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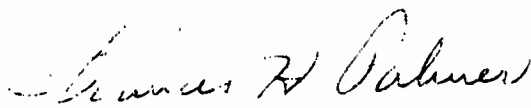
STAFF MEMORANDUM

AN INVESTIGATION OF
FLEXIBILITY IN TACTICAL DECISION MAKING

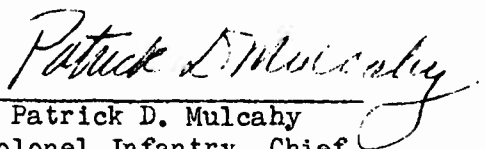
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5 December 1957

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BRIEF

This report presents the results of a series of experiments concerned with flexibility in tactical decision making. Hypotheses were derived from Festinger's theory of cognitive dissonance. The major hypothesis is concerned with a "binding effect" of decisions resulting from a process akin to rationalization. This hypothesis predicts that once a person has chosen a course of action in a changing situation, he will be hindered in changing his behavior when new developments make it appropriate to do so. The second hypothesis is contingent on the first. It predicts that persons will be susceptible to the binding effects of their decisions to the extent that they have low tolerance for dissonance.

Subjects for the experiments were combat arms officers at various posts in Sixth U. S. Army Area. These officers were given a tactical problem presented in stages: Initial information strongly favored one course of action, namely, to hold certain dominating terrain; subsequent information favored the opposite course of withdrawal. Officers in a control group were required to make only a final decision. It was predicted that in the final decisions, withdrawal would be chosen more frequently by control subjects than by experimental subjects.

A preliminary experiment confirmed the major hypothesis and appeared to clear the way for exploration of relationships with tolerance for dissonance. However, in the two subsequent experiments, the initial result was not repeated; and under the conditions provided by these experiments, the major hypothesis had to be rejected.

While it turned out that the experiments provided no opportunity to test the second hypothesis of the study, data from the second experiment--analyzed without reference to the original predictions--yielded significant relationships between the subjects' final decisions and their scores on tests of tolerance for dissonance. They also showed a significant relationship between the decisions and the subject's military rank. In the third experiment, which was carried out mainly as a check on the unanticipated findings of the second, the relationship with rank was significant but results with respect to the tolerance measures were not repeated.

Interpretations of these contradictory findings, together with some potential practical implications of the data for training, are discussed.

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INTRODUCTION

FLEXIBILITY AS A TACTICAL PRINCIPLE

The necessity for preserving flexibility of action is a recognized tactical principle. In FM 6-20, Artillery Tactics and Techniques, we find the statement "...the artillery commander's estimate of the situation and his planning...must be continuous....with each change in the situation, the artillery commander must examine all considerations involved and decide whether changes...are advisable."

Similar emphasis is given to the problem in FM 101-5, The Staff Officer's Field Manual, which points out that one of the major functions of the staff officer is to make "a continuing estimate of the situation for anticipatory planning," and that "coordination from all staff sections is essential to insure that changing conditions are considered in the formulation of the various estimates." Here the importance of flexibility in planning is spelled out very explicitly. In detailed discussion of the Estimate of the Situation the manual states, "There is no set, rigid timetable for the preparation of the estimate. It is a continuous process under which decisions are developed as new information and considerations are determined. ...Only by thinking ahead can all possible contingencies be foreseen and steps taken to establish the proper course of action for the entire command."

It seems clear that the Army is well aware of the dangers of inflexibility in tactical decision making, and there is evidence that this problem receives attention in the tactical training of officers. However, recent military history, as well as history from earlier periods, provides examples of commanders who met disaster because they persisted in following an originally sound course of action which had become outmoded by changes in the tactical situation. Many students of military science and tactics continue to be preoccupied with the dangers of rigid thinking on the battlefield. A contemporary student, S.L.A. Marshall, has this to say:

"There are limits to what preliminary reconnaissance can accomplish. It may often fail altogether. Or it may succeed just enough to convey a false idea of enemy situation.

"In either case, maneuver against the enemy becomes the prime means of redressing the course and of determining the true situation. All combat is in

this sense exploratory. When...the true situation is made clear, the commander who holds rigidly to his original plan, either because he is too dull to appreciate what has happened or too indifferent to change over, must be regarded as having failed his troops in the most vital particular." (9, page 107)

That the problem is apparently a persistent one should not surprise us. Common experience suggests that tendencies toward rigid thinking are fairly deep-seated in the personality, and may be peculiarly resistant to change by ordinary training techniques. Without substantial and reliable evidence, we cannot assume that the problem has been solved. The study reported here constitutes one attempt to provide such evidence.

THEORETICAL BACKGROUND

Recently, a great deal of empirical evidence relating to rigidity, perseveration, and opinion change has been reexamined by Festinger (6), who has made an impressive attempt to conceptualize a number of superficially unrelated phenomena under a general theory of cognitive dissonance. This theory focuses on the residual psychological conflict which follows a decision: conflict, or dissonance, between cognitive elements which are consistent with the decision and those elements which are inconsistent with it. Where dissonance exists, there are pressures to eliminate or reduce it, and, the greater the dissonance, the stronger the pressure. From this basic postulate follow the major derivations of the theory.

Dissonance theory predicts that, once an individual has made a decision, pressures to reduce dissonance will lead him both to exaggerate the importance or value of existing elements consistent with the decision and also to seek out additional elements or items of information from sources which can be expected to confirm it. Data to support these predictions are available. Brehm (3) forced subjects to choose one among several attractive objects, and found that the chosen object increased in attractiveness relative to the non-chosen, simply as a consequence of the choice. In a study of advertising readership among automobile owners, Ehrich, Guttman, Schonbach, and Mills¹ showed that recent purchasers were more likely to read advertisements for the car of their choice than for competing cars. In other words, after they had made their decision, they were especially open to information which was certain to support that decision.

On first consideration, the phenomenon revealed by the above studies might seem to have relatively little practical significance. Any tendency which increases our pleasure in the things we have chosen

¹ Cited in Reference 6, Chapter 3

seems to be all to the good, but it may also seem of little importance. However, pressures to reduce dissonance may also be manifested in a complementary tendency with less innocuous consequences. For dissonance theory also predicts that a person will tend to minimize elements which are inconsistent with a decision; that he will avoid information from sources that can be expected to disconfirm it; that he will tend to reject as unreliable, to misinterpret, or even to distort, such incoming information as does disconfirm it.

A still unpublished experiment by Festinger¹ provides a striking example of this aspect of dissonance reduction. Festinger allowed his subjects to choose either of two sides in a gambling situation. After a period of play, he made available information which purported to explain the true odds of the game and was hence logically relevant to whether the subjects would change sides. Finally, he analyzed the amount of time spent in studying the information offered in relation to the subjects' success in the game up to that time. The results support the rather startling conclusion that once he has made a decision, a person will actually avoid exposing himself to information which can help him to improve his performance, if he has some reason to expect that the information will disconfirm his decision.

Since there is evidence that a person who has made a decision tends to be unreceptive to information which fails to support that decision, we might expect that, where successive decisions are required, people will show a lag in adjusting to changes. One aspect of this problem has been studied by Dailey (5) in a context involving judgments of people. Dailey hypothesized that any "premature" conclusion will interfere with reaching a more adequate conclusion based on more information. He gave his subjects excerpts from an autobiography and required them to predict the behavior of the author in a situation for which the actual behavior was known. One group made two predictions: one after they had studied only half of the autobiographical material, another after they had studied the remainder. Accuracy of the final prediction in this group was compared with accuracy in a second group which made a prediction only after all the material had been read. Although some of the results of this experiment are puzzling, the data in general support the hypothesis being tested: making a preliminary judgment did significantly impair the accuracy of the later judgment based on more complete information.

In some respects, the experiments just described appear simply to confirm conclusions from everyday experience. Common observation strongly suggests that many decisions or judgments have a "binding" effect, and that the extent of this binding varies from person to person. Thus we seem to be less in need of evidence for the mere existence of this effect than we are of data which reveal its underlying

¹Cited in Reference 6, Chapter 7.

dynamics, and which will enable us to define the limits within which it operates. It is in this direction that Festinger's theoretical formulation makes a significant contribution.

THE HYPOTHESES

In the experiments to be reported here, we sought to extend the work already discussed to a study of decision making in the constantly changing situation of military operations. First, we wanted to test the proposition that making a tactical decision biases a commander's evaluation of subsequent developments, and thus, this decision, in turn, affects his ability to adapt his course of action to changes in the tactical situation. The first hypothesis was given the following formal statement:

Hypothesis I. In a situation requiring a choice between mutually exclusive alternatives, A and B, information ordinarily sufficient to produce a choice of A will be less frequently sufficient for individuals who have previously chosen B.

Although evidence already discussed seemed to justify considerable initial confidence in the validity of Hypothesis I, it should be pointed out that no test of this hypothesis appears to have been made under conditions exactly comparable to those of our experiment. At least one alternative theory results in a prediction exactly opposite to ours.¹ Thus, the hypothesis was not "obvious" and the study appeared to have potential for contributing to our general knowledge as well as to understanding in the specific field of military operations.

A second purpose of our experiments was to obtain evidence about individual differences in flexibility of decision making. Existing

¹The reference is to a theory of conflict elaborated by Miller and his associates (11). In terms of this theory a decision between alternative courses of action, say A and B, may be regarded as a step toward one of the alternative goals, in this case G_A and G_B , each of which may be considered to elicit both approach and avoidance tendencies. If the step represented by decision A moves the individual "closer" to G_A and if, as the theory postulates, the avoidance gradient is steeper than the approach gradient, then, in following A, the net attractiveness of G_A will be reduced and the attractiveness of G_B will be increased. Thus, from this theory, the individual should be more likely rather than less likely to change his decision. We are indebted to Dr. John Finan for pointing out the relevance of the conflict model to the major hypothesis of the present study. Convincing evidence that this model is adequate for dealing with certain types of approach-avoidance conflict has been obtained by Murray and Berkun (12).

evidence is only indirectly relevant to this problem, and the subject has not previously been investigated within the context of dissonance theory. Since, in this theory, persistence in a decision is considered a consequence of pressures to reduce dissonance, it follows that individual differences in flexibility should be related to differences in individual ability to "tolerate dissonance." Our second hypothesis was:

Hypothesis II. When an individual has made a decision in favor of one course of action, his tendency to persist in that course in the face of information otherwise sufficient to disconfirm it will be an inverse function of his tolerance for dissonance.

Two things are clear about Hypothesis II. First, the test of it depends upon a prior demonstration that Hypothesis I is valid. Second, once the validity of Hypothesis I is established, Hypothesis II is a tautology; it takes on meaning only in terms of the operations used to measure "tolerance for dissonance." The importance or usefulness of the hypothesis will depend upon the extent to which these measures suggest broad generality of the relevant underlying personality factors.

THE GENERAL RESEARCH PLAN

Our plan of attack was as follows: We would first design an experiment to test Hypothesis I and would gather sufficient data for a preliminary judgment of its validity. Contingent upon success in this first step, we would develop procedures for the effort to measure tolerance for dissonance. When these were ready, we would conduct a major experiment to cross-validate Hypothesis I and to test Hypothesis II.

Because of the dependent nature of Hypothesis II and also because the description of the "tolerance" measures is necessarily lengthy, we have decided to compromise with the more traditional research report format. Rather than describing the experimental procedure in toto and then presenting the results, we shall first outline the design used to test Hypothesis I, and present the findings relevant to it. Following this, we shall describe the several procedures used to measure "tolerance for dissonance" and then report the data bearing on Hypothesis II. By bringing into close relationship the rather detailed description of the measures used and the data relating to those measures, we believe this procedure will make for greater clarity.

Design of the Experiment. Similarities between our first hypothesis and the hypothesis tested by Dailey (5) have been noted. The procedure chosen to test the hypothesis was also similar. Like Dailey, we proposed to present an experimental group of subjects with preliminary information and require them to make a decision. After presenting them with supplementary information which disconfirmed their original choice, we would require a second decision. Final decisions made by this group would be compared with decisions in a control group which studied all of the information before being required to reach any conclusion.

to maximize the effect predicted by our hypothesis, we wanted to produce large amounts of dissonance in the experimental group. This argued that the initial decision should be between approximately equally balanced alternatives, so that the subjects would be in strong conflict over their choice. Under these conditions we could expect one alternative to be chosen as often as the other, but we could assure that the supplementary information would be equally disconfirming for all the subjects simply by using their initial decisions to determine what information to supply.

Unfortunately, with this design there appeared to be a serious problem in the control group. Any sensitive test of the hypothesis seemed to require some means of matching control subjects to experimental subjects with respect to original opinions and supplementary information. But to do this, it appeared necessary to know how the control subjects would have decided initially; this information would have to be acquired by some procedure which would not be equivalent to a decision. When, in our preliminary experiments, all attempts to get expressions of opinion short of commitment seem to result in failure, this feature of the original design was abandoned. We decided to develop a situation in which a very large percentage of the initial choices would be for the same alternative. Then the subjects could all be given supplementary information supporting the opposite alternative with the expectation that this information would disconfirm the original judgment. If the initial situation were not completely "cut and dried," we hoped that this procedure would result in sufficient dissonance in the experimental group to preserve the effects predicted.¹

Implementation of the Research Design. The vehicle chosen to implement this experimental design was a tactical problem presented to the subjects in stages. This problem, which was developed with the assistance of combat arms officers at Fort Ord, California, is reproduced in Appendix A-1. It deals with a reinforced infantry company on defense, and presents a situation in which the subject must assume the role of company commander and must choose between holding his position or withdrawing to a better supported position, yielding valuable terrain to the enemy.

¹It can be argued that, even if dissonance is not great immediately following the decision, it will increase as disconfirming evidence is received. However, there is at least some reason to doubt that this will be true. In any case, it now appears to us that our original conclusions on this subject were based on an error of logic. We now believe that using an initial situation of maximum uncertainty, and dividing the control group arbitrarily for the purpose of matching with the experimental group, would yield a design better suited for the test of our hypothesis. The rather long explanation required to clarify this conclusion is outside the scope of the present report. Even if valid, our insight into this subject came too late to influence the design of the study.

The initial information--the General and Special Situations of the problem--strongly favors a course of holding. The supplementary information generally argues for withdrawal. This supplementary information was presented in a series of messages delivered to the subjects in a closely timed sequence, partly to simulate developments in combat, and partly to require rapid processing of information. It was believed that this latter would facilitate overlooking or misperceiving items which disconfirmed the original choice. For reasons already explained, the attempt was made to present a situation in which most of the subjects would choose to hold at the time of the initial decision, but which would leave some degree of uncertainty about the correctness of this decision. With the supplementary information, we attempted to develop a final situation for which there was no obvious solution, but which presented strong arguments for withdrawal.

THE FIRST EXPERIMENT

When a suitable tactical problem had been prepared, arrangements were made for the preliminary experiment required as the first step in the overall research plan. The purpose of this experiment was to obtain sufficient data to make an initial judgment about Hypothesis I, and to provide a basis for the decision as to whether the study should be continued.

SUBJECTS

Subjects for the experiment were 60 officers from Headquarters, Sixth Army at the Presidio, San Francisco. Officers ranged in rank from first lieutenant through major. All were from the combat arms, and most were from Infantry, but since many had occupied staff positions in a higher headquarters for extensive periods, it is not clear whether they could be considered representative of combat arms officers in general.

Subjects were divided into two groups of thirty officers each. One group was scheduled for a morning and one for an afternoon session on the same day. Scheduling of the groups was accomplished by the headquarters which furnished the officers. Since this was a preliminary experiment, no elaborate precautions were taken to insure strictly random assignment. The morning group was arbitrarily assigned to the experimental condition, the afternoon group to the control condition. No reason is known why the groups should have differed in any systematic way but the possibility of some difference must be kept in mind in evaluating the results.

ADMINISTRATION OF THE EXPERIMENT

The experimenter's introductory remarks, the material for a background briefing on the overall military situation, and the instructions given to the subjects are reproduced as Appendices A-1 and A-2. After the introduction and background briefing, subjects were given the General and Special Situations (Appendix A-3) which comprised the preliminary information on the tactical problem. They were also given a map with acetate overlay, grease pencils for use on the overlay, and scratch paper for such additional notes as they chose to make. Subjects in the experimental group were allowed 30 minutes to study the preliminary information. They were then given the First Requirement

(Appendix A-4) which called for their initial decision, and were told that they would have 15 more minutes to continue studying the problem and to answer the requirement. After this they had a short break. Subjects in the control group were given no requirement. They studied the preliminary information without interruption for 40 minutes and were then given a break.

Following the break, the subjects were given instructions on the procedures for the remainder of the problem. It was explained to them that they would receive supplementary information sheets at brief intervals and that these sheets would provide all the information which they would receive about the development of the situation in which they were involved. In the experimental group, they were told that they should use the space at the bottom of each sheet to note briefly any action which they would take based on the information that they had received up to that point.¹ In the control group, they were told that they need take no action until instructed to do so, that their job was simply to take notes, to revise their maps, and generally "to keep on top of the situation" until a requirement was presented. Control subjects were given $3\frac{1}{2}$ minutes for each supplementary information sheet; experimental subjects were given $4\frac{1}{2}$ minutes in order to equate the amount of study time allowed each group since the experimental subjects had to make notations of the actions they would take at each point.

There were 13 information sheets (Appendix A-5). The final sheet consisted of a message delivered by runner from the Battalion Commander. This message called for a decision, and subjects in both groups were instructed to answer it. This was the second requirement for the experimental group and the first for the controls. After this sheet had been completed, subjects were given a final requirement (Appendix A-6) which demanded an explicit decision, thus assuring that we would have usable data from all subjects, even if they had avoided commitment in their reply to the Battalion Commander on the last information sheet.

RESULTS OF THE FIRST EXPERIMENT

Results of the experiment are summarized in Table 1. As expected, initial decisions in the experimental group were overwhelmingly in favor of holding. Thus, to the extent that the supplementary

¹Experimental subjects were instructed that they need not write on each sheet, but most of the sheets returned carried some notation. This procedure was adopted initially to provide some indication of when the subjects started to change their decisions. It was retained after the first experiment because we believed that any reaffirmation of the original decision would strengthen the degree of commitment and would lead to increased dissonance as more and more disconfirming information was received.

Table 1

PRELIMINARY AND FINAL DECISIONS TO HOLD IN EXPERIMENT ONE

In each cell, officers whose decision was "hold" are expressed as a percentage of all officers in that cell.

	<u>Preliminary Decision</u>	<u>Final Decision</u>
Experimental Group (N = 30)	90.0%	83.3%
Control Group (N = 30)	-----	40.0%

Note:

Significance of the difference in final decisions between experimental and control groups was tested by Chi Square. For the 2 x 2 table (Hold vs. Withdraw, Experimental vs. Control) Chi Square = 11.92 (df = 1, $P < .001$)

information favored withdrawal, it could be considered as disconfirming the initial information for virtually all the officers in the experiment. The final decisions show that it was in fact "disconfirming" for the majority of the officers in the control group since only 40% of this group made a final decision to hold. By contrast, in the experimental group, where an initial commitment had been made, the supplementary information was effectively disconfirming for only a small percentage of the subjects. By the end of the problem, 83% still favored holding as the appropriate course of action. These results, which in a statistical sense are highly significant, impressively confirmed Hypothesis I and indicated that the effect predicted by the hypothesis was an extremely strong one.

THE SECOND EXPERIMENT: HYPOTHESIS I

Results of the first experiment left us with little doubt of the validity of the basic theory for the type of situation under study. In line with our original plan, we proceeded to select, develop, and pre-test measures of "tolerance for dissonance." When this work had been completed, arrangements were made to repeat the experiment with a larger sample of officers from the Fifth Infantry Division at Fort Ord, California. Before reporting the results of this experiment, it is necessary to describe certain changes in the design and procedure. To do this requires anticipating our findings, since the changes were dictated by the results obtained while the experiment was in progress.

MODIFICATIONS IN DESIGN AND PROCEDURE

The first change was a modification in the content of the problem. This change was made because the data soon indicated that the reaction to the problem in the second sample was markedly different from the reaction in the first experiment. In the first few sessions of the second experiment practically all subjects made a decision to hold even though the groups were run in the control condition. Therefore, the supplementary information was modified to exert stronger pressure toward withdrawal.¹

The second change in the experiment was the addition of a supplementary control group. After considerable data had been collected in the second experiment, it became clear that the predicted differences between experimental and control groups were not being obtained. It seemed possible that control subjects, encouraged by the method of

¹Revisions were based on suggestions elicited from the subjects themselves, ostensibly as part of the planned research procedure. After the problem had been modified, one control group showed approximately an even split between decisions to hold and decisions to withdraw. Anticipating differences between experimental and control groups similar to those in the first experiment, we would have preferred a stronger bias toward withdrawal, for unless a substantial proportion of the experimental subjects changed their original decisions (i.e. made a final decision to withdraw) we would not be able to test Hypothesis II. Despite this, we decided against further revision of the problem to avoid wasting more of our limited reserve of suitable subjects.

presenting the problem, were making implicit decisions on the basis of the initial information; and were thus becoming, to all intents and purposes, equivalent to the experimental subjects. We therefore decided to assign a number of subjects to a control condition in which there would be no distinction between initial and supplementary information, and in which the officers would be encouraged, by the format, to familiarize themselves with all of the information before reaching any conclusion. To achieve this, the entire problem, including the data on the supplementary information sheets was incorporated in one continuous description. Subjects were told to read through the problem before their break and were then given an opportunity to review it before being asked for a decision. The total time allowed for studying the problem was the same as for the other control group. In subsequent sections of this report, the original control condition will be called Control Group A, the modified condition will be called Control Group B.

SAMPLE

Mainly to preserve homogeneity, the original sample for the second experiment was limited to first lieutenants and captains. The sample for the first experiment had included a substantial proportion of majors. Partly to check the possibility that inconsistencies between the two experiments might be caused by factors related to rank, and partly because preliminary data suggested some interesting effects of rank, the second experiment was ultimately expanded to include a sample of majors and lieutenant colonels divided equally between the experimental condition and Control Group A. By the time the sample was enlarged, the major emphasis of the experiment had shifted back to Hypothesis I and no measures of "tolerance for dissonance" were obtained from these field-grade officers.

The sample for the second experiment was limited to Infantry and Artillery officers. Our problem was most suitable for the Infantry officer, but problems of officer availability, coupled with a secondary interest in possible branch differences, led to including Artillery officers in the proportion of one-third of the total sample. Analyses of the data revealed no significant differences related to branch; branch distinctions will not be considered subsequently in this report.¹

¹As the experiment progressed, our sample became so fragmented that no satisfactory analysis by branch was possible. While we found no reliable differences by branch, we certainly do not have sufficient evidence to conclude that such differences do not exist.

ADMINISTRATION OF THE SECOND EXPERIMENT

With the exceptions already noted, the tactical problem and the procedures for administering it were the same in the second experiment as in the first. Subjects were scheduled in groups of nine to twelve and reported at the research unit for a morning and afternoon session on the same day. They worked on the tactical problem in the morning and completed the various tests related to tolerance for dissonance in the afternoon.

Table 2

PRELIMINARY AND FINAL DECISIONS TO HOLD IN EXPERIMENT TWO

In each cell, officers whose decision was "hold" are expressed as a percentage of all officers in that cell.

	Experimental Group		Control	Groups	Experimental and Control Combined
	Preliminary	Final	A Final	B Final	
"Junior" Lieutenants	100.0% (10)	10.0% (10)	31.5% (19)	53.8% (13)	33.3% (42)
"Senior" Lieutenants	88.9% (9)	44.4% (9)	53.3% (15)	40.0% (15)	46.2% (39)
Captains	90.0% (10)	60.0% (10)	61.1% (18)	76.9% (13)	65.9% (41)
Majors	84.6% (13)	64.2% (14)	72.7% (11)	----	68.0% (25)
Lt. Colonels	80.0% (5)	00.0% (5)	33.3% (6)	----	18.2% (11)
Total	89.4% (47)	41.7% (48)	50.7% (69)	56.1% (41)	49.4%

Note:

Figures in parentheses indicate number of cases in each cell. One major in the experimental group failed to make any preliminary decision. Percentages in these cells are based on the number of officers who actually made a decision.

RESULTS RELATING TO HYPOTHESIS I

Results of this experiment relating to Hypothesis I are summarized in Table 2. This table shows a breakdown by rank, with the relatively large group of lieutenants further subdivided into a junior and senior group. Junior lieutenants include a few second lieutenants¹ and those first lieutenants with less than two years in rank; senior lieutenants are first lieutenants with two years or more in rank.

From Table 2 it is clear that results of the second experiment failed to confirm the results of the first. The data do not support Hypothesis I, and there is even a substantial trend in the direction opposite to the one predicted. Statistical analysis shows that this trend could well have occurred by chance,² but the consistency of the trend for all rank levels is very striking. With such consistency we cannot ignore the possibility that the reversal reflects more than chance sampling.

Relation to rank revealed by Table 2 are large and highly significant in a statistical sense. Except for the reversal at the level of lieutenant colonel, the relationship can be described as an increasing tendency to hold with increasing rank and experience. However, although the number of lieutenant colonels is small, the reversal for that group is very sharp and statistical tests show that it cannot safely be attributed to chance.³ We shall return to this question later in the report.

¹Original plans called for no second lieutenants in the sample. As it turned out, seven officers with this rank participated as substitutes for first lieutenants who were not available.

²The significance of the differences between experimental and control subjects was tested by Chi Square. Because some of the cells are empty and others contain very few cases, it was necessary to combine data. All lieutenants were combined in one group; captains, majors, and lieutenant colonels in another. The two control groups were also combined. For the two resulting 2 x 2 tables (experimentals vs controls for lieutenants, experimentals vs controls for higher ranks) the combined Chi Square equals 2.25 (df = 2, $P < .30$). Of several combinations, this yielded the lowest P value.

³To test the significance of differences among ranks, the experimental and control groups were combined. For the resulting 2 x 5 table, Chi Square equals 16.68 (df = 4, $P < .01$). Two tests were made for the differences between lieutenant colonels and other ranks:

lt. cols. vs majors: Chi Square = 7.61 (df = 1, $P < .01$)

lt. cols. vs other ranks combined: Chi Square = 4.60 (df = 1, $P < .05$)

Since the relationship is apparently curvilinear, the last test is extremely conservative.

THE SECOND EXPERIMENT: HYPOTHESIS II

Hypothesis II predicted that the "binding" effect of a preliminary decision upon a subsequent decision is related to the individual's tolerance for dissonance. Since there was no preliminary decision in the control groups, the hypothesis makes no prediction for those groups. It relates only to the decisions by the experimental group. But even for the experimental group, it has already been pointed out in the introduction that the test of Hypothesis II is logically dependent on prior confirmation of Hypothesis I. There seems little point in trying to "explain" a phenomenon unless we have evidence that it exists. The second experiment provided no confirmation for Hypothesis I, but we decided upon a detailed analysis of the tolerance data for both groups in spite of this. In the first place, we had some reasons, best characterized as hunches, for believing that these measures might relate to the subjects' decisions in the control as well as the experimental group, irrespective of the effects of dissonance. In the second place, we wanted to get detailed information about the measures of tolerance as background for possible future research.

Before presenting data from this analysis, the measures used in the experiment will be described. A brief digression to some theoretical background provided by Festinger will place the description in a more meaningful context. Festinger has written as follows:

"There are certainly individual differences among people in the degree to which, and in the manner that, they react to the existence of dissonance. For some people dissonance is an extremely painful and intolerable thing while there are others who seem to be able to tolerate a large amount of dissonance. This variation in what may be called 'tolerance for dissonance,' that is, the extent to which the person reacts against dissonance by trying to reduce it, would seem to be measurable in at least a rough way. Assuming for the moment that the effectiveness with which people can eliminate dissonance when such dissonance reduction is attempted is roughly the same for everyone, at least holding the content area constant, then it would be plausible to expect that persons with low tolerance for dissonance would actually have considerably less existing dissonance at any time than comparable persons who have a rather high tolerance for dissonance. Thus, for example, one would expect a person with low tolerance for dissonance to see issues more in 'black and white' than would a person with high tolerance for dissonance who might be expected to be able to maintain 'greys' in his cognition.

"A person with a low tolerance for dissonance would, perhaps, be unable to maintain such dissonances and would struggle to eliminate them. ...For such a person, then, clusters of relevant cognitions would be mainly consonant, because he has not been able to tolerate the existence of much dissonance. This opinion on issues might be characterized as extreme, or as cast in terms of black and white. It would seem that a measure of 'tolerance for dissonance,' based upon these considerations, would be possible.

"At this point many readers will feel like suggesting that perhaps such a test already exists, having recognized a certain similarity between our discussion immediately above and some descriptions of 'authoritarian personalities' and some descriptions of people with high 'tolerance for ambiguity.' My own suspicion would be that existing instruments such as the F scale do measure, to an extent, the degree to which people hold extreme opinions from which all dissonance has been removed but that they also measure so many other things that they would not be very satisfactory for this purpose. Tests which measure simply 'intolerance for ambiguity' may be closer to the purpose which concerns us here. These are empirical questions. The validation procedure for any such test to be used as a measure of tolerance for dissonance is clear, however. It should relate to the degree to which subjects show evidence of pressure to reduce dissonance in an experimental situation where dissonance has been introduced under controlled conditions." (6)

DESCRIPTION OF TESTS OF TOLERANCE FOR DISSONANCE

The tests used in our experiment, and, as far as possible, the explicit rationale for their inclusion, will now be described. These tests fall into two categories: tests already developed in published research which were included in this study because they seemed at least reasonably promising; and tests which were developed specifically for the purpose of this experiment. To the extent that they can be reproduced in this report, the test materials appear in Appendix B.

Published Tests. The first category of tests included:

(1) California F Scale. Although this scale (1) has been characterized as a measure of "authoritarianism," much recent research indicated that it is far from a homogeneous measure of any single personality variable. As a recent summary by Titus and Hollander (17) has shown, the accumulated evidence is rather confusing. However, there is at least some empirical basis for concluding that the F scale relates to rigid thinking under stressful conditions (4) and to ready acceptance of authoritative suggestion (2). There are theoretical, as well as empirical, grounds for expecting that a high F score will be associated with intolerance of ambiguity and with a tendency toward highly

conventional conformity. From the 30 items in the final form of the scale developed in the original research, 27 items were used in our study. These items were included in Opinion Questionnaire I, (Appendix B-1).

(2) Dogmatism Scale. Dogmatism has been elaborated as a theoretical concept by Rokeach (14, 16), in terms of "a relatively closed cognitive organization of beliefs...which...provides a framework for patterns of tolerance and qualified tolerance toward others." In Rokeach's discussion, dogmatic thinking appears to have many of the characteristics which would also result from low tolerance for dissonance. Although the content of the items which he has used to measure his concept raises some doubt about the scale's relevance for our purposes, a number of these items were included in our tests. Specifically, we selected 20 items from a 34-item scale published by Rokeach (16) and described by him as a preliminary form of the measure. Our main criterion for discarding items was overlap with the F Scale; many of the items from the two scales were so nearly identical that we felt that they would add nothing to the measures already obtained. The items from the Dogmatism Scale are included in Opinion Questionnaire I. In our scoring of these items we subdivided the total measure into an A Scale and a B Scale. This division was made entirely on an a priori basis.¹ The A Scale includes 6 items which appear to have a common core of guilt and self-rejection. The B Score includes the remaining 14 items.

(3) Flexibility Scale. This scale consists of 22 true-false items developed by Gough and included in the California Psychological Inventory (8). For scoring purposes this scale, like the Dogmatism Scale, was divided into two subscales. The first, which was labeled the D Score, consists of 9 items which appear to have a core meaning of striving for definiteness or clarity and hence seemed most relevant to tolerance for dissonance or ambiguity. The second, based on the remaining 13 items, was labeled the R Score on a hunch, for which we had no empirical basis, that these items might measure a more generalized rigidity. Using data from another research (10), we found a correlation of only .23 between these two subscales. This seemed sufficiently low to justify at least provisional separation. The Flexibility Scale items are included in Opinion Questionnaire II (Appendix B-2).

Tests Developed for this Experiment. Measures of tolerance for dissonance which were developed explicitly for this experiment are described below:

(1) Picture Recognition Test. Research by Wyatt and

¹Subsequently, Rokeach has published the results of a factor analysis which provides a good justification for this subcategorization of items (15).

Campbell (19) and by Smock (17) has indicated that when subjects attempt to recognize pictures presented in an increasingly clear series, the preliminary hypotheses, or guesses, formed in the early stages of the series tend to interfere with later correct recognition. It is plausible that subjects with low tolerance for dissonance would try harder to "structure" the pictures in such a series to confirm their initial guesses, and would thus tend to achieve correct recognition later than subjects with high tolerance for dissonance. For this test, we prepared a slide series from each of six photographs. The first slide in each series showed the picture sufficiently out of focus to prevent recognition except by a lucky guess. Succeeding slides increased in clarity with the final slide in good focus. However, since the pictures selected included some taken from odd angles or containing other features which made recognition difficult, they were often not described correctly even after several exposures of the final slide. The slides were presented as a test of ability to interpret partial information. Subjects were required to make an attempt to describe the pictures from the very first slide. Each series received a score corresponding to the stage at which it was correctly described. Scores for the several slides were combined to give a total score.

(2) Film Rating Test. This test and the two following had essentially the same underlying rationale. More detailed descriptions and copies of their rating scales may be found in Appendix B (B-3, B-4, B-5). As Festinger has pointed out in the passage quoted above, people with low tolerance for dissonance may be expected to resolve difficult or ambiguous issues by judging them in extreme "black and white" terms. In the Film Rating Test the subject was required to make a number of judgments about an individual portrayed in a short sound motion picture. The film, which showed an applicant being interviewed for a job, contained relatively little information relevant to most of the judgments required. After it had been shown subjects were asked to rate the applicant on each of fifteen scales. Each scale was a bipolar continuum with a neutral midpoint and with pairs of descriptive adjectives of opposite meaning (e.g., careless--careful, honest--dishonest) at the ends. On the assumption that those with low tolerance for dissonance would tend to make extreme judgments, the score calculated for each subject was simply the sum of the deviations of all his ratings from the scale midpoints.

(3) Story Rating Test. After the subjects had read an account of an enlisted soldier in difficulties for delinquent behavior, they were given a list of adjectives and asked to check all the adjectives which they believed applied to the soldier described. In preparing the account an effort was made to achieve an approximate balance between evidence that was favorable and unfavorable to the central figure. The list checked by the subjects contained equal numbers of favorable and unfavorable adjectives, as well as some neutral fillers. As in the previous test, we assumed that persons with low tolerance for dissonance would tend to describe the soldier either in highly favorable or in highly unfavorable terms. After eliminating the neutral

fillers, we computed the percentage of adjectives checked which were favorable. Subtracting 50 percent and discarding the sign gave us the score used in our analysis.

(4) Extreme Statements Test. If people with low tolerance for dissonance tend to make judgments in an all-or-none fashion, then, over a period of time such people can be expected to develop extreme opinions on controversial issues. In this test the subjects were asked to respond "true" or "false" to a number of statements expressing very extreme opinions. The score derived was simply the number of statements labelled "true." Although the test contained 22 items, the logical maximum score was only eleven because the statements were paired, a statement expressing one extreme being balanced by a statement expressing the opposite extreme on the same issues.

Meaning of the Test Scores. All of the tests just described were scored in the same direction. In each case, we would expect a high score to be associated with low tolerance for dissonance. In other words, although we have referred to the tests as measures of "tolerance," they might better be described as measures of "intolerance." This point should be kept in mind in examining the data which will be presented in the next section.

RESULTS

Results of most of the analyses relating to the tolerance measures are summarized in Table 3. The data reveal some strikingly consistent trends. Each of the scores, with the single exception of the Picture Recognition score,¹ shows at least a suggestive relationship to the final decisions on the tactical problem. Some of the differences are larger than others, but wherever substantial differences occur, they are always in the same direction: namely, scores for officers who

¹Intercorrelations among the several items in the picture recognition test were high enough to indicate considerable reliability for the test as a whole. Thus, the failure of this score to show even suggestive relationships with the other tolerance measures was puzzling. Assuming the validity of the underlying rationale, one possible explanation for the failure relates to the manner in which the test was administered. Subjects were instructed to give their best description of each picture from the very first exposure. However, they knew from the start that the early blurred exposures would be followed by later sharper ones. Under these conditions subjects with low tolerance for dissonance could perhaps avoid much dissonance merely by postponing any real commitment until they were relatively sure that they had perceived the picture correctly. This question has considerable theoretical importance and should be further explored.

Table 3

RELATIONS BETWEEN FINAL DECISIONS AND MEASURES OF TOLERANCE FOR
DISSONANCE IN EXPERIMENT TWO

On all measures low scores should be associated with high tolerance.

	Mean Scores					
	Experimental		Control A		Control B	
	Hold (11)	Withdraw (16)	Hold (25)	Withdraw (26)	Hold (23)	Withdraw (18)
F Scale	5.82	4.63	5.24	4.77	5.35	4.22
Dogmatism Scale						
A Score	5.45	4.75	5.36	4.46	4.70	4.72
B Score	<u>4.45</u>	<u>4.56</u>	<u>5.64</u>	<u>4.46*</u>	<u>5.17</u>	<u>4.56</u>
Total Score	4.91	4.69	5.96	4.38***	5.22	4.72
Picture Recognition	5.60	6.06	5.60	5.58	5.52	5.61
Film Rating	4.27	3.88	5.00	4.50	4.57	4.72
Story Rating	5.00	3.06	4.20	4.31	4.39	4.50
R Score	8.09	6.50	8.00	7.84	6.96	7.06
D Score	5.82	4.81	6.16	5.48	5.78	5.33
E Score	<u>4.64</u>	<u>3.13</u>	<u>4.00</u>	<u>3.96</u>	<u>4.65</u>	<u>4.11</u>
I Score	5.36	3.38**	5.32	5.12	5.00	4.78

Notes:

Figures in parentheses at the head of each column indicate number of cases in that group. Tolerance scores are available only from subjects with ranks up through captain. Of the 29 cases in the experimental condition, two (where both preliminary and final decisions were to withdraw) were excluded from this analysis.

Raw scores on the F Scale, the Dogmatism Scales, and the I Score have been reduced to stanines. Means for other measures were computed directly from the raw score distributions.

Mean differences (Hold vs Withdraw) on the F Scale, the Dogmatism scores, and the I Score, were tested by "t" test. Significance levels are indicated as follows: * $P < .05$ ** $P < .02$ *** $P < .01$

Additional "t" tests for hold-withdraw differences for combined groups show the following:

Experimental and Control Groups combined

F Scale $t = 2.36; P < .02$

Dogmatism Total Score $t = 2.76; P < .01$

Control Groups combined

Dogmatism B Score $t = 2.43; P < .02$

decided to hold are higher than scores for officers who decided to withdraw. Since our first hypothesis was not confirmed, we had no basis for claiming that any of these differences was predicted in advance, but the significance levels and overall consistency are such that the results could hardly be attributed to chance.

Previous research (7) suggested that a relationship might be expected between an officer's rank and his responses to personality tests of the kind used in this study. Our data in fact showed a significant tendency for higher ranks to have higher scores (lower tolerance) on the tolerance measures. Thus, it was important to consider the possibility that relations between final decisions and tolerance for dissonance were not simply another reflection of the relationship with rank already reported.¹ Taking the F scale as representative of our tolerance measures, we carried out an analysis which permits the influence of rank and of F score to be examined separately. For this analysis experimental and control groups were combined to insure a reasonable number of subjects in each category. Results are shown in Table 4.

As Table 4 makes clear, when the effects of rank are partialled out, the relationship between F score and decision remains substantial. Except for the group of senior lieutenants with the highest F scores, the ordering of the nine sub-categories in this table is completely consistent. Although tests of statistical significance have not been computed for these data, the magnitude and consistency of the differences provides convincing evidence that rank and F score reflect independent factors which both had substantial influence on the subjects' decisions. In addition, these results seemed to justify considerably increased confidence that the relationships revealed by our analyses were not simply a consequence of chance sampling.

INTERPRETATIONS OF THE PERSONALITY DATA

Interpretation of the results from the measures of tolerance for dissonance presented some problems. The lack of confirmation for Hypothesis I seemed to rule out explanations in terms of dissonance. Furthermore, dissonance theory leads to a prediction only for the experimental group; and even if the experiment had confirmed our first hypothesis, we would still have to account for the relationships in the control groups. Could we, then, draw any conclusions from these results relevant to our original hypotheses? Before attempting to answer this question, we shall briefly consider some differences among the several "tolerance" measures used in this study.

¹Tolerance data were available only for officers with ranks through captain. Since, through that level, the relationship between rank and decision was approximately linear, the possibility suggested here was a real one.

Table 4

RELATIONS BETWEEN F SCORES AND FINAL DECISIONS IN EXPERIMENT TWO

In each cell, officers whose final decision was "hold" are expressed as a percentage of total officers in that cell.

	F Scores			
	Low	Medium	High	Total
"Junior" Lieutenants	25.0% (16)	28.6% (14)	54.5% (11)	34.1% (41)
"Senior" Lieutenants	40.0% (15)	53.8% (13)	45.5% (11)	46.2% (39)
Captains	44.4% (9)	61.5% (13)	78.9% (19)	65.9% (41)
Total	35.0% (40)	47.5% (40)	63.4% (41)	

Figures in parentheses indicate number of cases in each cell.

Dissonance and the Tolerance Measures. It will be recalled that the tests of tolerance fell into two groups: the first group included tests already available from other research, the second included tests developed expressly to meet the requirements determined by our present conceptualization. A priori, we had some reason to regard the tests in the second group as more nearly "pure" measures of tolerance. Furthermore, we could distinguish among the first group of tests on the basis of the manifest content of the individual items; those which appeared to fit most closely with our concept of tolerance for dissonance were items which made up the D score from the Flexibility Scale.

With these distinctions in mind, we were able to discover a striking pattern in the relationships summarized in Table 3: five of the tests which we had grounds for regarding as our "best" measures of tolerance for dissonance appeared to be related to the decisions much more strongly for the experimental subjects than for the control subjects. These were the Film Rating Score, the Story Rating Score, the Extreme Statements Score (E Score), and the D and R Scores¹ from the Flexibility Scale. These five scores were combined into a single normalized "I" Score, with results which are shown at the bottom of Table 3.

With the complexity of the data substantially reduced by the consolidation which results in the I score, findings from the personality measures can be fairly easily summarized: One measure, the I Score, is significantly related to the decisions in the experimental group but shows only very small and statistically insignificant relations in the control groups. A second measure, the Dogmatism B Score, shows substantial and statistically significant relations in the control groups, but actually shows a slight opposite trend in the experimental group. A third measure, the F scale, shows substantial differences for all three conditions in the experiment, and these differences are statistically significant when the several conditions are combined.

Taken at face value, this pattern of relationships seems to support the conclusion that the personality measures reflected two factors, which both influenced the final decision in the same direction, but which operated differentially depending on the conditions under which the decision was made. Intercorrelations among the three measures, shown in Table 5, are at least consistent with such a two-factor theory.

¹The argument for including the R score is somewhat tenuous. However, this score was grouped with the other four because it was part of a previously developed scale which also included the items of the D score.

Table 5

PRODUCT MOMENT CORRELATIONS AMONG MAJOR PERSONALITY MEASURES
IN EXPERIMENT TWO

	Dogmatism B Score	I Score
F Scale	.546**	.442**
Dogmatism B Score		.205*
* P < .05		
** P < .01		

Returning now to the problems of interpretation, it is tempting to consider that the experiment may, after all, provide evidence for our original hypotheses. We have already indicated a basis for believing that the factor reflected most strongly by the I Score was in fact tolerance for dissonance. If the obtained pattern of results on the personality measures had been accompanied by the differences in the decisions predicted by Hypothesis I, we should certainly have concluded that the experiment gave strong support to both hypotheses. With the results actually obtained, it is plausible to conclude that pressures to reduce dissonance had the predicted effect on the experimental subjects, but that this effect was obscured by a counter-effect to which the other "personality factor" may yield some clue.

Training for Flexibility. In line with these speculations, several possible interpretations were considered. The first focuses on training for flexibility in tactical decision making. If Army courses in tactics place strong emphasis on the dangers of rigid thinking in battle, it would not be surprising if many officers learned to compensate for the effects of dissonance by becoming exceptionally sensitive to the most recent information available in a changing situation. An explanation in these terms would account in a fairly simple way for the results obtained in the experimental group. It would not account for the significant relationships between the decisions and the personality measures in the control groups.

The Tactical Problem. An interpretation which attempts to take account of more of the experimental data focuses on the particular character of the decisions required by the tactical problem. It rests on three assumptions:

(1) The decision required is outside the usual sphere of independent action by the company commander. A decision to hold was a stand-pat decision which avoided responsibility for stepping out of the customary role.¹

(2) A decision to hold, while quite possibly justifiable on tactical grounds alone, also had the advantage of being "doctrinaire." It met the requirements of the dictum, "Hold at all costs," and appeared to be justified by a doctrine, increasingly disseminated at present, relating to the behavior of isolated units in atomic combat.

¹This assumption received a good deal of support from the officers who took part in the experiment. Although the information in the problem makes it quite clear that the company commander has full responsibility for the decision, informal discussions after the experiment was completed made it clear that many of the officers had not really felt free to accept the responsibility they had been given.

(3) A decision to hold is appropriate to the values of our total culture, and particularly of the military subculture. Because the small unit commander is seldom in a position to judge whether the sacrifice of his unit will be futile, almost any independent decision to withdraw would result in substantial dissonance. By stating that he would hold, the subject could label himself as "an officer who sticks it out when the going is tough."

If these assumptions are granted, certain relationships in the experimental data may become more understandable. First, let us consider the apparently curvilinear relationship between the officer's rank and his decision. We would expect that officers most influenced by considerations of the company commander's role would be those whose rank and recent experience would cause them to identify most closely with that role. This is exactly what we found. Captains, majors, and the more experienced lieutenants were much more likely to hold than the less experienced lieutenants and the higher ranking lieutenant colonels.

Next, let us look at relationships involving the F scale and the Dogmatism B score. We have tentatively labelled one factor from our personality measures as "tolerance for dissonance." Describing the second factor to fit the results certainly entails risk. However, theoretical arguments and empirical evidence justify a belief that persons with high scores on these measures will tend to rely heavily both on traditional organizational procedures and also on conventional, safe, or doctrinaire solutions to problems. If our second factor has this character, the relationships between test scores and decisions may have a dual basis: for those with high scores both the importance of the traditional role limitations and the attractiveness of the doctrinaire "hold" solution will be increased.

This last interpretation also provides another possible explanation for the lack of difference in the decisions between the experimental and control groups. It is not implausible that the experimental subjects felt greater freedom to exercise independent judgment on their second decisions just because their first decision had already given them an opportunity to label themselves appropriately. Control subjects, who had no such opportunity, might have been considerably more susceptible to the extraneous arguments for holding, and hence felt less free to base their decision on the specific tactical situation presented by the problem. However, it must be admitted that our data provide no basis for choosing between this explanation and the earlier one which emphasizes training for flexibility.

CONCLUSIONS FROM THE SECOND EXPERIMENT

Data from this second experiment revealed statistically significant relationships which had potentially important implications for tactical decision making in combat. However, the findings had to be suspected for two reasons: first, they had not been predicted in

advance; second, where comparisons were possible, results from this experiment were not consistent with results from the first experiment. It seemed possible that further analysis of the data, including more exhaustive analysis of individual items from the tolerance measures, might provide evidence which would help in choosing among the alternative possible interpretations. However, this additional work would have involved a substantial commitment of resources and it was questionable whether the available evidence was sufficiently firm to justify such a commitment.

At the conclusion of the second experiment, we still needed additional data for at least three purposes:

1. to provide a stronger basis for reporting conclusions and for making possible recommendations to our sponsor.
2. to permit a judgment as to whether the additional analyses of the tolerance data suggested above would be worthwhile.
3. to supply a more solid foundation for planning future research.

Arrangements were made to repeat the experiment with a third sample of officers. Results of that final experiment are reported in the next section.

THE THIRD EXPERIMENT

SUBJECTS

Subjects for the final experiment were 140 officers from the Fourth Infantry Division at Fort Lewis, Washington. All but three were Infantry officers.¹ Composition of this sample by rank was as follows:

First Lieutenants	45
Captains	32
Majors	32
Lieutenant Colonels	31
	<u>140</u>

The increased proportion of higher ranking officers compared with the second experiment reflected our purpose to check on the curvilinear relationship between rank and decision. The original plan called for eight groups, each group to include six lieutenants and four officers from each of the remaining ranks. Last-minute scheduling difficulties resulted in four absences, and yielded the actual numbers shown above.

ADMINISTRATION

In all important respects, the third experiment was a replication of the second. Control condition "B" (the modified control condition of the second experiment) was not used in this final experiment, because there was no evidence that it yielded results different from those in the other conditions, and because we did not want to subdivide our sample any more than necessary. Half of the subjects were assigned to the experimental condition, half to the control condition A.

From the personality tests we eliminated the Picture Recognition Test and the Film Rating Test. Both tests were time-consuming and required special equipment to administer. The results from the Picture Recognition Test in the second experiment were entirely negative. In the case of the Film Rating Test, it seemed likely that any loss from dropping it would be more than offset by the gains in easier and more rapid administration.

¹Of the three non-infantry officers, two were from Armor, the other from Medical Service Corps. These officers were included in the analysis.

All eight groups in the experiment were scheduled during a four-day period. Each group completed the entire experiment during one session, which lasted about four hours. Sessions were held both morning and afternoon; and to take account of any possibility that the time of the meeting might affect the results, two morning and two afternoon groups were assigned to each condition.

Condensing the total experiment into a single session admittedly had a disadvantage, since the period was very long for the concentrated attention required. Because the original order of events in the experiment was preserved, any effects of increasing fatigue or irritation resulting from this schedule would have been mainly on the tests of tolerance for dissonance. While no categorical judgment is possible, the behavior of the subjects observed during the experiment and the completeness of the data obtained both argue that such effects, if they occurred at all, were of minor importance.

RESULTS OF THE THIRD EXPERIMENT

With respect to Hypothesis I, data from the final experiment are consistent with data from the second experiment. As Table 6 shows, the final decisions again revealed a slight trend opposite to the one predicted. However, the trend is less pronounced and less consistent than in the second sample, and does not approach statistical significance. The last two experiments taken together provide no evidence for a reversal of the original prediction; we must conclude that there was simply no difference between experimental and control groups.

Relationship with Rank. In the third experiment, we find again a statistically significant relationship between rank and decision.¹ However, as a glance at Table 6 will show, there was in this final sample not even a trend in the direction of the curvilinear relationship previously noted. The less experienced lieutenants were much more likely to withdraw, but above this lowest level, there were no differences among the several rank groups. We have already emphasized that the findings from the second experiment were based on a very small sample of lieutenant colonels. In the last experiment the number of officers in this highest rank was much more adequate. Thus, we must conclude that our original judgment about the form of the relationship is disconfirmed by the later results.

Results for Personality Measures. Data from the several measures of tolerance for dissonance are summarized in Table 7. Results are entirely negative. None of the differences shown in Table 7 is statistically significant. Furthermore, there is no consistent pattern in the

¹Analysis of the 2 x 5 table (hold vs withdraw for each of five rank groupings) yields a Chi square of 24.09 (df = 4, $P < .001$).

Table 6

DECISIONS IN EXPERIMENT THREE

In each cell, officers whose decision was "hold" are expressed as a percentage of all officers in that cell.

	Experimental Group		Control Group	Combined Control and Experimental
	Preliminary	Final	Final	Final
"Junior" Lieutenants	84.6% (13)	23.1% (13)	38.5% (13)	30.8% (26)
"Senior" Lieutenants	100.0% (9)	66.7% (9)	70.0% (10)	68.4% (19)
Captains	93.7% (16)	75.0% (16)	68.8% (16)	71.9% (32)
Majors	93.7% (16)	68.8% (16)	66.7% (15)	67.7% (31)
Lt. Colonels	93.7% (16)	68.8% (16)	86.7% (15)	77.4% (31)
Total	92.9% (70)	61.4% (70)	66.7% (69)	64.0% (139)

Note:

Figures in parentheses indicate number of cases in each cell. One major in the control group failed to categorize his final decision either as hold or as withdraw. The elimination of this subject from all analyses accounts for the discrepancy between the frequencies shown here and the overall frequencies previously reported.

Table 7

RELATIONS BETWEEN FINAL DECISIONS AND TOLERANCE FOR DISSONANCE
IN EXPERIMENT THREE

	M e a n S c o r e s			
	Experimental Group		Control Group	
	Hold (42)	Withdraw (23)	Hold (46)	Withdraw (23)
F Scale	54.80	51.48	48.33	49.39
Dogmatism Scale				
A Score	20.32	19.30	17.91	20.30
B Score	58.44	57.22	53.39	52.91
Story Rating	6.14	6.43	6.09	6.13
R Score	7.21	7.48	7.87	6.96
D Score	5.45	5.65	5.39	5.00
E Score	4.19	3.91	4.09	4.48

Notes:

Figures in parentheses at the head of each column indicate number of cases in that group. Within the experimental group the analysis was limited to those subjects who made an initial decision to hold.

Means for the F Scale and the Dogmatism scores were computed from the raw scores. Since they have not been reduced to stanines, they cannot be compared in an absolute sense with data shown in Table 3.

None of the mean differences in the above table is significant.

relationships such as was found in the second experiment. Unequivocally, data from the third experiment failed to support our earlier conclusions from the tests designed to measure tolerance for dissonance.¹

Results of Additional Analyses. In the final experiment, in addition to checking on earlier findings, we hoped to go somewhat further in explaining the decisions made by the subjects on the tactical problem. It had been frequently suggested that an officer's training and previous experience might have a great deal to do with the solution which he adopted. To pursue this suggestion, we arranged, with our last sample, to get considerably more background information from the officers who took part. For example, we secured data on each officer's service component, his route to a commission, the amount and location of his combat experience, his recent assignments, and his service schooling. In addition, through several fairly general questions following the tactical problem, we attempted to get from the subjects themselves indications of past experiences or of important tactical principles learned in training which they believed had influenced their responses.

Much of the information thus obtained proved difficult to analyze systematically. Even where adequate analyses could be performed, as, for example, on the relations between decisions and combat experience, results were generally not very enlightening. However, one suggestive finding did emerge: among the junior lieutenants, the disposition to hold was much greater for Regular Army officers than for Reserve officers. In this respect, the Regular Army junior lieutenants were no different from the higher ranks, so that the significant relationship between rank and decision is entirely attributable to the differences in the Reserve group. These data are summarized in Table 8. It is unfortunate that the number of Regular Army officers in the group of junior lieutenants was so small. Even with this very small sample, for the junior lieutenant group, the difference between Regular Army and Reserve officers is significant at about the 2 percent level. Whether the Regular Army lieutenants responded more like the experienced officers because they were, in fact, more experienced, or whether some other factors are involved, cannot be determined. The data provide some indication that standards of behavior in this situation for the Reserve officer group may have differed from standards for the Regular Army group. However, much more evidence would be required before we could reach any definite conclusion on this point.

¹It will be recalled that in the second experiment data on tolerance for dissonance were obtained only from lieutenants and captains. In Table 7 data from all ranks are included. A supplementary analysis was performed to investigate the possibility that the lack of positive results in the third experiment was due to the inclusions of the higher ranks. However, results of this supplementary analysis were also negative.

TABLE 8

RELATION BETWEEN FINAL DECISIONS AND COMPONENT IN EXPERIMENT THREE

Experimental and Control Groups Combined

In each cell, officers whose final decision was "hold" are expressed as a percentage of total officers in that cell.

	<u>RA</u>	<u>Reserve</u>
"Junior" Lieutenants	100% (3)	17% (23)
"Senior" Lieutenants	75% (4)	71% (14)
Captains	88% (8)	67% (24)
Majors	71% (7)	65% (23)
Lieutenant Colonels	75% <u>(16)</u>	80% <u>(15)</u>
Total	79% (38)	58% (99)

Note:

Figures in parentheses indicate number of cases in each cell. Two National Guard officers were excluded from this analysis.

SUMMARY AND CONCLUSIONS

In relation to our original purposes, the final outcome of this series of experiments was rather disappointing. As the report has shown, each step in our progress largely disconfirmed the conclusions from the previous step; and regardless of how we interpret these shifting results, we are left with firm evidence on only a few points. On the other hand, in several important ways, the experiments have made a significant contribution to our understanding of an area which has previously been almost completely unexplored.

In this concluding discussion, the first point to which we wish to give emphasis is the unequivocal evidence that rank and experience were important correlates of the solution chosen for the tactical problem. The evidence suggests that at some point relatively early in the career of a junior officer a change occurs which may be something like a "crystallization" of his prior training and experience. In the situation studied here, this change was reflected by a quite dramatic difference in behavior between the two experience levels in the group of first lieutenants. Data gathered in these experiments do not permit us to say what it is in an officer's experience which produces the change, but the significantly greater disposition to hold exhibited by the small sample of Regular Army officers in the "junior" lieutenant group may provide a lead. If it is true that the critical factor here is something like "commitment to the service," then any information leading to better understanding of an officer's early development could be extremely valuable, because it could lead to knowledge of how to accelerate training progress. It is worth pointing out that the officers who have been classified as junior lieutenants in these samples already had more experience than would many of the officers on whom the Army would have to rely in the event of emergency mobilization.

Our second point relates to the range covered by the solutions given for the tactical problem, and to the task of explaining differences in those solutions. In this report the decisions by the subjects have previously been discussed only in terms of the simple distinction between holding and withdrawing. It should be emphasized that it was possible to categorize many of the responses in this simple way, only because the final requirement in the problem placed the responsibility for making the distinction upon the subjects themselves. In the message

to the Battalion Commander¹, which provided the first statement of his final decision, it was possible for the subject to choose a course of action intermediate between unqualified defense and complete withdrawal; and a good many subjects did choose such intermediate solutions. Although only one out of all the officers who took part failed later to categorize his solution as "hold" or "withdraw," it seemed important to determine what a more detailed analysis of the messages might add to the information already available from the subjects' own simpler classification.

Intensive analysis of the messages to the Battalion Commander did not change any of the main conclusions of the study, but it did reveal an unexpected range in the evaluations of the tactical situation presented by the problem. As we studied the messages we found it difficult to believe that the estimates of the situation could all represent responses to the same information; and while we do not wish to give undue emphasis to the most extreme cases, we think it is worth while to illustrate this point with a few examples below.

Extreme decisions to hold:

- a. "Holding present position. F Co. still in position. Will continue to hold. Request air drop of 106 mm ammo immediately. Air drop zone will be marked at 116508."
- b. "Enemy tanks and infantry appear to be circling my position in small groups. No positive enemy effort into my position as yet. Receiving moderate enemy arty. and mortar fire. F Co. position unknown but still on right flank. Will remain in present position."
- c. "Friendly: no contact with units right and left. Enemy: becoming active in my area, receiving arty. and mortar fire. - 2 killed - 1 wounded. No immediate threat to my position. Can hold position under present conditions. OP #3 knocked out."
- d. "(1) Enemy armor 5 tks. w/two plt. inf. adv. S along Barloy Road. I will stop them.
(2) Pulled back OP No. 3. Large en. fc. at their old position.
(3) F Co. w/dr. 1000 yds in fair shape.
(4) I will remain here.
(5) Will require fire spt. on call. Keep radio traffic to minimum if possible."

¹This message was the subject's response to the Commander's message on Supplementary Sheet No. 13. For experimental subjects it was labelled "Second Requirement," for control subjects, "First Requirement."

Extreme decisions to withdraw.

- a. "From information received I estimate my company is almost completely cut off. We are receiving pressure from west, north, and east, by infantry reinforced by tanks. Estimate 3 companies infantry, approx. 10 tanks. Recommend this company be withdrawn to Bn. position."
- b. "We are practically cut off. Foot troops and armor pushing down on us from north in Barloy Canyon area. At least two platoons of infantry approaching from west. F. Co. from observation and reports of stragglers seems to be overrun. Activity has been heard in their direction. Due to superiority of opposing forces and condition of my troops, it is imperative that I withdraw in order to save my company."
- c. "Situation untenable. No contact with F Co. Three men from F. Co. joined this unit, report F. Co. overrun by armor. Armor (6 tks) and est. 2 plts. inf. advancing south on Barloy Canyon Rd. Large force attacking position from NE on Impossible Ridge. Other Infantry advancing from west. OP's withdrawn. Withdrawing to Bn. assy. area immediately. Request artillery to cover withdrawal. Receiving observed artillery fire."
- d. "Position definitely untenable. Aggressor closing on three sides. Approx. 3 platoons of infantry and 2 tanks closing on left flank, generally along lines 095513-099498. 2 sqs. of inf. to rear on Old South Boundary Rd. 099492-104493. Est. 3 plts. inf. and 7 tanks to north. Know possible armor moving south along Skyline Road with infantry. 1st Infantry units not contacted. Ammo low."

As we have indicated, these examples represent extremes: at one end are officers who apparently saw no excessive threat in their position, at the other are those who saw the situation as completely hopeless for further resistance. Between these extremes were many officers whose evaluations of the situation were more balanced, but whose decisions as to the most appropriate course of action nonetheless varied widely. In some cases officers whose estimate of the situation appeared to argue strongly for one course of action ended by choosing the opposite course.

In general there seems good reason to conclude that the decisions on the problem were strongly influenced by factors which had little to do with the tactical situation per se. The evidence is clear on the influence of the subjects' rank and general experience. We now want to consider the possible significance of the data from the personality measures. Since the highly significant relationships in the second

experiment did not reappear with the later sample, the most conservative course is to ascribe the first findings to chance. However, the great consistency in the pattern of results (Table 4, page 23) from the second sample is hard to reconcile with such an explanation. If our data suggest any other reason for the differences between the last two experiments, we should be cautious in repudiating the earlier results. The data do suggest that there was one influence on the decisions which steadily increased in importance during the course of the three experiments and which may have a bearing on this question.

It will be recalled that the tactical problem used in these experiments was designed from the beginning to culminate in a situation with strong pressures toward withdrawal. As anticipated, the first experiment yielded a considerable proportion of final decisions to withdraw; but, by the time of the second experiment a few months later, it was necessary to modify the problem substantially to produce any significant number of withdrawals. When the experiment was repeated after another few months, the reluctance of the subjects to withdraw had again increased and the proportion of decisions to hold was significantly higher in the third experiment than in the second. In other words, a difference between the first two experiments which was initially ascribed to differences in the characteristics of the populations sampled now appears to have been the reflection of a continuing trend. This conclusion fits with a fact which became increasingly clear as the study progressed: namely, that the period of our experiments coincided with the increasing dissemination of a new tactical doctrine which emphasizes the principle of small units fighting in comparative isolation on an atomic battlefield. It may be that by the time of the last experiment, the influence of this one principle was strong enough to override and obscure many of the influences which had previously played a greater part in the decisions.

The effect of the evidence summarized in the preceding paragraph is to make us less confident in rejecting our earlier conclusions from the personality data. If we cannot support the contention that the first results were valid, neither can we argue with confidence that they should be ignored. It seems clear enough that factors outside the tactical situation itself influenced the decisions in a very important way. Results from the personality measures are at least suggestive enough to justify their further exploration in some future research.

The next point concerns our main hypothesis that pressures to reduce dissonance reduce flexibility in sequential decision-making. Although the striking results of the first experiment remain puzzling, it is clear that the several experiments together provide no support for this hypothesis. It is possible that these negative results are attributable to some special characteristics of the military setting or of the military population, but a preliminary experiment using a similar design with civilian subjects in a civilian setting does not encourage

this belief (13). Eliminating this explanation, we are left with three alternatives:

1. The hypothesis is wholly disconfirmed.
2. The experiments conducted to date have been inadequate to test the hypothesis, because they lacked realism or for some other reason.
3. The hypothesis requires modification in the light of the results obtained.

Choice among these alternatives will ultimately depend on further experiments. In the meantime, there may be some value in comparing, retrospectively, the conditions established in the present experiments with the conditions of other experiments which have provided strong support for the basic theory.

Among the several experiments discussed in our introduction, two seem most relevant to the present research. The first is Festinger's study of behavior in a gambling situation (6); the second is Dailey's experiment on the effects of "premature" judgments about people (5). Both of these studies supported the hypothesis that making a decision reduces receptiveness to subsequent disconfirming information. Since our experiments did not support this hypothesis, we need to inquire whether the situation faced by our subjects differed in some fundamental way from the situations investigated by Festinger and Dailey. It appears now that a potentially important difference relates to the degree of "predictability" of the situations in which decisions were made.

In Dailey's experiment, the sequential decisions were judgments about a person. To the extent the subject had even a rudimentary conception which implied consistency in personality and human behavior, the supplementary information had to "fit" with his initial judgment. If it didn't fit, it implied that the conception was wrong. In Festinger's study, the subject's decision about which side of the game to play was based on knowledge of the cards used in the game and of the rules governing payoff. The subject had a chance to figure the odds for himself, and his conclusions about the odds was essentially a prediction about the outcome. If the game went against him, it brought into question the basis of his prediction. Thus, in both of these earlier studies, information which disconfirmed the original decisions could be regarded as dissonant in two senses; in the first sense the information was simply incongruent--it meant that the original behavior was no longer appropriate; in the second sense, the information threatened the subject's self-esteem--it reflected on the adequacy of his original prediction.

In contrast with the above examples, these are certainly situations which are generally considered to be unpredictable. In these

situations decisions will constantly be modified or reversed in response to changes in the situation. In any given instance, if a person tells us that he changed his mind "because the situation changed," we may accept his report as a valid explanation or we may repudiate it as a "rationalization." Which of these we do will depend largely on our own judgment of what could be predicted in advance.¹ In any event, the important point seems to be that it is possible to "rationalize" decisions in this way. This suggests that dissonance arising from "unpredictable" changes in the situation—if it should be called dissonance at all—will not have the same consequences as dissonance resulting from information which questions the validity of a prediction or belief.

How do these considerations affect the interpretation of our present results? We do not believe that commanders consider all military situations to be entirely unpredictable; for it seems obvious that in planning a campaign or even a lesser operation, commanders must make explicit or implicit predictions about what the enemy will do. We still believe that many of the famous examples of commanders who have clung too long to inappropriate courses of action resulted from just that inability to modify or abandon a prediction with which dissonance theory is concerned. However, we believe our experimental problem was not representative of these situations for two reasons. In the first place, it has become increasingly clear to us that small unit tactics, such as those involved in our problem, present an aspect different from larger operations precisely in respect to the predictability of the situation. Deprived of the kind of intelligence information which would enable him to make any confident judgment of enemy intention, the small unit commander is forced to regard most battlefield developments as "alien factors." In the second place, we believe that the "test character" of the experimental situation militated against an interpretation of the tactical developments as predictable. In real combat an officer might be convinced that the situation depicted by the problem would develop predictably, but the "examination set" created by the conditions of the experiment inevitably turns this situation into a kind of contest between experimenter and subject. In this contest, unlike the game studied by Festinger, the cards are stacked on the side of the experimenter. Since the subject cannot "figure the odds" he is forced into a sort of passive flexibility which might not at all characterize his behavior in the real situation.² We do not mean that the subjects consciously tried to "outguess the experiment." On the

¹Lewin used the term "alien factors" to refer to those things which enter the psychological environment "from outside." In these terms it would seem enough to say that what are alien factors for one person are not necessarily alien factors for another.

²In the language of the student officer any other mode of response is characterized as "fighting the problem."

contrary, there is every reason to believe that they responded entirely conscientiously, and they have given us data which is valuable for many purposes. However, we believe the unavoidable test character of the situation affected their behavior in ways which were crucial to the test of the major hypothesis.

It is probably clear from the foregoing discussion that we still think dissonance theory can make a useful contribution to our understanding of military decision-making. If our analysis has been correct, this will be especially true when we are concerned with command decisions of considerable scope and will be less true for problems of small group tactics. The problem of how to study these phenomena effectively shares difficulties with many training problems which demand realistic simulation of certain critical features of actual combat. When these difficulties can be overcome we are confident that research of this kind can make an even greater contribution to the solution of significant Army problems.

Our final point is really an addendum to this report, because it relates to a by-product of the study. In designing the tactical problem used in the experiments, we were concerned only with research requirements. We were aware that our method of presenting the tactical information through sequential messages had certain features in common with training procedures such as CPX's, but we were not familiar with any procedures exactly like our own. Although it did not originally occur to us that the technique might have value for purposes other than research, the spontaneous expressions of interest and enthusiasm from the subjects very early suggested that the method might be useful in training.

Our familiarity with curricula in tactics is not detailed enough for us to suggest how problems of this type could best be fitted into current courses. Several officers volunteered the suggestion that such problems provide a good integrative review for a junior officer because they require the application of so many different skills, and because they test the officer's competence under conditions of considerable time pressure. We believe that the possibility of adapting this technique for more extensive use in training should be considered by appropriate staff members at the service schools.

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APPENDIX A

THE TACTICAL PROBLEM¹

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¹This is the form used in the second and third experiments. As explained on pages 12 and 13, minor changes were made between the first and second experiments.

APPENDIX A-1: INSTRUCTIONS TO SUBJECTS

Introduction (For both experimental and control groups)

"I am Dr. _____ from Human Research Unit No. 2 at Fort Ord. As you may know, our unit is under the operational control of CONARC and receives many of its research requirements direct from that headquarters. In the present project our mission is to gather information about the level of tactical knowledge and ability maintained by officers on regular duty throughout the continental United States.

At the present time, except for experience from actual combat, most of our knowledge about how officers handle tactical problems comes from the various service schools. There are two dangers in depending too heavily on data from this source: first, officers in the school situation may tend to pay too much attention to those aspects of a tactical situation which are being particularly stressed in the courses given at the time, and may be less alert to equally important aspects which are less emphasized in class. Second, and perhaps more important, except in the advanced schools, student officers typically lack the practical experience which may provide an important corrective to an overly heavy reliance on a completely standardized book approach. At any rate, this is a subject on which more information is needed, and that is why we are giving this test problem today. The results may well have a bearing on how tactics are taught to future junior officers in the Army.

The problem with which you will be dealing today involves a reinforced infantry company. As a consequence, the infantry officers may feel that they have an advantage. However, this will be less true than might appear, since our procedure in scoring the test will place heavy emphasis on an officer's ability to evaluate a tactical situation over-all, and less emphasis on knowledge specific to infantry tactics. We are more concerned with how competently a man can think a situation through to a sound conclusion than in how successful he is in arriving at a school solution. As you study the problem, you will doubtless find that you are able to make a good evaluation of your own abilities in this area.

In a moment I shall turn this meeting over to Captain _____ who has been working with us on this project. Captain _____ will start by giving a quick rundown on the organization of the infantry company, which may be of use to those of you who have had no recent occasion to brush up on this topic. Following this, he will give a background briefing leading up to the situation covered by today's

problem. You will then turn to the material on your desks which describes the problem situation in detail. After you have had time to study this material, you will receive further instructions.

Now I should like to introduce Captain _____."

**

**

**

The preceding introduction is followed by a briefing on the organization, strength, weapons, etc. of the rifle company and then by a briefing in the background of the problem itself. The subjects are then asked to turn to the material on their desks. They are told, "You will have 30 minutes (in control group, 40 minutes) to familiarize yourself with the problem. At the end of that time you will receive further instructions."

At the end of 30 minutes subjects in the experimental group are told, "I shall now give you your first requirement. You will have fifteen minutes to continue your study of the problem and to write your answer. At the end of that time we shall collect your answers."

After the answers to the first requirement are collected from the experimental group—or at the end of 40 minutes for the control group—subjects are given a ten-minute break. They are told, "After the break is over, we shall give instructions for the remainder of the problem. Please do not discuss the problem among yourselves during the break."

SUPPLEMENTARY INSTRUCTIONS FOR CONTROL GROUP

"During the remainder of this problem the procedure to be followed will be a little different from any that I think you are familiar with. The situation will be a continuation of the one which you have been studying. For the present there will be no requirements--nothing for you to answer. However, you will have something to do; namely, to keep up with the situation so that you will be prepared to take action promptly when the opportunity is given.

Here is how we shall proceed. At your seat you will receive a series of supplementary information sheets which contain all of the important information you would receive as the situation for Company A develops. Each sheet will contain one or more items of information. You will have $3\frac{1}{2}$ minutes to study it, to plot it on your map, or to make such other notes as you think appropriate. Then we shall pick up that sheet and give you the next, and so on as long as the problem continues.

You may find things happening in the problem which you believe should not happen because of the actions you would have taken as the supplementary information comes in. If this occurs, simply assume that those actions have not been effective; or, as is more likely in view of the time span covered by the problem, that there has not yet been time for the orders to have been carried out.

Remember that you should be ready to take action at any time. However, you need do nothing except keep on top of the situation until a requirement is presented.

Now we shall pass out the first sheet."

Following the above instructions subjects work without interruption until after they finish supplementary information sheet Number 12. As he starts to pass out sheet Number 13, the experimenter says: "Please note this sheet constitutes your first requirement." When this requirement is completed, the final requirement is passed out with the information: "This next sheet will be your final requirement. You will have ten minutes to complete it." At the end of ten minutes, these sheets are picked up, the supplementary questionnaires are passed out, and a roster is started to itemize the subjects.

SUPPLEMENTARY INSTRUCTIONS FOR EXPERIMENTAL GROUP

"During most of the rest of this problem, the procedure will be somewhat different from that followed in the typical tactical problems, inasmuch as the requirements will be largely up to the individual officer. The situation is a continuation of the one already presented. At your seats you will receive a series of supplementary information sheets which provide all of the important information you would receive as the situation for Company A develops. Each sheet will contain one or more items of information followed by a space in which to write any actions which you would take, based on all of the information you have received up to that time. You are not required to write something on every sheet, but you should indicate all actions, orders, changes in plans, and so on, at the appropriate time. Be sure to include any orders issued, communications or attempted communications to superior headquarters or to other units, and any informal actions taken within your own company.

You will have four minutes for each supplementary sheet. Since your time will be very limited, you should be as concise as possible; and you should list your actions in priority order, in case you cannot finish in the time allowed. As soon as the time is up for the first sheet, we shall pick up that sheet and hand you the next, and so on throughout the remainder of the problem.

You may find things happening in the problem which you believe should not happen because of the actions you have taken. If this occurs, simply assume that those actions have not been effective; or, as is more likely in view of the time span covered by the problem, that there has not yet been time for your orders to be carried out.

Now, we shall bring you the first supplementary information sheet."

Following these instructions subjects work without interruption until after they have completed the last supplementary information sheet (Sheet Number 13). Then the final requirement is passed out with the information: "This next sheet will be your final requirement. You will have ten minutes to complete it." At the end of ten minutes, these sheets are picked up, the supplementary questionnaires are passed out, and a roster is started to itemize the subjects.

APPENDIX A-2: MATERIAL FOR BACKGROUND BRIEFING

SPECIAL TACTICAL PROBLEM A

MAP BRIEFING - OVERALL SITUATION

Map - Central California
Scale - 1:5000

1. The United States has been at war with the Aggressor since 10 January when the Aggressor landed a large task force in Central California capturing and establishing a strong beachhead in the San Francisco Bay Area.
2. The Aggressor was successful in a rapid build-up of strength and quickly launched an attack to the North and South in an effort to occupy strategic ports, rail and communication centers on the West Coast.
3. Exploiting his initial success, the Aggressor IX Corps was successful in advancing to a line fifty miles north of San Francisco and eastward to Sacramento, while the Aggressor XII Corps launched an all-out attack south along Highway 101 advancing to positions just north of Salinas where U. S. forces were able to temporarily halt their advance.
4. The Cities of Seaside, Carmel, and Monterey have suffered severe damage by aerial bombardment during the period 1-14 March and intelligence reports indicate a concentrated attack will be launched against these areas in an effort to establish a second major port along the West Coast.
5. During the first 60 days the Aggressor has concentrated his air attacks against cities along the West Coast, heavily damaging, but not crippling, our industry. The Aggressor has maintained air superiority during the period.
6. At time of the Aggressor attack the U. S. 6th Division, part of the U. S. Sixth Army was located in an area just south of San Francisco and has been active in delaying actions to present date, awaiting arrival of the 4th Division presently in position in Southern California - (Vicinity Los Angeles).
7. On 14 March the Commanding General Sixth Army ordered the 4th Division to move to the north from Los Angeles to assist in halting the Aggressor's advance to the south.
8. Friendly air has suffered heavy losses and is not capable of gaining air superiority in the near future.

APPENDIX A-3: GENERAL AND SPECIAL SITUATIONS

SPECIAL TACTICAL PROBLEM A

For Experienced Officers

1. GENERAL SITUATION: (Map - Fort Ord and Vicinity, California,
Scale 1:25,000) (Overlay - Scale 1:25,000)
 - a. During the second week of March an Aggressor force of all arms launched a coordinated attack against our friendly forces holding battle positions on the east flank from County Hospital (2262) to Ricon Del Zanjon (1661) and on the west flank along a general line just north of Castroville to Ricon Del Zanjon. The Aggressor attack resulted in the capture of the towns of Salinas and Castroville. When the Aggressor reached the Salinas River on 15 March, the U. S. 6th Division, a hastily organized force, was given the mission of delaying the advance until a new line could be prepared. Initial delaying positions were occupied on 15 March along a general line from Marina (0760) southeast to Junction Reservation Road and Highway 117 (1753). During the next three days the reserve regiment prepared defensive positions along a line running generally east from Junction Gigling Road - North-South Road (0655) to Grant Ewing Ridge (0854)- BM 408 (1053) - Tongue Ridge (1153) - Pilarcitos Ridge (1453) - Junction Reservation Road and Highway 117 (1753). The defense line is anchored on the critical terrain north of Highway 117 found from Grid Squares 1150-1153 to 1550-1753 and bordering Highway 117.
 - b. On 18 March a concentrated attack was launched by the Aggressor forcing the Division to displace to the previously prepared defense positions.
 - c. On 19 March a second Aggressor attack was launched against our forces

General Situation - cont'd

which were successful in repelling the attack although suffering extremely heavy casualties. U. S. forces now in contact with the Aggressor are overextended, seriously depleted, and there is danger that the increasing ineffectiveness of the U. S. Forces may result in a major breaching of U. S. defenses with the resulting loss of the Port of Monterey and of the airstrip which is the only one in a large area remaining under our control. The Aggressor forces have maintained air superiority throughout the past engagements. They are capable of delivering an atomic attack, but are believed to have very limited supplies of atomic weapons.

- d. At 1810 19 March the Aggressor launched another strong attack, preceded by an atomic missile - estimated 20 KT - being delivered against the 2nd Bn. 20th Infantry on the left flank with a ground zero in the vicinity of Hill 514 (0852). The 2nd Bn. received an estimated 80% casualties in personnel and equipment. Radio and wire communications were put out-of-order along most of the front lines. The atomic explosion was immediately followed by a heavy infantry-armor breakthrough at that point, the force estimated to be a reinforced Regiment. This attack forced a rapid withdrawal of the remaining elements of the 2nd Bn. 20th Infantry to the south and southwest and prevented the utilization of the 3rd Bn., 20th Infantry in a counterattack; however, by 2245 hours the 3rd Bn. was successful in blocking the Aggressor forces on a general line from 079486 to 060505. A coordinated attack followed at about the same

General Situation - cont'd

time against elements of the 1st Infantry on the right flank, following Pilarcitos Canyon Road and Engineer Canyon Road with the Aggressor's left flank on Highway 117. By 2030 hours the bulk of this attack was stopped along a line from Junction Jacks Road and Skyline Road (1452) through Jacks Ranger Station to Junction Oil Well Road and Jacks Road (1652) with elements of the 1st Infantry holding the high ground along this line.¹

SPECIAL TACTICAL PROBLEM A (Continued)

2. SPECIAL SITUATION: (Map - Fort Ord and Vicinity, California, Scale 1:25,000)

This is a continuation of the General Situation.

- a. Weather forecast: During period 20-23 March, weather clear and cool.

Light and scattered ground fog expected until 0900 daily, thereafter no restrictions. Full moon.

20 March BMNT 0514 - EENT 1910.

21 March BMNT 0510 - EENT 1912.

Wind will be from North 10-15 MPH.

- b. Prior to the atomic attack described above your unit, part of the 1st Bn.

20th Infantry had been hit by light infantry attacks and occasional heavy artillery with little damage. As a result of the atomic attack, Co. B on the left flank has reported an estimated 70% casualties in personnel and equipment. Co. C now in reserve had received the brunt of previous attacks during 10-18 March, and was already low in personnel. At the time of the "A" attack this Company was preparing supplementary defense positions on high ground on Impossible Ridge and Wildcat Ridge which appears to be the commanding terrain in the area. In the "A" attack they suffered additional casualties which made them temporarily completely ineffective.

Your Co., Co. A, because of its defiladed position and being well dug in, suffered very few casualties.

- c. At 2300 hours 19 March the Bn. CO visits your Company C. P. Your CO informs him he has lost contact with units to his left and right, has sent out small contact patrols to both flanks, but so far has failed to establish contact. He also informs him that he has heard heavy small arms

Special Situation - Cont'd

and artillery fire to his right flank. The Bn. CO gives the Co. CO the following information: I have been trying to contact your unit for some time by radio but have been unable to reach you. What is left of our 2nd Bn. has already started to pull back and has to be counted out. Units of 1st Infantry on our right are fighting a good delaying action but are slowly giving ground. As of 2215 hours they held a line generally from 142527 to Hill 529 (159520) a small unit of the 1st Infantry is located slightly southeast of the Junction of Picnic Canyon Road - Pilarcitos Canyon Road (1352). This unit is slowly giving ground. Bn. CO also mentions that reserve Bn. of the 1st Infantry is preparing to counter-attack someplace in their sector but has no further information on plans for this counterattack.

Bn. CO informs your Co. CO that our Bn. will withdraw to an assembly area south of Highway 117 (1047) where it is to reorganize for probable use in a blocking mission to protect right flank of a 63rd Infantry counterattack and to try to prevent the Aggressor units on left and right from joining forces. Our blocking position may be either to the northwest or east of the Bn. Assembly Area depending upon the direction from which the Aggressor brings the greatest threat. The counterattack by the 63rd Infantry (Code name "fishbait") is scheduled for tomorrow morning and will be to the northeast through present blocking position held by 3rd Bn. in an effort to regain the defense line held on 18 March.

Bn. CO assigns your unit the mission of covering the withdrawal of the remaining elements of our Bn. by occupying a covering position from Merrills

Special Situation - Cont'd

Hill (1053) to Perry Ridge (1252). Your unit is to withdraw to an assembly area north of Laguna Seca. Your CO is to notify Bn. CO when your unit closes into its Assembly Area. At that time Bn. CO will issue further instructions.

After the Bn. CO leaves, another contact patrol moves out at 2400 hours to try to locate friendly unit on right with instructions to return to the designated Company Assembly Area not later than 0500.

- d. Only intermittent radio contact with Battalion is possible following Bn. CO's visit; however, at 0300 hours 20 March a radio message is received from the Bn. CO stating that the remainder of the Bn. has closed in the Bn. Assembly Area, and that Co. A can break contact. At 0305 hours your Company begins its withdrawal to an assembly area in Impossible Canyon (1150). At 0430 hours the contact patrol sent out at 2400 hours returns with information that the closest unit to the right is "F" Co., 1st Infantry. Patrol is accompanied by a runner from F Co. When patrol left F Co. at 0315 hours, it was in position astride Pilarcitos Canyon Road and Skyline Road at about 134520. The following note from Co. "F" CO was sent back with the patrol leader. "Sure worried about my flank when I lost contact with you last night. Glad you're still around. Have been pushed back about 1000 yards since last evening but have a good position now and think I can hold here if things don't get much worse. Maybe we can help each other with fire support. Keep me posted developments your sector. Use my runner to acknowledge." Co. A CO sends the runner back with a message reporting developments since previous evening and ending:

-4-

Special Situation - Cont'd

"Holding present position awaiting further orders or developments. Have instructions to contact my Bn. CO from this position but haven't been able reach him yet; will keep you informed as well as possible."

at 0445 hours the last elements of the Company have reached its assembly area. A security force is placed on commanding high ground (Approx. 116509) and four O. P.'s are set up as follows: O. P. No. 1 on Hill 821 (104506), O. P. No. 2 on Hill 930 (120502), O. P. No. 3 at 114521, and O. P. No. 4 at 120517. Remainder of the Company is in draws with C. P. at Approx. 111503. At this time the Company Commander tries to contact the Bn. CO but is unsuccessful. He asks the Co. Exec for status reports from his platoon and attached weapons section leaders.

at 0500 a squad-size patrol is sent out to the southeast in an effort to contact friendly units and to reconnoiter routes for withdrawal. This patrol is to report back prior to 0630. The patrol is instructed to follow route east of Laguna Seca following generally the road running north and south in Grid Square 1248 as far as Highway 117. The return route is east along Highway 117 north to Hill 655 (1349) then to Hills 633 and 548 (1249) then east of Wolf Hill (1149) to Company Area.

At 0515 hours reports from platoon and section leaders indicate a total of five killed, twenty wounded, and thirteen men missing, including an entire squad from 1st platoon. Attached weapons sections report no casualties. Ammunition supply is adequate including 20 rounds of 106 MM for two jeep-mounted recoilless rifles. Morale of the men is not too good, and even though the men are tired from previous actions they didn't like

Special Situation - Cont'd

the thought of withdrawing again and would much rather have held. Most men have three meals of "C" ration left, one of which they will eat for breakfast. The water supply is good and should last the day.

At 0525 local security elements on the surrounding high ground report squad-size patrols on Hill 594 (1252) and on trail just north of depression in Grid Square 0950 following trail to south.

At 0530 hours a second patrol is sent out to the south with instructions to contact Bn. CO. They are to follow a route on the west side of Imposible Canyon Road, cross Barloy Canyon Road just east of Hill 831 (1049) then continue south on the west side of the boundary line (1048) to Bn. Assembly Area. After contacting Bn. CO they are to return along Highway 117 to mouth of draw (110478) then head north up draw staying west of Laguna Seca, east of Wolf Hill, to Company Area.

At 0540 hours, the Company Commander again attempts to reach the Bn. Commander by radio but is unsuccessful. He takes his Exec and radio operator to a vantage point (116504) noting on arrival that morning fog is in the bottoms of a few canyons but that observation is generally good on the ridges and canyon sides. From this point he succeeds in establishing contact with the Bn. CO although reception is still somewhat difficult. After reporting his position and situation he informs Bn. CO of his patrols, stating that the 2nd patrol should reach Bn. area by 0630. Bn. CO replies as follows: "This is Baker 6 (Message No. 35) Bn. is holding in our assembly area and is regrouping. Are somewhat stronger than previous estimated owing fewer casualties than first reported in B Company but my

Special Situation - Cont'd

presence definitely needed here. You may hold in positions prepared by C Company if situation favorable or rejoin Bn. if believed most advisable. Control of high ground might assist our next probable mission, but cannot afford to jeopardize your Company. Will leave decision to you. Communications poor, but keep me posted as well as you can. Let me know immediately if..." At this point reception becomes so poor that the rest of the message is lost. After several unsuccessful efforts to reestablish contact, the CO tells the radio operator to keep trying, and leaves the hill with his Exec to return to the Co. CP. When the two men have gone about 150 yards Aggressor artillery, which has continued sporadically throughout the night, comes in again. The men dive for cover, but when the barrage has ceased, it turns out that the CO has been killed, and the Exec has been slightly wounded by a shell fragment in the arm.

You were the Executive Officer and must assume command of the Company.

29 May 1956

APPENDIX A-4: INITIAL REQUIREMENT
(For experimental groups only)

MAP NO. _____

SPECIAL TACTICAL PROBLEM A

FIRST REQUIREMENT (15 Minutes)

As the new CO of Co A, you have suddenly had thrown on you the responsibility for deciding on a course of action. On the basis of the information now available to you, you must try to forecast future developments in your sector and must choose between the two alternatives offered by your Bn. CO. You may hold north of Laguna Seca and defend the high ground in prepared positions centering on the Junction of Impossible Ridge and Wildcat Ridge, or you may pull out and rejoin the rest of Bn. south of Highway 117.

a. What is your decision? (Check one)

_____ Hold and defend high ground.

_____ Withdraw to rejoin Bn.

b. Why did you choose the course of action indicated in your answer above? Give all the important reasons for your choice, but use outline form and be as brief as possible. Write your answer in the space below.

APPENDIX A-5: SUPPLEMENTARY INFORMATION SHEETS

MAP NO. _____

SUPPLEMENTARY SHEET NO. 1

0601: Radio message received from 2nd patrol to south: "At 0555 hours met squad size Aggressor patrol in draw vicinity 104492. Definitely killed five Aggressors. Three or four others headed N. W. fast. We lost two killed, have one slightly wounded. Continuing on mission."

0603: O. P. No. 1 reports Aggressor patrol moving south on road at 099499. Time 0556. Estimated to be a squad.

USE SPACE BELOW TO INDICATE ANY ACTION TAKEN AT THIS TIME:

Note: On Supplementary Sheets 1 through 12, the instruction to "indicate any action taken" appeared only on the sheets given to the experimental groups. It was omitted on the sheets for the control groups.

SUPPLEMENTARY SHEET NO. 2

0606: Platoon leader 1st plt. comes to CP. He states that his men have had almost no sleep for two days, are worried about the missing squad and are very jumpy. Some of these men are beginning to talk about being cut off, and the platoon leader says he is not sure how they will behave if the company is attacked.

0607: O. P. No. 2 reports six Aggressor tanks with Infantry moving south on Barloy Canyon Road. Head of column at RJ 126538 at 0602 hours.

USE SPACE BELOW TO INDICATE ANY ACTION TAKEN AT THIS TIME:

MAP NO. _____

SUPPLEMENTARY SHEET NO. 3

0608: Leader of attached weapons section reports check on ammunition shows only 10 rounds 106 MM instead of 20 rounds previously reported. Says he understood Sgt. who gave report to mean 10 rounds for each rifle, but it turns out he meant 10 rounds for both rifles together. Section leader states he has reprimanded Sgt. for the earlier report and has now personally counted the ammunition. Rifle platoon leaders report good supply of 3.5 rocket launcher ammunition.

0608: Sudden large increase in small arms and artillery fire to west indicates heavy fighting in that sector.

USE SPACE BELOW TO INDICATE ANY ACTION TAKEN AT THIS TIME:

SUPPLEMENTARY SHEET NO. 4

0610: Radio Operator picks up fragmentary message through Aggressor jamming. ".....Fishbait.....0600.....if successful may.....ridge.... do you plan.....over." Attempts to get message clarified fail because of intensified Aggressor EW (electronic warfare). The radio operator says Bn. seemed to be trying to repeat the message. He thinks his own message may have been getting through to Bn., but he can't be sure.

0610: O. P. No. 4 reports 106 mm rifle squad moving into position at 129516, apparently to engage enemy armor on Barloy Canyon Road. 106 Squad presumed to be from "F" Co. 1st Infantry.

USE SPACE BELOW TO INDICATE ANY ACTION TAKEN AT THIS TIME:

MAP NO. _____

SUPPLEMENTARY SHEET NO. 5

0612: O. P. No. 2 reports Aggressor recon patrol at RJ 676 (1350)
at 0605 hours apparently moving from Oil Well Road across Skyline
Road to the southwest. O. P. actually sighted 5 Aggressors.

0614: O. P. #4 reports four Aggressor tanks with ground troops now at
124530 moving south on Barloy Canyon Road.

USE SPACE BELOW TO INDICATE ANY ACTION TAKEN AT THIS TIME

SUPPLEMENTARY SHEET NO. 6

0615: O. P. No. 2 reports hearing heavy firing from direction of Pilarcitos Canyon and a few minutes after firing commenced O. P. observed a small number of U. S. troops hastily moving down Pilarcitos Canyon from the north. These troops started to dig hasty positions on both sides of the road at 130512. A short time later more U. S. troops were seen coming from the north. These men did not dig in but continued on through the positions of the 1st group. All this time the sound of firing seemed to be coming closer.

0616: O. P. No. 4 reports exchange of fire between friendly 106 on right and enemy armor on Barloy Canyon Road.

USE SPACE BELOW TO INDICATE ANY ACTION TAKEN AT THIS TIME:

SUPPLEMENTARY SHEET NO. 7

0617: O. P. No. 3 at 114521 reports estimated platoon Aggressor infantry with two tanks moving south on Impossible Canyon Road with head of column at 117533.

0618: Your radio operator reports that he had been receiving a message from O. P. No. 2 saying that they were receiving heavy mortar and artillery fire when the transmission suddenly stopped. He says that he tried to contact the O. P. again but couldn't get any answer.

USE SPACE BELOW TO INDICATE ANY ACTION TAKEN AT THIS TIME:

SUPPLEMENTARY SHEET NO. 8

0618: Heavy artillery concentration which has been hitting high ground on Wildcat Ridge Vicinity 120525 for last five minutes lifts and shifts to north end of Impossible Ridge (1152). O. P. No. 3 reports rounds close to O. P. At the same time intense artillery and mortar fire blankets the nose of Wildcat Ridge with the impact area centered about 119516. During the barrage a rifleman from the 1st Platoon starts to run to the rear. Platoon leader orders him to return; and when the man keeps on running platoon leader shoots and wounds him in the leg.

0620: O. P. #4 reports 106 squad on right has pulled out although not under attack. Lead tank of enemy column on Barloy Canyon knocked out at 124528 - other tanks have dispersed off road to east, but appear to be preparing to continue forward. O. P. reports one man wounded by mortar fragment during barrage.

USE SPACE BELOW TO INDICATE ANY ACTION TAKEN AT THIS TIME:

SUPPLEMENTARY SHEET NO. 9

0622: Radio operator tells you he is sure that Bn. is trying to reach you but he can't establish contact and can't get enough of the message to make any sense of it.

0623: O. P. No. 1 reports a platoon-size aggressor force moving east on unimproved road 095514 and at least a platoon moving east on dirt road at 097506.

USE SPACE BELOW TO INDICATE ANY ACTION TAKEN AT THIS TIME:

SUPPLEMENTARY SHEET NO. 10

0625: O. P. #4 reports Aggressor tanks previously under fire on Barloy Canyon Road have been reinforced with two additional tanks and with more ground troops. These five tanks with approximately two platoons of Infantry are now at 122522 with Infantry in front. About a squad of Aggressor foot troops at 126520 could be from same force.

0627: O. P. #3 reports large number of Aggressor troops approaching his position from north coming up the ridge from Impossible Canyon.

O. P. requests permission to withdraw before being detected.

USE SPACE BELOW TO INDICATE ANY ACTION TAKEN AT THIS TIME;

SUPPLEMENTARY SHEET NO. 11

0628: Patrol sent out earlier to southeast returns reporting no contact with friendly forces, but when on Hill 655 (1349) at 0545 hours had observed friendly patrol near Hill 605 (1349). Moments later heard firing to northeast of that vicinity.

0632: One of your platoon leaders reports that three friendly soldiers from 1st Infantry unit on right flank enter your defense area from Wildcat Canyon. These men are panicky and can give no clear account of how they became separated from their unit. They just keep saying their unit is overrun and that they haven't a chance of getting back to it. One of them says they were attacked by Aggressor tanks but can't estimate the size of the Aggressor force, except to say there were "A lot of them." The platoon leader asks what should be done with these men.

USE SPACE BELOW TO INDICATE ANY ACTION TAKEN AT THIS TIME:

SUPPLEMENTARY SHEET NO. 12

0635: A runner from part of your unit located on the south end of Wildcat Ridge reports that at 0625 two Aggressor armored Recon cars were seen headed west on the road at the south end of Laguna Seca.

0637: Wounded man from O. P. #2 returns to CP. He states other two men at O. P. were killed and radio knocked out by mortar fire. Fire was so accurate he thinks they were definitely spotted by the enemy. Reports seeing very large dust cloud just beyond RJ Skyline Road and Oil Well Road (1350) just before he left O. P. at 0624. Believes must have been armor.

USE SPACE BELOW TO INDICATE ANY ACTION TAKEN AT THIS TIME:

SUPPLEMENTARY SHEET NO. 13

0647: Runner from Bn. CP arrives at your unit with following message from Bn. CO: "0630. Would visit you personally if possible, but cannot leave assembly area at present. Your radio not getting through. Badly need information on developments your sector and also information about F Co, 1st Inf on your right flank. 1st Inf says F Co getting hit but cannot tell how badly. One of our patrols reported enemy tank-infantry force, estimated 2 tanks, 1 platoon infantry stopped Vicinity BM 930 (0949) at 0620. Fishbait progress still uncertain. Request soonest your estimate of the situation and intended action.

SECOND REQUIREMENT (8 minutes)

What is your reply to the message from the Bn. CO? (Write your answer in the space below. Use back of this sheet if necessary.)

Note: This form was used for the experimental groups. For the control groups the concluding question was labelled "FIRST REQUIREMENT" instead of "SECOND REQUIREMENT".

SPECIAL TACTICAL PROBLEM A

FINAL REQUIREMENT (10 minutes).

- a. At this time, what do you believe is the best course of action for your company? (Check one answer below. Please answer this question even if you believe your answer will add nothing to what you have already written.)

_____ Continue to defend high ground north of Laguna Seca.

_____ Withdraw to rejoin Bn.

- b. Why did you choose the course of action indicated in your answer above? Give all the important reasons for your choice, but use outline form and be as brief as possible. Write your answer in the space below.

APPENDIX B

MEASURES OF TOLERANCE FOR DISSONANCE

B-1	Opinion Questionnaire I	75
	Items from California F Scale: Numbers 1, 4, 9, 12, 13, 17, 18, 20, 22, 24, 25, 33, 40, 41, 49, 50, 53, 54, 55, 61, 63, 64, 67, 70, 71, 72, 74.	
	Items from Dogmatism A Score: Numbers 2, 26, 34, 51, 57, 62.	
	Items from Dogmatism B Score: Numbers 3, 6, 7, 10, 27, 31, 32, 35, 36, 37, 38, 48, 52, 56.	
B-2	Opinion Questionnaire II	80
	Items from Flexibility Scale D Score: Numbers 7, 10, 15, 19, 22, 26, 34, 38, 44.	
	Items from Flexibility Scale R Score: Numbers 1, 2, 3, 5, 9, 13, 28, 31, 37, 39, 42, 43.	
	Items from E Score (Extreme Statements Test): Numbers 4, 6, 8, 11, 12, 14, 16, 17, 18, 20, 21, 23, 24, 25, 27, 29, 32, 33, 35, 36, 40, 41.	
B-3	Rating Scales for Film Rating Test	83
B-4	Story Rating Test: Description	86
B-5	Story Rating Test: Adjective Check List	92

OPINION QUESTIONNAIRE I

Following are a number of statements, with each one of which some officers agree and some disagree. Using the key below, please mark each statement in the left hand margin to indicate the extent to which you agree or disagree with it.

+ 1: Slight agreement	- 1: Slight disagreement
+ 2: Moderate agreement	- 2: Moderate disagreement
+ 3: Strong agreement	- 3: Strong disagreement

- ___ 1. Young people sometimes get rebellious ideas, but as they grow up they ought to get over them and settle down
- ___ 2. I am afraid to have people find out what I'm really like, for fear they will be disappointed in me.
- ___ 3. My blood boils whenever a person stubbornly refuses to admit he's wrong.
- ___ 4. What this country needs most, more than laws and political programs, is a few courageous, tireless, devoted leaders in whom the people can put their faith.
- ___ 5. Group discussion is a pretty good way of solving many kinds of problems.
- ___ 6. The worst crime a person could commit is to attack publicly the people who believe in the same thing he does.
- ___ 7. It is when a person devotes himself to an ideal or cause that he becomes important.
- ___ 8. Of course everyone makes some mistakes, but if an officer makes a real error of judgement, it's a pretty sure sign that he is going to make more.
- ___ 9. Obedience and respect for authority are the most important virtues children should learn.
- ___ 10. It's all too true that most people just won't practice what they preach.
- ___ 11. "Neurosis" is usually just a fancy term to apply to someone who can't make up his mind.
- ___ 12. Sex crimes, such as rape and attacks on children, deserve more than mere imprisonment; such criminals ought to be publicly whipped, or worse.
- ___ 13. People can be divided into two distinct classes: the weak and the strong.

PLEASE GO DIRECTLY ON TO NEXT PAGE !!

- ___ 14. If a person really knows what is right, he will not worry too much when some of his beliefs seem inconsistent.
 - ___ 15. Because life today is basically complicated, modern abstract art may succeed in getting an idea across better than the technique of the old masters.
 - ___ 16. There is often great enjoyment to be found in wrestling with a problem which has no definite answer.
 - ___ 17. No weakness or difficulty can hold us back if we have enough will power.
 - ___ 18. Science has its place, but there are many important things that can never possibly be understood by the human mind.
 - ___ 19. The Army can't be democratic in any sense of the word, and the sooner everyone realizes it the better.
 - ___ 20. There is hardly anything lower than a person who does not feel a great love, gratitude, and respect for his parents.
 - ___ 21. There is no excuse for "trick questions" on a test or examination.
 - ___ 22. Some day it will probably be shown that astrology can explain a lot of things.
 - ___ 23. Since the instructor of a class is the one who really knows the subject, the conference method of teaching is a good deal like the blind leading the blind.
 - ___ 24. Human nature being what it is, there will always be war and conflict.
 - ___ 25. Every person should have complete faith in some supernatural power whose decisions he obeys without question.
 - ___ 26. I'd like it if I could find someone who would tell me how to solve my personal problems.
 - ___ 27. It is sometimes necessary to resort to force to advance an ideal one strongly believes in.
 - ___ 28. It is usually a sign of weakness if a person says he can see good arguments for both sides of a question.
 - ___ 29. There are times when a leader should be slow to make up his mind, but once he has made it up, he should deal very firmly with any subordinate who even questions whether it should be changed.
 - ___ 30. Recent progress in science has shown that there are very few principles which can be regarded as established for all time.
- PLEASE GO DIRECTLY ON TO NEXT PAGE!!

- ___ 31. To compromise with our political opponents is dangerous because it usually leads to the betrayal of our own side.
- ___ 32. If given the chance I would do something that would be of great benefit to the world.
- ___ 33. Nowadays more and more people are prying into matters that should remain personal and private.
- ___ 34. My hardest battles are with myself.
- ___ 35. The United States and Russia have just about nothing in common.
- ___ 36. When it comes to differences of opinion in religion we must be careful not to compromise with those who believe differently from the way we do.
- ___ 37. In a heated discussion I generally become so absorbed in what I am going to say that I forget to listen to what the others are saying.
- ___ 38. To one who really takes the trouble to understand the world he lives in, it's a relatively easy matter to predict future events.
- ___ 39. Orientals and native Americans are basically pretty much the same.
- ___ 40. Wars and social trouble may someday be ended by an earthquake or flood that will destroy the whole world.
- ___ 41. When a person has a problem or worry, it is best for him not to think about it; but to keep busy with more cheerful things.
- ___ 42. When I have made a decision carefully, almost always it turns out to be right.
- ___ 43. If you know a few basic things about a man you can predict well enough what he will do in any important situation.
- ___ 44. Problems with "no school solution" are pretty much a waste of an officer's time, because he can't learn much if he can't tell what he has done right and what he has done wrong.
- ___ 45. In a training exercise where the students are kept interested, a final critique may not be important at all.
- ___ 46. An effective military leader will study his subordinates carefully and then make up his mind about them once and for all.
- ___ 47. People who think carefully about important social issues often find it impossible to choose either side completely.

PLEASE GO DIRECTLY ON TO NEXT PAGE !!

- ___ 48. In times like these, a person must be pretty selfish if he considers primarily his own personal happiness.
- ___ 49. Most of our social problems would be solved if we could somehow get rid of the immoral, crooked, and feeble-minded people.
- ___ 50. What the youth needs most is strict discipline, rugged determination, and the will to work and fight for family and country.
- ___ 51. At times I think I am no good at all.
- ___ 52. It is better to be a dead hero than a live coward.
- ___ 53. The wild sex life of the old Greeks and Romans was tame compared to some of the goings-on in this country, even in places where people might least expect it.
- ___ 54. Some people are born with an urge to jump from high places.
- ___ 55. Nowadays when so many different kinds of people move around and mix together so much, a person has to protect himself especially carefully against catching an infection or disease from them.
- ___ 56. If I had to choose between happiness and greatness, I'd choose greatness.
- ___ 57. It is only natural for a person to have a guilty conscience.
- ___ 58. It is not necessarily a sign of prejudice if an employer refuses to hire Negroes, because research shows that on the average Negroes score lower than Whites on intelligence tests.
- ___ 59. Many ideas which were considered radical or even communistic a few years ago are accepted without question today.
- ___ 60. There is nothing wrong with people from different races or religions getting married.
- ___ 61. An insult to our honor should always be punished.
- ___ 62. I have often felt that strangers were looking at me critically.
- ___ 63. If people would talk less and work more, everybody would be better off.
- ___ 64. Most people don't realize how much our lives are controlled by plots hatched in secret places.
- ___ 65. Successful men are not necessarily decisive.
- ___ 66. College professors might do a pretty good job of running the country.

PLEASE GO DIRECTLY ON TO NEXT PAGE!!

- ___ 67. Homosexuals are hardly better than criminals and ought to be severely punished.
- ___ 68. A person is pretty sure to fail if he starts a job without planning the details in advance.
- ___ 69. A lot of people try to make everything too complicated. Anyone who takes the trouble to learn a few basic principles will find he can answer just about every important question.
- ___ 70. The businessman and the manufacturer are much more important to society than the artist and the professor.
- ___ 71. No sane, normal, decent person could ever think of hurting a close friend or relative,
- ___ 72. Familiarity breeds contempt.
- ___ 73. World government seems the best hope for permanent peace because many international issues cannot be considered matters of right and wrong.
- ___ 74. Nobody ever learned anything really important except through suffering.

STOP HERE. PLEASE DO NOT TURN THE PAGE UNTIL ASKED TO DO SO.

OPINION QUESTIONNAIRE II

Following is a list of brief statements. Please read each statement, decide whether you think it is generally true or generally false, and then mark in the left hand margin to indicate your opinion. If you think the statement is true, write "T" in the margin; if you think it is false, write "F" in the margin.

- ___ 1. I find that a well-ordered mode of life with regular hours is congenial to my temperament.
- ___ 2. I am in favor of a very strict enforcement of all laws, no matter what the consequences.
- ___ 3. I often start things I never finish.
- ___ 4. If any kid wants to read comic books, there's no reason why he shouldn't spend as much time reading them as he wants to.
- ___ 5. I always see to it that my work is carefully planned and organized.
- ___ 6. It is ridiculous to believe that mental telepathy may be possible.
- ___ 7. I often wish people would be more definite about things.
- ___ 8. The schools should cut out the frills. Kids could be made to learn if teachers would go back to the hard-headed educational practices of eighty or a hundred years ago.
- ___ 9. I think I am stricter about right and wrong than most people.
- ___ 10. Anyone worth his salt will be able to make up his mind even on the most difficult questions.
- ___ 11. No right-thinking person would even consider the idea of a preventive war.
- ___ 12. The present divorce laws are all wrong. Any married couple who doesn't want to stay together should be able to get a divorce just by asking for it.
- ___ 13. It bothers me when something unexpected interrupts my daily routine.
- ___ 14. There should not be any laws regulating gambling at all. If people want to gamble, it's their own business.
- ___ 15. I don't like to work on a problem unless there is the possibility of coming out with a clear-cut and unambiguous answer.
- ___ 16. Every school child should have two or three years of Latin to teach him to discipline his mind and teach him to think clearly.

PLEASE GO DIRECTLY ON TO NEXT PAGE !!

- ___ 17. There's absolutely no reason why anyone should vote in any election if he does not feel like doing so.
 - ___ 18. Harsh punishment never made anyone better. Without exception, a young person who does something wrong will respond best to kindness and understanding.
 - ___ 19. It is annoying to listen to a lecturer who cannot seem to make up his mind as to what he really believes.
 - ___ 20. There would never be any reason why a woman should not go into a bar by herself.
 - ___ 21. There is certain to be a major war within the next ten years.
 - ___ 22. Our thinking would be a lot better off if we would just forget about words like "probably," "approximately," and perhaps."
 - ___ 23. People who get married should stay married. There is never any justification for a marriage breaking up.
 - ___ 24. There should be laws to prohibit gambling in any form and under any circumstances whatsoever.
 - ___ 25. There is absolute proof that mental telepathy works for some people.
 - ___ 26. I don't like things to be uncertain and unpredictable.
 - ___ 27. People who criticize progressive education don't realize that the one most important thing for a child to learn in school is how to live and work with other people.
 - ___ 28. Once I have my mind made up I seldom change it.
 - ___ 29. A woman should never go into a bar alone under any circumstances.
 - ___ 30. I like to have a place for everything and everything in its place.
 - ___ 31. I never make judgments about people until I am sure of the facts.
 - ___ 32. It is complete nonsense to go on teaching Latin or Greek in American schools.
 - ___ 33. There is no chance of any large scale war for at least fifteen or twenty years.
 - ___ 34. For most questions there is just one right answer, once a person is able to get all the facts.
 - ___ 35. There is no excuse for any kid spending time reading comic books.
- PLEASE GO DIRECTLY ON TO NEXT PAGE!!

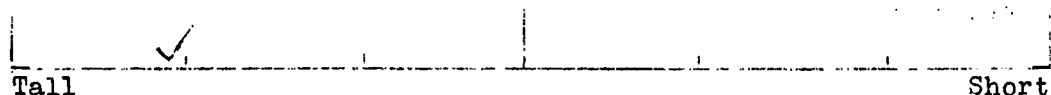
- ___ 36. The way to beat juvenile delinquency is to crack down hard on every single high school kid who gets out of line.
- ___ 37. I am known as a hard and steady worker.
- ___ 38. It is hard for me to sympathize with someone who is always doubting and unsure about things.
- ___ 39. The trouble with many people is that they don't take things seriously enough.
- ___ 40. Events have already proven that our national leaders should have thought more about the possibility of a preventive war a few years ago.
- ___ 41. If a person fails to vote in an election, he is not a good citizen.
- ___ 42. I set a high standard for myself and I feel others should do the same.
- ___ 43. Most of the arguments or quarrels I get into are over matters of principle.
- ___ 44. People who seem unsure and uncertain about things make me feel uncomfortable.

APPENDIX B-3: FILM RATING TEST SCALES

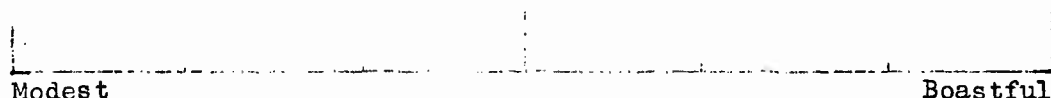
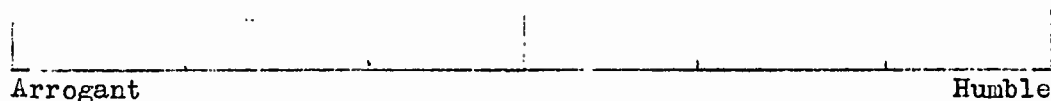
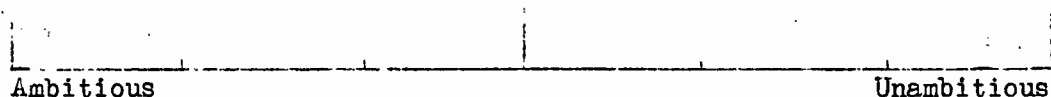
INTERVIEW RATINGS

Following is a series of scales, each with some descriptive adjective at one end and its opposite at the other. Please make a check on each scale to indicate how you think it applies to the applicant in the interview. If you think the adjective at one end exactly describes the applicant, then you will put a check way out at that end of the scale. If you think the adjective at the other end exactly describes him, then you will put a check way out at that other end. If you think one of the adjectives is just as likely to be true of him as the other, then you will put your check in the middle.

As an example, suppose we had the scale described by the words "tall" and "short". If you judged that the applicant was substantially above average height, but not extremely tall, then you would probably place your check approximately as shown below:



Now go ahead with the scales below. Be sure to mark every scale.



Careless

Careful

Clearthinking

Confused

Conservative

Liberal

Cooperative

Uncooperative

Cowardly

Courageous

Honest

Dishonest

Energetic

Lazy

Greedy

Generous

Friendly

Unfriendly

Calm

Irritable

Aggressive

Submissive

Suspicious

Trusting

APPENDIX B-4: STORY RATING TEST

DESCRIPTION

PFC Pete Taylor was in the guardhouse for the second time in his Army career, which was now in its third year. He had been picked up in a bar in town, drunk, in a fight, and using obscene language. Moreover he had overstayed his pass. His CO, Captain James, who had only recently taken over Pete's company, would be required to make a recommendation as to what action should be taken; and he was trying to get all the information he could about Pete.

Captain James knew very little about Taylor, since he had had the company for such a short time. He called in the 1st Sergeant for a report. The 1st Sergeant told him that Pete had been in no previous trouble while in this unit, but that two years before (prior to his overseas duty) he had been tried and acquitted by a Court Martial for an offense similar to the one for which he was now in the guardhouse. The 1st Sergeant added that he found Pete to be a good enough soldier. He had been insubordinate on one occasion, but this had not been repeated. He was probably about average in the performance of his duties. The Sergeant stated that he knew little about Pete beyond this. Captain James told the Sergeant to find out if there was anyone in the unit who had known Pete previous to or during his overseas duty. The Captain also wrote to Pete's parents and to his high school principal for information.

The 1st Sergeant located a man (Corporal Fenster) who had known Pete during Basic Training. Like a lot of men, Pete had apparently disliked Basic Training. However, he hadn't squawked too much and

only occasionally had to be reprimanded for failure to perform properly in training. When he did goof off, a mild reprimand usually caused him to shape up. Generally he kept out of trouble and fitted in reasonably well. Fenster told the Captain that he had not liked Pete but that most of his buddies seemed to like him. Now and then Pete would reject rather sharply an invitation to go to the Service Club in the evening, but they would just ignore him for a few days and usually his mood would change.

Pete's record indicated that he had been sent to an Artillery Unit for training as a member of a gun crew after basic. Lieutenant Trask who had been his Battery Exec was located on the Post and Captain James talked to him about Pete. Trask said the Artillery assignment seemed to suit Pete, since he liked the big guns. His Section Chief felt that he learned rapidly enough and was willing although it took him a little longer than usual to pick up the physical skills needed in handling ammunition, etc. Lieutenant Trask thought he might have been a little nervous about the ammo, since he hadn't done anything of this kind before. He made PFC after a few months.

Fortunately Lieutenant Trask knew the details of Pete's previous Court Martial. He had gone into town one night with a couple of his buddies. He didn't go in every night, but two or three times a week he'd go in either for a date with one of the girls he'd met in town or to have a few beers with some of his friends. He said later that he hadn't been especially eager to go in that night, but had been persuaded to do so by his friends. They were in a bar, when a couple of

belligerent drunks and a girl came in. It was difficult later to determine just what happened, but the upshot of the affair was that a brawl started. At the Court Martial Pete said he had not intended to get involved, but things developed so fast that before he knew it he was right in the middle of the scrap. The civilian and military police came in a few minutes, and he, his buddies, and several other people were carted off to the police station. The girl who had come in with the two drunks had a black eye. She claimed one of the soldiers had hit her and decided it was Pete. That was the reason he was given a Court Martial. At the trial, the evidence had not been very clear. Pete denied that he had hit the girl and asserted that he wasn't so drunk that he could have done it without being aware of it. Some of the other witnesses said that they weren't sure, and one said he thought Pete had hit her. At any rate it seemed clear that Pete was quite drunk when it happened. He was acquitted, probably because the evidence was so confused. When he returned to his unit, he got back in the swing of his duties quickly.

Pete's Unit had been sent to Europe shortly after this. He was a member of the Battalion basketball team, and one of his teammates, who was stationed at the Post at this time, was called in by Captain James. He said Pete had played hard and rough as a member of the team. He was not highly skilled, but was valued for his enthusiasm. Some members of opposing teams had accused him of dirty playing, but this may have been due to his energetic and hard playing. On one occasion he had been

taken out of the game for threatening a referee.

He appeared to enjoy himself in Europe. He got around a lot and did quite a bit of sightseeing. There had been an incident in a beer hall, when he had told some Germans that they and all their countrymen were bandits and murderers. He was drunk at the time and his buddies hustled him out of the place so as to keep him out of trouble.

Captain James received answers to his letters. Pete's mother wrote one and Pete's dad sent another; apparently without telling his wife he had done so. Pete's mother said that he was a good boy and had never been in trouble while at home. She said that when he had been home on leave after his overseas tour, he had obviously been glad to see them, but had become somewhat bored and restless after a week or two. She said she hadn't wanted him to join the Army and hadn't understood why he wanted to. He had gotten a job after high school and his boss seemed to like his work.

The letter from Pete's father had a somewhat different tone. He said that Pete had never been in any serious trouble when he was at home, but that there had been periods when he had worried about him, because he stayed out very late quite often and was always secretive about what he had been doing. Pete had been seen now and then with a group of "trying-to-be-tough" boys in town. Pete's dad felt that a few years in the Army might be good for him, that the discipline might help to make him more stable and more mature than he was. He added that Pete's boss had liked his work, as had been said in the other letter, and that Pete had had a fairly large number of friends

among both sexes in the small town in which he lived.

The school principal couldn't add very much to the picture. Pete had not been a prominent member of his class. He passed all his courses and seemed well adjusted socially. The principal knew of no serious delinquencies in which Pete might have been involved, although there had been some incidents at school which he supposed might have been regarded by some people as more than just youthful pranks.

Captain James decided that he could get no more useful information, except from Pete himself. He went to the guardhouse to talk to him. Pete said he thought he had been unjustly accused in the brawl two years earlier, and that this time, while he knew he shouldn't have got in a fight, he couldn't see that it was important enough so that he should be court martialed for it. Captain James reminded him that it wasn't just the fight, that he had also overstayed his pass. He asked Pete what had started the fight. Pete said that a civilian had made a crack about soldiers and that he had hit the civilian. He didn't remember much more than that. Previously Captain James had talked to Pete's buddies who had been with him that night. They had left before the fight started so they weren't able to say what happened. They said they had tried to get him to come with them because they were all due back at the post but he had refused rather belligerently.

The Captain asked Pete about his relations with his parents and other people at home. Pete said he liked his folks, but that one reason he had joined the Army was because they seemed too interested in what he did with his time. They never said anything, but if he came in late, he always felt that they wondered where he had been

and what he had been doing. Pete said he had some regrets about leaving his family and especially his girl friend, but on the whole he had thought the army might be a good deal for a few years. His boss had told him, when he left, that his job would be kept open for him, but Pete wasn't sure he wanted to go back to the job, and also he wasn't sure whether the boss really wanted him back or was just doing what he thought was his patriotic duty.

Pete said after his leave was up and he took up his new duties that his job didn't interest him much. He felt he was really just putting in time until his discharge, and it got pretty dull.

At that point he hadn't decided about re-enlisting. He said his parents wanted him to come home of course, but the month spent there on leave had given him a lot to think about. He wasn't sure he wanted to go back. However, just a few days before the brawl he had decided not to re-enlist. He told the Captain that he was particularly disturbed about the trouble he was in because it might delay his getting out and now that he had made the decision, it meant a lot to him to get out as soon as possible. He said he had written his folks, saying he would be home soon; and he wished they didn't have to know about what had happened, but he didn't see how he could keep it from them. He asked Captain James to give him a break; but the Captain was non-committal.

Captain James felt that he now had all the information he could get about Pete and so he would have to decide what action he should take.

APPENDIX B-5: ADJECTIVE CHECK LIST FOR STORY RATING TEST

Place a check mark to the left of each adjective which applies to the person under consideration.

☐ active	☐ deliberate	☐ intelligent	☐ resentful
☐ adaptable	☐ dependable	☐ intolerant	☐ resourceful
☐ alert	☐ determined	☐ irresponsible	☐ responsible
☐ ambitious	☐ dignified	☐ irritable	☐ self-centered
☐ arrogant	☐ distrustful	☐ lazy	☐ self-controlled
☐ artistic	☐ dull	☐ loyal	☐ self-pitying
☐ boastful	☐ efficient	☐ mature	☐ shallow
☐ capable	☐ energetic	☐ methodical	☐ sincere
☐ careless	☐ enthusiastic	☐ moderate	☐ sly
☐ clear-thinking	☐ evasive	☐ opinionated	☐ smug
☐ coarse	☐ forceful	☐ original	☐ sociable
☐ complicated	☐ foresighted	☐ persevering	☐ spineless
☐ conceited	☐ formal	☐ precise	☐ stable
☐ confident	☐ friendly	☐ prejudiced	☐ suspicious
☐ confused	☐ good-natured	☐ progressive	☐ tolerant
☐ conscientious	☐ greedy	☐ quarrelsome	☐ touchy
☐ conservative	☐ headstrong	☐ reasonable	☐ undependable
☐ cooperative	☐ honest	☐ rebellious	☐ unkind
☐ courageous	☐ humorous	☐ reckless	☐ unselfish
☐ curious	☐ immature	☐ reflective	☐ unstable
☐ cynical	☐ industrious	☐ reliable	☐ weak

PLEASE DO NOT TURN PAGE UNTIL TOLD TO DO SO!!

ACKNOWLEDGEMENTS

So many people outside of the research unit staff helped in this study that it is impossible to mention them all by name. In a few cases our debt is a very large one and we take this opportunity to acknowledge it specifically.

Professor Leon Festinger of Stanford University acted as consultant to the project and played a large part both in the formulation of the research design and in the details of implementation and analysis.

Lt. Colonel Robert E. Grenig and Captain Reuben Cuellar formed an important part of the project staff for several months. On the tactical problem, which is largely the result of their efforts, they labored patiently through the many necessary revisions. In addition, Captain Cuellar took a major role in the administration of the first two experiments. Captain James Whisenant assisted in the early stages of the development of the tactical problem. Major John F. McAtee assisted in the administration of the experiments during a part of the series.

To these men, and to many others not named, we are grateful for very significant contributions.

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