

better in hypnosis than in the waking state. Weitzenhoffer has not taken such a firm stand one way or the other.

It is difficult to make any definite statement concerning the nature and essence of hypnosis with the facts available at the present time. It has been suggested, however (Hull, 1933; Weitzenhoffer, 1953), that hypnosis is a state of hypersuggestibility. What this means essentially is that a subject will respond to suggestions more easily while hypnotized than when un hypnotized; this, however, is a quantitative difference and not a qualitative difference. If this is so, then the state of hypnosis alone cannot have any effect upon performance. The combination, however, of the hypnotic state and implicit or explicit motivational instructions may be the combination of effects which influences the subjects' performance.

From the present study, it can be concluded that under the specific standardized and controlled conditions, the state of hypnosis had no significant effect on learning regardless of the subjects' degree of hypnotic susceptibility. That other studies have found different results may be attributed to differences in design and to the influence of changes in the motivational level of subjects which arose in these studies when rigid experimental methodology was not employed.

It is of interest to note that 54 of the 60 subjects stated in a post-experimental interview that they vaguely understood the nature of the research to be concerned with learning and hypnosis. Only a few of the subjects, however, reported that they had preconceived notions as to what effect hypnosis would have on performance.

A logical follow-up study would attempt to cross-validate the present results but add a positive motivational condition to the experiment. It would then be possible to assess the interaction of hypnosis and motivating instructions on verbal learning, and also to validate the notion that hypnosis is, at least in one respect, a state of hypersuggestibility.

REFERENCES

CURTIS, J. W. A study of the relationship between susceptibility and intelligence. *J. exp. Psychol.*, 1943, 33, 337-339.

- DAS, J. P. Learning under conditions of hypnotically induced anxiety and nonanxiety. *Int. J. clin. exp. Hypn.*, 1962, 10, 163-168.
- EYSENCK, H. J. An experimental study of the improvement of mental and physical functions in the hypnotic state. *Brit. J. med. Psychol.*, 1941, 18, 304-316.
- FIEDLER, F. E., LONDON, P., & NEMO, R. S. Hypnotically induced leader attitudes and group creativity. Technical Report No. 11, 1961, University of Illinois, United States Public Health Service Grant M1774.
- GLAZE, J. A. The association value of nonsense syllables. *J. genet. Psychol.*, 1928, 55, 255-267.
- HAYWOOD, H. C. Novelty seeking behavior as a function of manifest anxiety and physiological arousal. Unpublished doctoral dissertation, University of Illinois, 1961.
- HULL, C. L. *Hypnosis and suggestibility*. New York: Appleton-Century, 1933.
- HUSE, B. Does the hypnotic trance favor the recall of faint memories? *J. exp. Psychol.*, 1930, 13, 519-529.
- LONDON, P. Subject characteristics in hypnosis research: I. A survey of experience, interest, and opinion. *Int. J. clin. exp. Hypn.*, 1961, 9, 151-161.
- LONDON, P., & FUHRER, M. Hypnosis, motivation, and performance. *J. Pers.*, 1961, 29, 321-333.
- MITCHELL, M. B. Retroactive inhibition and hypnosis. *J. gen. Psychol.*, 1932, 7, 343-458.
- RAO, C. R. *Advanced statistical methods in biometric research*. New York: Wiley, 1952.
- ROSENHAN, D. L., & LONDON, P. Hypnosis: Expectation, susceptibility, and performance. *J. abnorm. soc. Psychol.*, 1963, 66, 77-81.
- ROSENTHAL, B. G. Hypnotic recall of material learned under anxiety and nonanxiety producing conditions. *J. exp. Psychol.*, 1944, 34, 369-389.
- SALZBERG, C. H. The effect of hypnotic, post-hypnotic and waking suggestion on performance using tasks varied in complexity. *Int. J. clin. exp. Hypn.*, 1960, 8, 251-258.
- SEARS, A. B. A comparison of hypnotic and waking learning of the international Morse code. *J. clin. exp. Hypn.*, 1955, 3, 215-221.
- SPENCE, K. W. *Behavior theory and conditioning*. New Haven: Yale Univer. Press, 1956.
- UHR, L. Learning under hypnosis: What do we know? What should we know? *J. clin. exp. Hypn.*, 1958, 6, 121-131.
- WEITZENHOFFER, A. M. *Hypnotism: An objective study in suggestibility*. New York: Wiley, 1953.
- WEITZENHOFFER, A. M., & HILGARD, E. R. *Stanford Hypnotic Susceptibility Scale*. Palo Alto: Consulting Psychologists Press, 1959.
- WHITE, R. W., FOX, G. F., & HARRIS, W. W. Hypnotic hypernesia for recently learned material. *J. abnorm. soc. Psychol.*, 1940, 35, 88-103.
- YOUNG, P. C. An experimental study of mental and physical functions in the normal and hypnotic state. *Amer. J. Psychol.*, 1925, 36, 214-232.

(Received July 19, 1962)

BEHAVIORAL STUDY OF OBEDIENCE¹

STANLEY MILGRAM²

Yale University

This article describes a procedure for the study of destructive obedience in the laboratory. It consists of ordering a naive S to administer increasingly more severe punishment to a victim in the context of a learning experiment. Punishment is administered by means of a shock generator with 30 graded switches ranging from Slight Shock to Danger: Severe Shock. The victim is a confederate of the E. The primary dependent variable is the maximum shock the S is willing to administer before he refuses to continue further. 26 Ss obeyed the experimental commands fully, and administered the highest shock on the generator. 14 Ss broke off the experiment at some point after the victim protested and refused to provide further answers. The procedure created extreme levels of nervous tension in some Ss. Profuse sweating, trembling, and stuttering were typical expressions of this emotional disturbance. One unexpected sign of tension—yet to be explained—was the regular occurrence of nervous laughter, which in some Ss developed into uncontrollable seizures. The variety of interesting behavioral dynamics observed in the experiment, the reality of the situation for the S, and the possibility of parametric variation within the framework of the procedure, point to the fruitfulness of further study.

Obedience is as basic an element in the structure of social life as one can point to. Some system of authority is a requirement of all communal living, and it is only the man dwelling in isolation who is not forced to respond, through defiance or submission, to the commands of others. Obedience, as a determinant of behavior, is of particular relevance to our time. It has been reliably established that from 1933-45 millions of innocent persons were systematically slaughtered on command. Gas chambers were built, death camps were guarded, daily quotas of corpses were produced with the same efficiency as the manufacture of appliances. These inhumane policies may have originated in the mind of a single person, but they could only be carried out on a massive scale if a very large number of persons obeyed orders. Obedience is the psychological mechanism that links individual action to political purpose. It is the dispositional cement that binds men to systems of authority. Facts of recent history and observation in daily life suggest

that for many persons obedience may be a deeply ingrained behavior tendency, indeed, a prepotent impulse overriding training in ethics, sympathy, and moral conduct. C. P. Snow (1961) points to its importance when he writes:

When you think of the long and gloomy history of man, you will find more hideous crimes have been committed in the name of obedience than have ever been committed in the name of rebellion. If you doubt that, read William Shirer's "Rise and Fall of the Third Reich." The German Officer Corps were brought up in the most rigorous code of obedience . . . in the name of obedience they were party to, and assisted in, the most wicked large scale actions in the history of the world [p. 24].

While the particular form of obedience dealt with in the present study has its antecedents in these episodes, it must not be thought all obedience entails acts of aggression against others. Obedience serves numerous productive functions. Indeed, the very life of society is predicated on its existence. Obedience may be ennobling and educative and refer to acts of charity and kindness, as well as to destruction.

General Procedure

A procedure was devised which seems useful as a tool for studying obedience (Milgram, 1961). It consists of ordering

¹This research was supported by a grant (NSF 17916) from the National Science Foundation. Exploratory studies conducted in 1960 were supported by a grant from the Higgins Fund at Yale University. The research assistance of Alan C. Elms and Jon Wayland is gratefully acknowledged.

²Now at Harvard University.

a naive subject to administer electric shock to a victim. A simulated shock generator is used, with 30 clearly marked voltage levels that range from 15 to 450 volts. The instrument bears verbal designations that range from Slight Shock to Danger: Severe Shock. The responses of the victim, who is a trained confederate of the experimenter, are standardized. The orders to administer shocks are given to the naive subject in the context of a "learning experiment" ostensibly set up to study the effects of punishment on memory. As the experiment proceeds the naive subject is commanded to administer increasingly more intense shocks to the victim, even to the point of reaching the level marked Danger: Severe Shock. Internal resistances become stronger, and at a certain point the subject refuses to go on with the experiment. Behavior prior to this rupture is considered "obedience," in that the subject complies with the commands of the experimenter. The point of rupture is the act of disobedience. A quantitative value is assigned to the subject's performance based on the maximum intensity shock he is willing to administer before he refuses to participate further. Thus for any particular subject and for any particular experimental condition the degree of obedience may be specified with a numerical value. The crux of the study is to systematically vary the factors believed to alter the degree of obedience to the experimental commands.

The technique allows important variables to be manipulated at several points in the experiment. One may vary aspects of the source of command, content and form of command, instrumentalities for its execution, target object, general social setting, etc. The problem, therefore, is not one of designing increasingly more numerous experimental conditions, but of selecting those that best illuminate the process of obedience from the socio-psychological standpoint.

Related Studies

The inquiry bears an important relation to philosophical analyses of obedience and authority (Arendt, 1958; Friedrich, 1958; Weber, 1947), an early experimental study of obedience by Frank (1944), studies in "authoritarianism" (Adorno, Frenkel-Brunswik,

Levinson, & Sanford, 1950; Rokeach, 1961), and a recent series of analytic and empirical studies in social power (Cartwright, 1959). It owes much to the long concern with suggestion in social psychology, both in its normal forms (e.g., Binet, 1900) and in its clinical manifestations (Charcot, 1881). But it derives, in the first instance, from direct observation of a social fact; the individual who is commanded by a legitimate authority ordinarily obeys. Obedience comes easily and often. It is a ubiquitous and indispensable feature of social life.

METHOD

Subjects

The subjects were 40 males between the ages of 20 and 50, drawn from New Haven and the surrounding communities. Subjects were obtained by a newspaper advertisement and direct mail solicitation. Those who responded to the appeal believed they were to participate in a study of memory and learning at Yale University. A wide range of occupations is represented in the sample. Typical subjects were postal clerks, high school teachers, salesmen, engineers, and laborers. Subjects ranged in educational level from one who had not finished elementary school, to those who had doctorate and other professional degrees. They were paid \$4.50 for their participation in the experiment. However, subjects were told that payment was simply for coming to the laboratory, and that the money was theirs no matter what happened after they arrived. Table 1 shows the proportion of age and occupational types assigned to the experimental condition.

Personnel and Locale

The experiment was conducted on the grounds of Yale University in the elegant interaction laboratory. (This detail is relevant to the perceived legitimacy of the experiment. In further variations, the experi-

TABLE 1
DISTRIBUTION OF AGE AND OCCUPATIONAL TYPES
IN THE EXPERIMENT

Occupations	20-29 years n	30-39 years n	40-50 years n	Percentage of total (Occupations)
Workers, skilled and unskilled	4	5	6	37.5
Sales, business, and white-collar	3	6	7	40.0
Professional	1	5	3	22.5
Percentage of total (Age)	20	40	40	

Note.—Total N = 40.

ment was dissociated from the university, with consequences for performance.) The role of experimenter was played by a 31-year-old high school teacher of biology. His manner was impassive, and his appearance somewhat stern throughout the experiment. He was dressed in a gray technician's coat. The victim was played by a 47-year-old accountant, trained for the role; he was of Irish-American stock, whom most observers found mild-mannered and likable.

Procedure

One naive subject and one victim (an accomplice) performed in each experiment. A pretext had to be devised that would justify the administration of electric shock by the naive subject. This was effectively accomplished by the cover story. After a general introduction on the presumed relation between punishment and learning, subjects were told:

But actually, we know very little about the effect of punishment on learning, because almost no truly scientific studies have been made of it in human beings.

For instance, we don't know how much punishment is best for learning—and we don't know how much difference it makes as to who is giving the punishment, whether an adult learns best from a younger or an older person than himself—or many things of that sort.

So in this study we are bringing together a number of adults of different occupations and ages. And we're asking some of them to be teachers and some of them to be learners.

We want to find out just what effect different people have on each other as teachers and learners, and also what effect punishment will have on learning in this situation.

Therefore, I'm going to ask one of you to be the teacher here tonight and the other one to be the learner.

Does either of you have a preference?

Subjects then drew slips of paper from a hat to determine who would be the teacher and who would be the learner in the experiment. The drawing was rigged so that the naive subject was always the teacher and the accomplice always the learner. (Both slips contained the word "Teacher.") Immediately after the drawing, the teacher and learner were taken to an adjacent room and the learner was strapped into an "electric chair" apparatus.

The experimenter explained that the straps were to prevent excessive movement while the learner was being shocked. The effect was to make it impossible for him to escape from the situation. An electrode was attached to the learner's wrist, and electrode paste was applied "to avoid blisters and burns." Subjects were told that the electrode was attached to the shock generator in the adjoining room.

In order to improve credibility the experimenter declared, in response to a question by the learner: "Although the shocks can be extremely painful, they cause no permanent tissue damage."

Learning task. The lesson administered by the subject was a paired-associate learning task. The subject read a series of word pairs to the learner, and then read the first word of the pair along with four terms. The learner was to indicate which of the four terms had originally been paired with the first word. He communicated his answer by pressing one of four switches in front of him, which in turn lit up one of four numbered quadrants in an answer-box located atop the shock generator.

Shock generator. The instrument panel consists of 30 lever switches set in a horizontal line. Each switch is clearly labeled with a voltage designation that ranges from 15 to 450 volts. There is a 15-volt increment from one switch to the next going from left to right. In addition, the following verbal designations are clearly indicated for groups of four switches going from left to right: Slight Shock, Moderate Shock, Strong Shock, Very Strong Shock, Intense Shock, Extreme Intensity Shock, Danger: Severe Shock. (Two switches after this last designation are simply marked XXX.)

Upon depressing a switch: a pilot light corresponding to each switch is illuminated in bright red; an electric buzzing is heard; an electric blue light, labeled "voltage energizer," flashes; the dial on the voltage meter swings to the right; various relay clicks are sounded.

The upper left-hand corner of the generator is labeled Shock Generator, Type ZLB, Dyson Instrument Company, Waltham, Mass. Output 15 Volts—450 Volts.

Details of the instrument were carefully handled to insure an appearance of authenticity. The panel was engraved by precision industrial engravers, and all components were of high quality. No subject in the experiment suspected that the instrument was merely a simulated shock generator.³

Sample shock. Each naive subject is given a sample shock on the shock generator, prior to beginning his run as teacher. This shock is always 45 volts, and is applied by pressing the third switch of the generator. The shock is applied to the wrist of the naive subject, and has its source in a 45-volt battery wired into the generator. This further convinces the subject of the authenticity of the generator.

Shock instructions. The subject is told to administer a shock to the learner each time he gives a

³ A related technique, making use of a shock generator, was reported by Buss (1961) for the study of aggression in the laboratory. Despite the considerable similarity of technical detail in the experimental procedures, both investigators proceeded in ignorance of the other's work. Milgram provided plans and photographs of his shock generator, experimental procedure, and first results in a report to the National Science Foundation in January 1961. This report received only limited circulation. Buss reported his procedure 6 months later, but to a wider audience. Subsequently, technical information and reports were exchanged. The present article was first received in the Editor's office on December 27, 1961; it was resubmitted with deletions on July 27, 1962.

wrong response. Moreover—and this is the key command—the subject is instructed to “move one level higher on the shock generator each time the learner flashes a wrong answer.” He is also instructed to announce the voltage level before administering a shock. This serves to continually remind subjects of the increasing intensity of shocks administered to the learner.

Preliminary and regular run. Pretests revealed that the procedure of reading words and administering shocks requires some practice before it can be handled smoothly. Therefore, immediately preceding the regular run, the teacher is given a preliminary series of 10 words to read to the learner. There are 3 neutral words in the practice series (i.e., words that the learner answers correctly), so that shocks are administered for 7 of the words, with the maximum shock at 105 volts (moderate shock). Almost all subjects master the procedure by the time the preliminary run is over.

Subjects are then presented with a second list, and are told that the procedure is the same as for the first list; the experimenter adds, however:

When you get to the bottom of the list, repeat it over again, and continue giving shocks, until the learner has learned all the pairs correctly.

The experimenter instructs the subject to,

start from 15 volts and increase the shock level one step each time the learner gives a wrong answer.

Feedback from the victim. In all conditions the learner gives a predetermined set of responses to the word pair test, based on a schedule of approximately three wrong answers to one correct answer. In the present experimental condition no vocal response or other sign of protest is heard from the learner until Shock Level 300 is reached. When the 300-volt shock is administered, the learner pounds on the wall of the room in which he is bound to the electric chair. The pounding can be heard by the subject. From this point on, the learner's answers no longer appear on the four-way panel.

At this juncture, subjects ordinarily turn to the experimenter for guidance. The experimenter instructs the subject to treat the absence of a response as a wrong answer, and to shock the subject according to the usual schedule. He advises the subjects to allow 5–10 seconds before considering no response as a wrong answer, and to increase the shock level one step each time the learner fails to respond correctly. The learner's pounding is repeated after the 315-volt shock is administered; afterwards he is not heard from, nor do his answers reappear on the four-way signal box.

Experimenter feedback. At various points in the experiment the subject may turn to the experimenter for advice on whether he should continue to administer shocks. Or he may indicate that he does not wish to go on. It was important to standardize the experimenter's responses to these inquiries and reactions.

If the subject indicated his unwillingness to go

on, the experimenter responded with a sequence of “prods,” using as many as necessary to bring the subject into line.

Prod 1: Please continue. or Please go on.

Prod 2: The experiment requires that you continue.

Prod 3: It is absolutely essential that you continue.

Prod 4: You have no other choice, you *must* go on.

The prods were always made in sequence: Only if Prod 1 had been unsuccessful, could Prod 2 be used. If the subject refused to obey the experimenter after Prod 4, the experiment was terminated. The experimenter's tone of voice was at all times firm, but not impolite. The sequence was begun anew on each occasion that the subject balked or showed reluctance to follow orders.

Special prods. If the subject asked if the learner was liable to suffer permanent physical injury, the experimenter said:

Although the shocks may be painful, there is no permanent tissue damage, so please go on. [Followed by Prods 2, 3, and 4 if necessary.]

If the subject said that the learner did not want to go on, the experimenter replied:

Whether the learner likes it or not, you must go on until he has learned all the word pairs correctly. So please go on. [Followed by Prods 2, 3, and 4 if necessary.]

Dependent Measures

The primary dependent measure for any subject is the maximum shock he administers before he refuses to go any further. In principle this may vary from 0 (for a subject who refuses to administer even the first shock) to 30 (for a subject who administers the highest shock on the generator). A subject who breaks off the experiment at any point prior to administering the thirtieth shock level is termed a *defiant* subject. One who complies with experimental commands fully, and proceeds to administer all shock levels commanded, is termed an *obedient* subject.

Further records. With few exceptions, experimental sessions were recorded on magnetic tape. Occasional photographs were taken through one-way mirrors. Notes were kept on any unusual behavior occurring during the course of the experiments. On occasion, additional observers were directed to write objective descriptions of the subjects' behavior. The latency and duration of shocks were measured by accurate timing devices.

Interview and dehoax. Following the experiment, subjects were interviewed; open-ended questions, projective measures, and attitude scales were employed. After the interview, procedures were undertaken to assure that the subject would leave the laboratory in a state of well being. A friendly reconciliation was arranged between the subject and the victim, and an effort was made to reduce any tensions that arose as a result of the experiment.

RESULTS

Preliminary Notions

Before giving an account of the experimental results, it is instructive to consider how persons predict others will perform when commanded to administer powerful shocks to another person. Fourteen Yale seniors, all psychology majors, were provided with a detailed description of the experimental situation. They were asked to reflect carefully on it, and to predict the behavior of 100 hypothetical subjects. More specifically, they were instructed to plot the distribution of obedience of “100 Americans of diverse occupations, and ranging in age from 20 to 50 years,” who were placed in the experimental situation.

There was considerable agreement among the respondents on the expected behavior of hypothetical subjects. All respondents predicted that only an insignificant minority would go through to the end of the shock series. (The estimates ranged from 0 to 3%; i.e., the most “pessimistic” member of the class predicted that of 100 persons, 3 would continue through to the most potent shock available on the shock generator—450 volts.) The class mean was 1.2%. The question was also posed informally to colleagues of the author, and the most general feeling was that few if any subjects would go beyond the designation Very Strong Shock.

Result of Experiment I

Subjects accept situation. With few exceptions subjects were convinced of the reality of the experimental situation, that they were administering shocks to another person, and the most potent shocks were extremely painful. In the post-experimental interview subjects were asked: “How painful to the learner were the last few shocks that you administered to him?” Subjects were instructed to indicate their answers on a printed 14-point scale ranging from “Not at all painful” to “Extremely painful.” The modal response was 14 (Extremely painful) with the mean at 13.42.

Signs of extreme tension. Many subjects showed signs of nervousness in the experimental situation, and especially upon administering the more powerful shocks. In a

large number of cases the degree of tension reached extremes that are rarely seen in sociopsychological laboratory studies. Subjects were observed to sweat, tremble, stutter, bite their lips, groan, and dig their fingernails into their flesh. These were characteristic rather than exceptional responses to the experiment.

One sign of tension was the regular occurrence of nervous laughing fits. Fourteen of the 40 subjects showed definite signs of nervous laughter and smiling. The laughter seemed entirely out of place, even bizarre. Full-blown, uncontrollable seizures were observed for 3 subjects. On one occasion we observed a seizure so violently convulsive that it was necessary to call a halt to the experiment. The subject, a 46-year-old encyclopedia salesman, was seriously embarrassed by his untoward and uncontrollable behavior. In the post-experimental interviews subjects took pains to point out that they were not sadistic types, and that the laughter did not mean they enjoyed shocking the victim.

Distribution of scores. It had been conjectured that persons would not, in general, agree to administer shocks beyond the level designated as Very Strong Shock. The distribution of maximum shocks for this experiment is shown in Table 2. The obtained distribution of scores deviates radically from the prediction.

Upon command of the experimenter, each of the 40 subjects went beyond the expected breakoff point. No subject stopped prior to administering Shock Level 20. (At this level—300 volts—the victim kicks on the wall and no longer provides answers to the teacher's multiple-choice questions.)

Of the 40 subjects, 5 refused to obey the experimental commands beyond the 300-volt level. Four more subjects administered one further shock, and then refused to go on. Two broke off at the 330-volt level, and 1 each at 345, 360, and 375 volts. Thus a total of 14 subjects defied the experimenter. It is instructive to reprint their remarks at the point of defiance, as transcribed from the tape recordings:

[0124] I think he's trying to communicate, he's knocking. . . . Well it's not fair to shock the guy . . . these are terrific volts. I don't think this is

TABLE 2
DISTRIBUTION OF BREAKOFF POINTS

Verbal designation and voltage indication	Number of subjects for whom this was maximum shock
Slight Shock	
15	0
30	0
45	0
60	0
Moderate Shock	
75	0
90	0
105	0
120	0
Strong Shock	
135	0
150	0
165	0
180	0
Very Strong Shock	
195	0
210	0
225	0
240	0
Intense Shock	
255	0
270	0
285	0
300	5
Extreme Intensity Shock	
315	4
330	2
345	1
360	1
Danger: Severe Shock	
375	1
390	0
405	0
420	0
XXX	
435	0
450	26

very humane. . . . Oh, I can't go on with this; no, this isn't right. It's a hell of an experiment. The guy is suffering in there. No, I don't want to go on. This is crazy. [Subject refused to administer more shocks.]

[0123] He's banging in there. I'm gonna chicken out. I'd like to continue, but I can't do that to a man. . . . I'm sorry I can't do that to a man. I'll hurt his heart. You take your check. . . . No really, I couldn't do it.

These subjects were frequently in a highly agitated and even angered state. Sometimes, verbal protest was at a minimum, and the subject simply got up from his chair in front of the shock generator, and indicated that he wished to leave the laboratory.

Of the 40 subjects, 26 obeyed the orders of the experimenter to the end, proceeding to punish the victim until they reached the most potent shock available on the shock generator. At that point, the experimenter called a halt to the session. (The maximum shock is labeled 450 volts, and is two steps beyond the designation: Danger: Severe Shock.) Although obedient subjects continued to administer shocks, they often did so under extreme stress. Some expressed reluctance to administer shocks beyond the 300-volt level, and displayed fears similar to those who defied the experimenter; yet they obeyed.

After the maximum shocks had been delivered, and the experimenter called a halt to the proceedings, many obedient subjects heaved sighs of relief, mopped their brows, rubbed their fingers over their eyes, or nervously fumbled cigarettes. Some shook their heads, apparently in regret. Some subjects had remained calm throughout the experiment, and displayed only minimal signs of tension from beginning to end.

DISCUSSION

The experiment yielded two findings that were surprising. The first finding concerns the sheer strength of obedient tendencies manifested in this situation. Subjects have learned from childhood that it is a fundamental breach of moral conduct to hurt another person against his will. Yet, 26 subjects abandon this tenet in following the instructions of an authority who has no special powers to enforce his commands. To disobey would bring no material loss to the subject; no punishment would ensue. It is clear from the remarks and outward behavior of many participants that in punishing the victim they are often acting against their own values. Subjects often expressed deep disapproval of shocking a man in the face of his objections, and others denounced it as stupid and senseless. Yet the majority complied with the experimental commands. This outcome was surprising from two perspectives: first, from the standpoint of predictions made in the questionnaire described earlier. (Here, however, it is possible that the remoteness of the respondents from the actual situation, and the difficulty of conveying to them the con-

crete details of the experiment, could account for the serious underestimation of obedience.)

But the results were also unexpected to persons who observed the experiment in progress, through one-way mirrors. Observers often uttered expressions of disbelief upon seeing a subject administer more powerful shocks to the victim. These persons had a full acquaintance with the details of the situation, and yet systematically underestimated the amount of obedience that subjects would display.

The second unanticipated effect was the extraordinary tension generated by the procedures. One might suppose that a subject would simply break off or continue as his conscience dictated. Yet, this is very far from what happened. There were striking reactions of tension and emotional strain. One observer related:

I observed a mature and initially poised businessman enter the laboratory smiling and confident. Within 20 minutes he was reduced to a twitching, stuttering wreck, who was rapidly approaching a point of nervous collapse. He constantly pulled on his earlobe, and twisted his hands. At one point he pushed his fist into his forehead and muttered: "Oh God, let's stop it." And yet he continued to respond to every word of the experimenter, and obeyed to the end.

Any understanding of the phenomenon of obedience must rest on an analysis of the particular conditions in which it occurs. The following features of the experiment go some distance in explaining the high amount of obedience observed in the situation.

1. The experiment is sponsored by and takes place on the grounds of an institution of unimpeachable reputation, Yale University. It may be reasonably presumed that the personnel are competent and reputable. The importance of this background authority is now being studied by conducting a series of experiments outside of New Haven, and without any visible ties to the university.

2. The experiment is, on the face of it, designed to attain a worthy purpose—advancement of knowledge about learning and memory. Obedience occurs not as an end in itself, but as an instrumental element in a situation that the subject construes as significant, and meaningful. He may not be able to see its full significance, but he may properly assume that the experimenter does.

3. The subject perceives that the victim has voluntarily submitted to the authority system of the experimenter. He is not (at first) an unwilling captive impressed for involuntary service. He has taken the trouble to come to the laboratory presumably to aid the experimental research. That he later becomes an involuntary subject does not alter the fact that, initially, he consented to participate without qualification. Thus he has in some degree incurred an obligation toward the experimenter.

4. The subject, too, has entered the experiment voluntarily, and perceives himself under obligation to aid the experimenter. He has made a commitment, and to disrupt the experiment is a repudiation of this initial promise of aid.

5. Certain features of the procedure strengthen the subject's sense of obligation to the experimenter. For one, he has been paid for coming to the laboratory. In part this is canceled out by the experimenter's statement that:

Of course, as in all experiments, the money is yours simply for coming to the laboratory. From this point on, no matter what happens, the money is yours.⁴

6. From the subject's standpoint, the fact that he is the teacher and the other man the learner is purely a chance consequence (it is determined by drawing lots) and he, the subject, ran the same risk as the other man in being assigned the role of learner. Since the assignment of positions in the experiment was achieved by fair means, the learner is deprived of any basis of complaint on this count. (A similar situation obtains in Army units, in which—in the absence of volunteers—a particularly dangerous mission may be assigned by drawing lots, and the unlucky soldier is expected to bear his misfortune with sportsmanship.)

7. There is, at best, ambiguity with regard to the prerogatives of a psychologist and the corresponding rights of his subject. There is a vagueness of expectation concerning what a psychologist may require of his subject, and when he is overstepping acceptable limits.

⁴Forty-three subjects, undergraduates at Yale University, were run in the experiment without payment. The results are very similar to those obtained with paid subjects.

Moreover, the experiment occurs in a closed setting, and thus provides no opportunity for the subject to remove these ambiguities by discussion with others. There are few standards that seem directly applicable to the situation, which is a novel one for most subjects.

8. The subjects are assured that the shocks administered to the subject are "painful but not dangerous." Thus they assume that the discomfort caused the victim is momentary, while the scientific gains resulting from the experiment are enduring.

9. Through Shock Level 20 the victim continues to provide answers on the signal box. The subject may construe this as a sign that the victim is still willing to "play the game." It is only after Shock Level 20 that the victim repudiates the rules completely, refusing to answer further.

These features help to explain the high amount of obedience obtained in this experiment. Many of the arguments raised need not remain matters of speculation, but can be reduced to testable propositions to be confirmed or disproved by further experiments.⁵

The following features of the experiment concern the nature of the conflict which the subject faces.

10. The subject is placed in a position in which he must respond to the competing demands of two persons: the experimenter and the victim. The conflict must be resolved by meeting the demands of one or the other; satisfaction of the victim and the experimenter are mutually exclusive. Moreover, the resolution must take the form of a highly visible action, that of continuing to shock the victim or breaking off the experiment. Thus the subject is forced into a public conflict that does not permit any completely satisfactory solution.

11. While the demands of the experimenter carry the weight of scientific authority, the demands of the victim spring from his personal experience of pain and suffering. The two claims need not be regarded as equally pressing and legitimate. The experimenter seeks an abstract scientific datum; the victim

cries out for relief from physical suffering caused by the subject's actions.

12. The experiment gives the subject little time for reflection. The conflict comes on rapidly. It is only minutes after the subject has been seated before the shock generator that the victim begins his protests. Moreover, the subject perceives that he has gone through but two-thirds of the shock levels at the time the subject's first protests are heard. Thus he understands that the conflict will have a persistent aspect to it, and may well become more intense as increasingly more powerful shocks are required. The rapidity with which the conflict descends on the subject, and his realization that it is predictably recurrent may well be sources of tension to him.

13. At a more general level, the conflict stems from the opposition of two deeply ingrained behavior dispositions: first, the disposition not to harm other people, and second, the tendency to obey those whom we perceive to be legitimate authorities.

REFERENCES

- ADORNO, T., FRENKEL-BRUNSWIK, ELSE, LEVINSON, D. J., & SANFORD, R. N. *The authoritarian personality*. New York: Harper, 1950.
- ARENDT, H. What was authority? In C. J. Friedrich (Ed.), *Authority*. Cambridge: Harvard Univer. Press, 1958. Pp. 81-112.
- BINET, A. *La suggestibilité*. Paris: Schleicher, 1900.
- BUSS, A. H. *The psychology of aggression*. New York: Wiley, 1961.
- CARTWRIGHT, S. (Ed.) *Studies in social power*. Ann Arbor: University of Michigan Institute for Social Research, 1959.
- CHARCOT, J. M. *Oeuvres complètes*. Paris: Bureaux du Progrès Médical, 1881.
- FRANK, J. D. Experimental studies of personal pressure and resistance. *J. gen. Psychol.*, 1944, 30, 23-64.
- FRIEDRICH, C. J. (Ed.) *Authority*. Cambridge: Harvard Univer. Press, 1958.
- MILGRAM, S. Dynamics of obedience. Washington: National Science Foundation, 25 January 1961. (Mimeo)
- MILGRAM, S. Some conditions of obedience and disobedience to authority. *Hum. Relat.*, 1964, in press.
- ROSEACH, M. Authority, authoritarianism, and conformity. In I. A. Berg & B. M. Bass (Eds.), *Conformity and deviation*. New York: Harper, 1961. Pp. 230-257.
- SNOW, C. P. Either-or. *Progressive*, 1961(Feb.), 24.
- WEBER, M. *The theory of social and economic organization*. Oxford: Oxford Univer. Press, 1947.

(Received July 27, 1962)

INFLUENCE AND REWARD IN STRUCTURED TWO-PERSON INTERACTIONS

SEYMOUR ROSENBERG¹

Bell Telephone Laboratories, Murray Hill, New Jersey

8 pairs of Ss were run in each of 4 different dyadic reward systems using a continuous response task. The 2 Ss within each pair were made interdependent in their rewards by imposing a functional relationship between the responses made by one S and the outcomes delivered to the other S, and vice versa. Each pair was given 100 consecutive trials. 3 influence responses were appended to the task for 4 of the 8 pairs in each reward system. These appended responses permitted an S to communicate a request to the other S concerning the latter's continuous response on the next trial. Results from systems with no communication confirm the predictions of reward stability based on a stochastic model. Without communication, 1 of the 4 systems stabilize; with communication, 2 systems stabilize.

A dyadic reward system is characterized by the feature that reinforcement to at least one of two simultaneously participating subjects is in part or entirely a function of the behavior of the other. Most studies of dyadic reward systems are also characterized by a mutual isolation of the two participating subjects and by a restriction of the interaction to responses and stimuli sufficient to produce an interdependent reward structure, i.e., a minimal set of social conditions (for example, Burke, 1959; Deutsch, 1958; Rosenberg, 1960; Rosenberg & Hall, 1958; Sidowski, Wyckoff, & Tabory, 1956; Suppes & Atkinson, 1960). In the present experiment four different dyadic reward systems were studied using a continuous response task. These four represent a wide variety of dyadic systems involving a continuous response task.

Limited communication between subjects within a pair was also introduced in this study. Subjects were physically isolated from each other but any subject who was allowed to communicate with the other member of the pair had available, in addition to the response continuum, a set of three "influence" response alternatives. After observing the outcome on a trial, the subject could use any one of the three alternatives in order to influence the subsequent continuous response of the other subject.

¹ Thanks are due to S. Cotten Wallen for assistance in data collection and analysis.

The study of influence processes has a long and prominent history in social psychology. The focus of these investigations has been on both the specific influence stimuli and responses in an interaction and indirect observations such as questionnaire data, attitude change, and behavioral contagion. In this paper we restrict our interest to the interpersonal interaction, itself, and we consider an influence interaction as one in which one person makes a request, usually verbal, which refers to a specific response class by the listener. We call the request an influence stimulus for the listener and the listener is said to comply if the influence stimulus actually elicits a response in the referent class. One of the more interesting features of an influence interaction for social psychologists is the fact that the listener does not invariably comply. The probabilistic relationship between influence stimuli and compliant responses has been related empirically to social status, friendship, skill, personality, the characteristics of the influence stimuli, etc. In terms of an S-R framework, the probabilistic compliance would be interpreted in terms of the reinforcement events for the listener (as well as the speaker) associated with compliance or noncompliance, for example, Skinner's (1957) concept of mand (p. 36). A highly structured dyadic reward system with an explicit identification of influence stimuli, compliant responses, and reinforcements for both participants appears well

⁵ A series of recently completed experiments employing the obedience paradigm is reported in Milgram (1964).