R. The role of expectancy in delayed reinforcement. *J. exp. Psychol.*, 1956, 52, 101-106.
- PIAGET, J. *The moral judgment of the child*. Glencoe, Ill.: Free Press, 1948.
- PIAGET, J. *The construction of reality in the child*. New York: Basic Books, 1954.
- SKINNER, B. F. *Science and human behavior*. New York: Macmillan, 1953.
- SULLIVAN, H. S. *The interpersonal theory of psychiatry*. New York: Norton, 1953.

(Received July 2, 1962)