PROBLEMS IN DIRECTED
IMAGERY-INTERFERENCE IN VISUALIZING
IMAGERY AS A FUNCTION OF THEMATIC CONTENT

Dissertation for the Degree of Ph.D.
MICHIGAN STATE UNIVERSITY
IRA MOSES
1977

This is to certify that the

thesis entitled

Problems in Directed Imagery-Interference

in Visualizing Imagery as a Function of Thematic Content

presented by

Ira Moses

has been accepted towards fulfillment
of the requirements for

Ph.D. degree in Psychology

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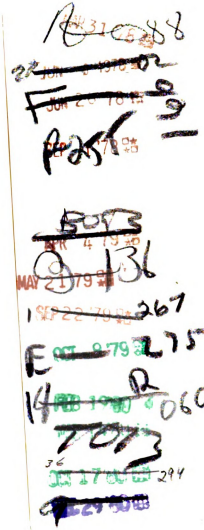
Date April 4, 1977



ABSTRACT

PROBLEMS IN DIRECTED IMAGERY-INTERFERENCE IN
VISUALIZING IMAGERY AS A FUNCTION OF THEMATIC CONTENT

By

Ira Moses

Observations by Reyher (1963) and Weitzman (1967) raise questions for directed imagery research and therapy. They report respectively that subjects may not be visualizing the requested images or may be visualizing images different than those specifically requested. These two types of interferences in image formation were investigated more thoroughly in this study.

Incorporating different levels of aggression in imagery, this study hypothesized that subjects would report a greater number of failures to image (NO) and a greater number of images different than those specifically requested (SUB) for the higher level of aggression. Differential effects of defense mechanisms were also investigated.

Forty undergraduates (20 male and 20 female) were assigned to two male and two female experimenters. With the order of presentation counterbalanced, three narratives (10 images per narrative) were presented: (LOW) aggression depicted a shouting match, (HI) aggression depicted slapping parents and (CONTROL) which contained only highly implausible images (a science-fiction narrative) and no aggression.

For the frequency of failures to image (NO), the mean of the high aggression narrative was greater than mean of low aggression (p .05), as predicted. Confounding the results, however, was that the mean of the implausible (CONTROL) narrative was greater than the Low aggression

narrative (p .05) and not significantly different from the mean of the High aggression narrative. For the frequency of visualizing different images (SUB), though not significant, the mean of High aggression narrative is greater than the mean of Low aggression in the predicted direction. Confounding the results was the finding that the mean of the highly implausible Control narrative was less than the mean of both Low and High aggression narratives.

Since both the High and Low aggression narratives were not homogenous groups of images, a post hoc analysis was computed in an effort to clarify the questions of the above findings. Ranking all the images, regardless of the narrative in which they were embedded, revealed significant (p .05) correlations between judges rank order of aggression and (NO) r = .85 and (SUB) r = .63. A significant correlation for rank order of plausibility was also found, (NO) r = .73 and (SUB) r = .38. Plausibility versus aggression as a predictor for imagery problems was discussed.

No relationship between type of defense and (NO) and (SUB) was found. Also noteworthy was that every image regardless of content had a proportion of (NO) or (SUB), ranging from 7% to 60%. Of the 1200 image requests, there were 190 reports of (NO) and 179 reports of (SUB), yielding a total of 369 (30%) deviations from the requested images. Ninety-two percent of all the subjects reported either type of interference in imagery (NO or SUB).

Reyher, J. Free imagery: An uncovering procedure. Journal of Clinical Psychology. 1963. 19, 454-459.

Weitzman, B. Behavior therapy and psychotherapy. Psychological Review. 1967. 73, 300-317.

PROBLEMS IN DIRECTED IMAGERY-INTERFERENCE IN VISUALIZING IMAGERY AS A FUNCTION OF THEMATIC CONTENT

By

Ira Moses

A DISSERTATION

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

Department of Psychology

1977

To Matthew, whose dirty diapers
helped me avoid my dissertation
and whose smile bring joy to
those around him.

To Marsha, my best friend.

ACKNOWLEDGMENTS

I wish to thank the members of my Committee for their special contributions: Dr. Reyher, who has throughout my career given me the proper balance of discipline and freedom to engage in innovative research; Dr. Abeles, who was able to hold rein on my impatience; Dr. Aniskiewicz provided the emotional support through my struggles; Dr. Freed, who provided the theoretical input; and finally, my outside reader, Dr. Lee of Sociology, who made my dissertation orals a day that I'll never forget.

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INTRODUCTION

Recent research (Wilkins, 1971, Weitzman, 1967, Wilson and Reyher 1976) raises critical issues for the behavioral as well as all imagery therapies. Wilkins (1971) evaluated the components of systematic desensitization psychotherapy and concluded: "Neither training in muscle relaxation nor the construction of a graded hierarchy of fear relaxant scenes nor the concomitance of instructed imagination to muscle relaxation are necessary conditions for treatment success; instructed imagination by itself is the only necessary element." He further suggests, as does Wilson (1974), that the therapeutic effect is due to social variables of the patient-therapist relationship and cognitive variables of expectancy of therapeutic gain, feedback of success, training and attention control, etc., rather than to the mutual antagonism between muscle relaxation and anxiety.

Weitzman (1967) raised further questions about directed imagery therapy and systematic desensitization in particular. He reported that all subjects had a flow of imagery unrelated to the imagery described by the therapist, and that these possess psychodynamic properties which have as yet an undetermined influence on the therapeutic effectiveness of directed image and behavior modification procedures.

Singer (1974), Wilkins (1971), Foreyet (1973), Wilson (1971, 1974), Reyher (1969), and others suggest that the main or total effect of directed imagery may have nothing to do with the presence of imagery per se but rather is due to the presence of other variables such as task

demands, suggestion, hypnosis, therapist expectation or a variety of other non-specific variables. Furthermore, evidence has been cited in the above discussion which suggests that during directed imagery the patient may be: 1) not visualizing imagery, and/or 2) visualizing other images not related to the content directed by the therapist. The assumption of the ability of a person to follow and produce specifically suggested imagery was further challenged by laboratory investigations and on the basis of spontaneous visual imagery in emergent uncovering psychotherapy (Morishige and Reyher, 1975; Reyher, 1963), after a variable period of imagery, most clients will experience anxiety, symptoms and/or resistance to dramatic images or to certain innocent appearing images (duck, orange). These are called "hot" images and often are very difficult for the client to imagine upon request. Also, many clients are not able to form images of key persons in their lives. These clinical observations led to an investigation by Reyher and Smeltzer (1968) which showed that visual images in response to emotional laden stimulus words indeed were characterized by greater anxiety, primary process and need for defense than were verbal associations to the same words. On the basis of both clinical and laboratory observations and findings, Morishige and Reyher (1975), have concluded that spontaneous visual imagery (free imagery) is governed by repressed strivings.

Taking into account the evidence of the dynamic properties during free imagery and the evidence cited above on the presence of irrelevant imagery during directed imagery, one can challenge the assumption that imagery is continually present during directed imagery. Though Wilkins (1972) has shown that only the instructions to image are necessary for

obtaining results in systematic desensitization, Weitzman (1967) and Moses (1974) have shown that very often the subject is visualizing substitutive (non-instructed) imagery. Furthermore, we can infer from psychodynamic theory that the type of imagery and the ability to image varies with the type of defenses available to the individual.

The purpose of the present investigation was to determine if the subject's ability to image and to follow images varies along two main dimensions: 1) content of the imagery and 2) the defensive dynamics of the subject. (The measurement of "an ability to image" presents a major methodological roadblock in that we are forced to rely on the subject's reporting of images. Therefore, to be conservative in our inferences from the data, we will focus on the reportability of images as the dependent variables.)

Aggression was chosen as the imagery content in this experiment due to its potency and prevalence in clinical experience, as well as its prevalence in many directed imagery techniques. Blatant aggression is less socially opprobrious than blatant sexuality and the best inventory of defenses (DMI) primarily involves anger and aggression. Clinical experience with emergent uncovering psychotherapy (Burns and Reyher, 1976; Morishige and Reyher, 1975) has shown that hostile aggressive impulses often are repressed, particularly if they are directed towards a parent and if they are of a murderous nature. The aim of aggression can take verbal expression, such as an insult, or physical expression as hitting and/or killing. Thus, the intensity, aim, and object of aggressive impulses determine whether a client will be able to form a particular image upon request.

The following hypotheses were formulated:

Hypothesis I: Failure to form an image upon request is a joint function of the aim and intensity of the aggressive impulses being depicted.

Hypothesis II: The spontaneous formation of an image different from the one requested (substitutive imagery) is a joint function of the aim and intensity of the aggressive impulses being depicted.

Hypothesis III: Image failure is a function of type of defense.

Hypothesis IV: Substitutive image formation is a function of type of defense.

Though not a formal hypothesis, sex differences were also monitored. Since boys exhibit more overt physical aggression that do girls (Ferguson, 1970), male subjects should report fewer failures in image formation and fewer substitutions.

METHOD

Subjects and Experimenters

Forty (20 male and 20 female) subjects ranging in ages from 17 to 29 were randomly selected from a group of undergraduate psychology students who volunteered for an experiment titled "Visual Imagery". Because the imagery involved interaction with parents, having both parents living was a criteria for participation.

Two male and two female experimenters were used. One male and one female were advanced students in clinical psychology, with each having three years of supervision in psychotherapy. The other male was an advanced undergraduate student majoring in psychology. All had extensive research experience involving imagery.

Materials and Experimental Setting

The laboratory room was sound-proofed and windowless, and it contained a large, black reclining chair (used by the subjects) and one small straightback chair (for the experimenter). A six-channel Grass #5 polygraph stood conspicuously against one wall, flanked by a cot on an adjacent wall.

For monitoring periods of imagery, two concealed indicator lights were activated by two telegraph keys, adjusted for minimal tension, that were attached to the arm rests in such a manner that they could be activated easily by the forefinger of each hand.

Stimulus narratives. Three stimulus narratives (made-up stories) were used. Two were intended to stimulate different degrees of anger-aggression while one was neutral in this respect. The low anger-aggression story depicted a shouting match between the subject and a

professor; the high anger-aggression story depicted a slapping fight between the subject and his or her parents. The neutral (control) story depicted an implausible space fantasy devoid of anger-aggression. Abstract words were identified and eliminated because Paivio (1969) found that the latency of tachistoscopic visual recognition is longer for abstract words than concrete words. Since plausibility might be an influencing variable, each scene in the three stories was rated for plausibility. This was also done with respect to aggression.

Defense mechanism inventory. The DMI (Gleser and Ihilevich, 1969) is a paper and pencil test designed to measure the relative intensity of five major groups of defenses. The measures are derived from the manner in which the individual responds to conflict in his actual behavior, his fantasies, his thoughts and his feelings. Five clusters of defenses are identified:

"1. Turning against object (TAO). This class of defenses deals with conflict through attacking a real or presumed external frustrating object. Such classical defenses as identification-with-the-aggressor and displacement can be placed in this category.

2. Projection (PRO). Included here are defenses which justify the expression of aggression toward an external object through first attributing to it, without unequivocal evidence, negative intent, or characteristics.

3. Principalization (PRN). This class of defenses deals with conflict through invoking a general principle that "splits off" affect from content and represses the former. Defenses such as intellectualization, isolation, and rationalization fall into this category.

4. Turning against self (TAS). In this class are those defenses that handle conflict through directing aggressive behavior toward S himself. Masochism and auto-sadism are examples of defensive solutions in this category.

5. Reversal (REV). This class includes defenses that deal with conflict by responding in a positive or neutral fashion to a frustrating object which might be expected to evoke a negative reaction. Defenses such as negation, denial, reaction formation, and repression are subsumed under this category."

Validity studies show the DMI is related to MPPI scores, Haan's Defense Scales, and reveal a stability of defenses over time and age. Reliability was also reported. TAO and PRO are substantially negatively correlated with PRN and REV. The authors conclude that, "Both hostility and projection are considered more primitive, immature responses to conflict than is principalization." The relationship between the defenses is relatively stable with low inner-correlation. The moderately high correlations between PRN and REV may be attributable to the common defense of repression of affect. My study attempts to use this instrument in an exploratory manner but, due to its relative novelty, will refrain from any directional hypotheses.

Procedure

Before entering the laboratory, subjects were given a consent form and they were also notified in writing that they could terminate the experiment at any time and still receive full credit. In a matter-of-fact tone of voice, the experimenter asked the subject to complete a brief questionnaire and then come into the laboratory where the experimenter was waiting. When the subject entered the laboratory, he was asked to be seated. He was given the following instructions:

> "Now I'd like you to sit down in this chair pushing it all the way back, and position yourself in order that your fingers can easily depress the telegraph keys." (Experimenter adjusts the length of the keys to the subject's reach and then tapes the keys in place.)

The subject was then tested for his or her ability to form visual images upon request (directed imagery):

> "Now I'd like you to close your eyes and visualize an image of an automobile. Please describe it for me when you see it." (Experimenter lets subject describe the image for 30 seconds.)

Resistance to visual imagery is commonplace (Burns and Reyher, 1976); Morishige and Reyher, 1976); Reyher, 1963, in press) and its most typical manifestations were managed as follows:

If the subject stopped short of the allotted 30 seconds or asked what he or she should do next, the experimenter replied, "I'd like you to just keep describing the automobile for a little while longer." If the subject asked any questions about the procedure or opened his or her eyes, the experimenter merely repeated the initial request, "I'd like you to close your eyes and get an image in your mind's eye of an automobile." If the subject reported he or she could not form the requested image, the experimenter responded, "Just wait for an image of a car or any other image to come into your mind's eye and describe it." If the subject asked any other questions, the experimenter replied, "I know you may have some questions concerning this experience, and I will be glad to answer them at the end of the experiment." If the subject could not image anything after one minute, the experimenter terminated the proceedings by asking the subject, "For the purpose of my interest in imagery, could you tell me how you felt when I requested you to close your eyes and when I asked you to image."

Practice Stimulus Narrative

The experimenter gave the subject the following instructions before reading a practice story:

"Keeping your eyes closed, I would now like to rehearse what we'll be doing during the experiment. Any time you get the same imagery that I am describing, depress the telegraph key on your right and hold it down with your forefinger. Any time you visualize any other image, please release the right key and depress the key on your left and hold it down. When you do not see any images, release both keys. Let me briefly review. Only the right key is held down whenever you see the images that I am describing. Only the left key is held down when you are visualizing images different from my directions. For example, if I am describing an image of a car and you are able to visualize that car, you would hold the right key down. If you suddenly get a different image, for example, you see a book, then you would release the right key and depress the left key. And finally, whenever there are no images in your mind's eye, simply release both keys. To help you separate your right from your left with your eyes closed, we've put some tape on the right-hand key whereas the left key has nothing on it. Before we begin, could you please review what you have to do for this experiment.

"Now I would like you to close your eyes and follow in your imagery the following story that I am going to read. Any time you are following the story in images, hold the right key down; any time you are seeing images other than those described in the story, hold the left key down. When you do not see any images, release both keys."

After reading the rehearsal story, the experimenter checked with the subjects as to their understanding of the procedure.

Scoring. As the experimenter read the list of instructed images, he or she monitored the indicator lights and marked the protocol accordingly:

a) If the subject signalled that he or she was following the images, no marks were made.

b) If the subject signalled a substitutive image (f_{sub}), the experimenter placed a check in the appropriate place on the protocol.

c) If the subject signalled no imagery (f_{no}), the experimenter placed in parentheses whatever scenes the subject was unable to image.

Inquiry. The experimenter inquired where appropriate, "I noticed when I described the image _____ you signalled that you were seeing some other image. Can you recall what it was?"

Also, where appropriate, the experimenter queried, "I noticed when I described the image _____ you signalled that you were not having any images", to confirm the absence of a key press.

Experimental Stimulus Narratives

The three experimental narratives were administered in a counterbalanced order. Upon completing the last narrative, the subjects were given the Defense Mechanism Inventory and a brief questionnaire (see Appendix) concerning their expectations and reactions to the experiment. The subjects were also asked, "Was there anything particularly upsetting about this experiment?", and "Did you have any reactions to this experiment?"

RESULTS

Ninety-two percent of the subjects indicated either of the two types of interferences in imagery (no) or (sub), i.e., only three subjects reported all the images without interferences. Seventy-five percent reported failure in image formation (no) and eighty-three percent reported substitutive imagery (sub). The percentages distributed across the three stimulus narratives are presented in Table 1.

Table 1

Percentages and Combined Percentages of Subjects Reporting Failures to Image (no) and/or Substitutive Images (sub) Distributed Across the Three Stimulus Narratives

Stimulus Narrative	Types Interference f_{no}	f_{sub}	Combined $f_{no} + f_{sub}$
(CONTROL) Implausible	53%	58%	75%
(LOW) Aggression	30%	55%	65%
(HI) Aggression	75%	68%	90%

Hypothesis I: Image failure is a joint function of aim and intensity of aggressive impulses, received unambiguous support.

Table 2 reveals that frequency of image failure (f_{no}) was the only significant (.05 level) main effect in a three-way analysis of variance. Experimenter, sex of experimenter, and sex of subject were not influencing variables. There were no significant interactions. As predicted (Table 2), a multiple pair-wise comparison of means (Duncan) showed that the mean difference, between nonviolent, peer-aggression ($\bar{X} = 0.9$) and violent, father-aggression ($\bar{X} = 2.0$), contributed significantly to the overall F. Surprisingly, however, the mean difference between implausibility ($\bar{X} = 1.85$) and nonviolent, verbal aggression also contributed significantly.

Table 2

Analysis of Variance for the Effects of Type of Story, Sex of Subject, Sex of Experimenter, and Experimenter on the Frequency of No Imagery

Source	SS	df	MS	F
Between				
Sex of Experimenter (S.E.)	22	1	22	2.1
Sex of Subject (S.S.)	1	1	1	-
Experimenter (E.)	29	3	9.7	.96
Error	344	34	10.1	-
Within				
Story	28	2	14	4.5*
Story X (S.S.)	1	2	1	-
Story X (S.E.)	1	2	1	-
Story X (E.)	12	6	2	.6
Error	213	68	3.1	-
Total	648	119		

* p .05

Table 3

Analysis of Variance of the Effects of the Type of Story, Sex of Subject, Sex of Experimenter, and Experimenter on the Frequency of Substitutive Imagery

Source	SS	df	MS	F
Between				
Sex of Experimenter (S.E.)	13	1	13	3.7
Sex of Subject (S.S.)	6	1	6	1.7
Experimenter (E.)	40	3	13	3.7
Error	18	34	3.5	-
Within				
Story	5	2	2.5	1.4
Story X (S.S.)	5	2	2.5	1.4
Story X (S.E.)	1	2	1	-
Story X (E.)	17	6	2.8	1.6
Error	116	68	1.7	-
Total	329	119		

A more refined analysis was accomplished by rating each of the 30 scenes from the three stimulus narratives in terms of aggressive content and by computing a correlation between a rank ordering of scenes with aggressive content and f_{no}. Three raters working independently identified 17 scenes having aggressive content and ranked each scene in order of increasing aggression. Their percentage of agreement varied between 92% and 98% with a median of 95%. This was considered to be satisfactory for research purposes, and a subsequent correlation

(Spearman Rho) of .85 between the judges rankings and the f_{no} rank of each scene was significant at p .05. Plausibility was subjected to the same analysis with percentages of agreement between the two raters for the same 17 scenes ranging between 88% and 94%. The obtained rank order correlation of .73 for f_{no} also was significant (.05 level).

Hypothesis II: Substitutive image formation is a joint function of aim and intensity of aggressive impulses, received somewhat ambiguous support.

Like Table 2, Table 3 shows that there were neither significant main effects nor interactions, but the mean differences between the stories all were in the predicted direction. These means were, respectively, 1.8, 1.4 and 1.2 for violent, father-aggression, nonviolent peer aggression, and the control-implausibility narrative. However, more palpable support for the hypothesis was provided by a significant (.05 level) rank order correlation of .63 between the rated aggression of scenes and f_{sub}. This time the rank order correlation (.38) between plausibility and f_{sub} was not significant.

Hypothesis III: Image failure is a function of type of defense, received no support.

Table 4 shows that none of the rank order correlations (Spearman) between type of defense and f_{no} were significant.

Table 4

Spearman Rank Order Correlation Between Subjects Rank for the Dependent Variables (f_{no} and f_{sub}) and Rank on the Defenses of the Defense Mechanism Inventory

Defense	TAO	PRO	PRN	TAS	REV
f_{no}	.17	.17	.05	-.22	.03
f_{sub}	.25	.30	.03	-.30	-.10

Hypothesis IV: Substitutive image formation is a function of type of defense, received no support.

Table 4 shows that none of the rank order correlations (Spearman) between type of defense and f_{sub} were significant.

An examination of Table 5, which gives the ranking of the 17 aggressive scenes, suggests that aggression must reach a threshold of intensity before there is an increase in f_{no} and f_{sub} above the individual's base rate.

Table 5

Per Image Frequency of Subjects Failure to Visualize Requested Image f_{no}, Rank of f_{no}, Frequency of Intrusive Other Images f_{sub}, Rank f_{sub}, Judges Rank Order of Plausibility of an Image Occurring (Plausible), and Judges Rank Order of Aggression (Aggression)

Images	f_{no}	Rank f_{no}	f_{sub}	Rank f_{sub}	Rank Plausible	Rank Aggression
Level One: Highly Implausible Story						
1. You are walking down Grand River in front of Jacobson's Department Store.	2	27.5	1	29.5	(30)	--
2. A small brown bird flies down and lands on your shoulder and chirps in your ear.	5	15	5	17	(23)	--
3. You begin to flap your arms.	6	12	8	8.5	(6)	--
4. You see yourself lifting off the ground.	11	5.5	4	23.5	(5)	--
5. You fly over Jacobson's Department Store.	6	12	5	17	(3)	--
6. As you fly, you see a small dog fly by, too.	11	5.5	7	11.5	(2)	--
7. You begin going higher and higher.	2	27.5	1	29.5	(4)	--
8. You begin to circle the moon.	12	4	10	4	(1)	--
9. Two little green men come toward you.	9	9	5	17	(8)	--
10. They hand you a plaque which reads, "Welcome Stranger".	7	10	3	27.5	(7)	--

Table 5 (cont'd.)

Images	f_{no}	Rank f_{no}	f_{sub}	Rank f_{sub}	Rank Plausible	Rank Aggression
Level Two: Low Aggression Story						
1. On your term paper you see a note from your professor, "You flunked for cheating, come to my office," but you know you didn't cheat.	3	23	3	27.5	(29)	--
2. You reach his office and angrily knock on the door.	3	23	4	23.5	(22)	(13)
3. The door opens and you can see his face with a mean and angry expression.	2	27.5	8	8.5	(21)	(14)
4. He begins yelling at you.	4	18	4	23.5	(18)	(12)
5. You get angrier and begin to shout.	3	23	8	8.5	(15)	(8)
6. He begins to shake his fist at you.	4	18	4	23.5	(16)	(10)
7. You shake your fist at him.	6	12	10	4	(14)	(6)
8. You stand up and approach him yelling.	5	15	8	8.5	(17)	(7)
9. He then grabs the term paper out of your hand.	4	18	5	17	(20)	(11)
10. You grab it back.	2	27.5	4	23.5	(19)	(9)

Table 5 (cont'd.)

Images	f_{no}	Rank f_{no}	f_{sub}	Rank f_{sub}	Rank Plausible	Rank Aggression
Level Three: High Aggression Story						
1. You see yourself driving the family car to a grocery store in your home town.	5	15	1	29.5	(28)	--
2. The car behind you slams into the back of your car.	1	29.5	6	13.5	(27)	(17)
3. You see the other driver has a broken tooth, but is okay.	3	23	6	13.5	(25)	(16)
4. After driving home, you tell your father about the accident.	1	29.5	4	23.5	(26)	--
5. You see his face get very angry.	3	23	5	17	(24)	(15)
6. Losing his temper, he slaps you in the face.	10	7.5	9	6	(13)	(5)
7. You lose your temper and hit him back.	14	1.5	7	11.5	(10)	(1)
8. You see blood running from his face where you hit him.	14	1.5	10	4	(11)	(3)
9. Your mother angrily strikes you in the face.	13	3	11	2	(12)	(4)
10. You then slap her back.	10	7.5	13	1	(9)	(2)

Plausibility. Table 6 shows that the plausibility of a scene, as well as the level of aggression, is highly correlated with both dependent variables. Since aggression and plausibility are associated, the foregoing support for Hypotheses I and II is vitiated. The present study thus cannot ascertain whether aggression or plausibility is the more potent variable.

Table 6

Difference in Correlation Coefficients

	f_{no}	f_{sub}
$r_{aggression}$	.85	.63
$r_{plausibility}$	.73	.38
$r_{agg} - r_{prob.}$	+.12	+.25

p .05

Debriefing. The results of the debriefing are consistent with the outcome of the statistical analysis. Ninety-five percent of the subjects said that some images were harder to get than others. Twenty percent of them thought that the experiment had something to do with their ability to form images, but none of them guessed the specific experimental hypotheses. Perhaps the most significant information gleaned was that twenty-five percent of the subjects revealed that they withheld some images. One source of information that might elucidate the reasons(s) for this resistance is the substitutions. These appeared to be indicative of a variety of well-known defenses, not included in the DMI, which can be interpreted to mean that the scenes

not imaged were indeed anxiety-producing for the subjects. That is, they were hot images. Unfortunately, there were no provisions for an independent assessment of anxiety. Nevertheless, the concreteness of depictive visual imagery provides an impressive documentation of anxiety-motivated defenses, as illustrated by the following alteration substitutions to the scene, "You slap your mother": "Just see us standing there", "Threatening but not hitting", "Brothers come into room", "Saw myself crying", "Could only see my mother hanging the laundry", "Another scene in the antique store", "See myself swimming", "I couldn't see her slap me, just crying", "Just saw myself standing there", "Just saw parents checking car and discussing", "Saw her sitting there", "Just talking to his mom", and "Yelling not hitting".

The experimental findings fully verify the clinical observations that the client's/subject's imagery is not a passive point-for-point reproduction of the therapist's/experimenter's stimulus narrative. This means that the use of imposed visual imagery and graded anxiety-producing images associated with implosive therapy and systematic desensitization, respectively, may not be influencing variables in the mediation of their therapeutic effects. With respect to systematic desensitization, Wilkins (1971) concluded that these effects might be mediated by the social variables in the patient-client relationship and by expectancy of therapeutic gain. His conclusion is supported by a line of inquiry into the nature of suggestibility (Reyher and Wilson, 1973; Reyher and Pottinger, 1976; Wilson, 1974). Wilson has shown that suggestibility increases while the subject waits silently for instructions, but that it decreases while the subject speaks. Such a passive-receptive attitude characterizes the situation for the client not only in implosive therapy and systematic desensitization but also for biofeedback, covert aversive conditioning and others (Reyher and Pottinger, 1976).

The lack of sex differences might be interpreted in at least two ways: one, sex differences only appear in behavior, not at the level of imagery; and two, sex differences are not associated with plausibility, which is the sole influencing variable. Unfortunately, the experimental design does not permit a differential evaluation of these two possible interpretations.

We were surprised by the large number of failures in image formation and substitutions associated with the implausible stimulus narrative, particularly in view of the perfusion of fantasy in our culture via the vehicles of TV, movies and literature. The expression of aggressive drives in their most primitive and unsocialized forms apparently is not more plausible for most individuals than seeing little green men.

Plausibility, however, is not an issue for free imagery since all visual images, regardless of plausibility, are spontaneous. Even hot images may be either plausible (e.g., a duck with extended neck, a purple spot, the bow of a large boat) or implausible (e.g., Loch Ness monster with head of Teddy Roosevelt, a fish with an elephant's trunk for its snout). Moreover, the clarity and definition of plausible and implausible images appears to be the same. Whether the visual images are hot appears to be the critical issue.

The question of plausibility also is irrelevant for systematic desensitization, which focuses on personal, anxiety-producing images or scenes from the clients' own experience. In psychoanalytic terms, anxiety associated with the persons, places and events in question is a phobic process, and, therefore, involves the externalization of repressed drives. However, it remains to be seen if the visualization

of phobic objects are more reliably formed by the client than the revisualizations of spontaneous hot images or even imposed neutral scenes. If the latter were found to be true, then, of course, our findings would no longer be applicable.

Plausibility only is an issue for psychotherapeutic methods utilizing directed imagery. Accordingly, diverging operational definitions must be developed to differentiate between these two confounded sources of failure in image formation. A suitable operational definition of a hot image in directed imagery requires four progressive criteria: First, there is image failure--either there are no images or there are substitute images. Second, there are contingent reactions (anxiety, symptoms and/or resistance) in response to the request to form images. However, an elicitation of contingent reactions does not settle the issue in favor of the image being either hot or implausible. These contingent reactions could be caused by the subject's failure to form the directed image. Therefore, the third part of the progressive operational definition must be invoked. This is a second request by the experimenter for the subject to image the failed image or scene, but to eliminate the possibility that the subject has not lost the ability to image per se, the experimenter asks him/her to begin with an image or scene just prior to the failed one. If the image or scene in question is failed again, a third request is made. If this is followed by a diminution or abatement of contingent reactions, then a decision is made in favor of implausibility as the cause for the failure in image formation because the subject may be more likely to adjust to such failures than to the continued activation of repressed strivings by the revisualization of hot images. Conversely,

if there is an intensification of contingent reactions, then the issue is decided in favor of the image being hot. However, this might be an incorrect decision because the subject's repeated failures to produce the requested images may have exacerbated feelings of inadequacy, thereby intensifying contingent reactions. Therefore, the final and differentiating fourth part of the progressive operational definition is the generation of a chain of increasingly drive-depictive images, in response to the requests for revisualization, concurrent with the intensification of contingent reactions. This would not happen for implausible, but neutral images.

We have discussed several hypothetical mechanisms for mediating the effect of implausibility upon image formation. The absence of the palpable expression of anger in the neutral stimulus narrative suggests that a non-drive factor may be responsible. One such possibility is visual memory storage. Freud's observation in The Ego and the Id anticipates this element as he argues, "We must not be led... to forget the importance of optical mnemonic residues (images) or to deny that it is possible for thought processes to become conscious through reversion to visual residues." This notion has been advanced by Segal (1971) who contends that visual imagery depends in part on stored information. This dependence upon the storage of one's past visual experiences may account for the effort by some of our subjects to form the scenes of the implausible stimulus narrative by incorporating science-fiction scenes previously seen in television and other visual media. Another possible explanation is that the implausible stimulus narrative activated anxiety-producing drives and affects not manifestly identifiable. Yet another possible explanation is that

the disorientation, loss of reality contact, alienation, etc., in the stimulus narrative may have been anxiety-producing to some of the subjects.

The failure of the DMI to correlate with success or failure in image formation is puzzling. Since the DMI deals with subject's consciously experienced behavior in hypothetical situations, it might have been that the unconscious dimensions of defenses were not tapped. In addition, the categories of defenses appear to be too broadly defined and represent a potpourri of different defenses. Finally, the defenses operating at the level of visual imagery may be much different from those operating in interpersonal, TAT type situations. Fortunately, a perusal of the protocols clearly revealed some of the defenses used by the subjects, particularly in connection with substitutions and alterations in scenes. The "Attenuation of Affect" (n = 10) represents the taming of affect. Rather than reporting the specifically requested image, the subjects reported the immediately preceding, less aggressive images instead. "Regression to Passive Mastery" (n = 69) represents a change from an active to passive mode of mastery of affect. For example, a subject might have seen him or herself standing still being hit instead of hitting. "Substitute Formation" (n = 6) represents an acceptable displacement and/or condensation of repressed strivings activated by a particular scene or image in the narrative. "Denial" (n = 37) represents the omission of a specific anxiety-producing element, e.g., "I saw blood but not the mouth". "Reaction Formation" (n = 4) represents the substitution of an opposite behavior for an anxiety-producing one in the stimulus narrative. In the shouting match with the professor, one subject reported "smiling not yelling".

"Displacement" (n = 4) represents the substitution of a less anxiety-producing object of a drive by another less threatening one, as the subject who reported visualizing kicking a wastebasket but not seeing a professor.

The empirical facts are clear: in the course of using a stimulus narrative, most subjects do not form all the scenes in their mind's eye, the number of image failures and substitutions increases with the intensification of conflict and not all substitutions or spontaneous images are reported. Consequently, we must conclude that those methods of psychotherapeutic intervention that require the client to form imposed images do not necessarily achieve their desired ends by means of the imagery per se. Contextual variables and other variables implicit in the interpersonal relationship between therapist and client must be taken into account.

APPENDICES

APPENDIX A

HISTORICAL AND THEORETICAL REVIEW OF IMAGERY

Imagery stands at the crossroads of all psychological theories and therapies. The status and function imagery serves in each of the major theoretical frameworks ranges from the level of relative meaninglessness (S-R psychology) to that of a "primary" status (psychoanalytic theory). Imagery has varying status in the history of psychology. According to Piaget (1962), imagery was originally conceptualized as a direct product of thought and sensation (and held to be a residual trace of the latter). The status of imagery was then raised to where it was considered, along with association, as the fundamental element of thought. In the late 1890's, imagery came to be disregarded as a symbolic function and was considered as an extension of perception, i.e., an accurate copy of objects and events. Findings in the laboratories of Binet and Wurzberg schools in the early 1900's showed the presence of imageless thought and thus quickly led to the dismissal of imagery as being at most an auxiliary function of thought. This attitude was strongly maintained in American psychology and to the subsequent disregard of interest in imagery studies. It has been only in the past ten years that psychology has experienced a reversal in its attitude towards imagery, Segal (1971), Richardson (1969), and Shaheen (1972). These recent works have elevated imagery to the status of being considered one of the most important effects in learning, memory, and psychotherapy.

Observations of different theoretical schools, however, are not necessarily mutually exclusive. Bugelski (1971) reviews some of the necessary conditions for imagery production. The prototype for image formation as a condition sensation (Leuba and Mawrer) appears in the

classical conditioning paradigm of the continual pairing of a buzzer with a light. Eventually the light presented alone will elicit an auditory "hallucination" of hearing the buzzer. Imagery is thus considered as a phenomenon, like sensation, which occurs when a motor response to an external stimuli is blocked: "When a motor response is blocked, impulses diverted from the motor center can spread out to... other sensory centers and initiate activity therein from what amounts to a central source." This lack of overt activity is considered a necessary condition among other theorists. Imagery during dreams and sensory deprivation experiments are seen as a function of the individual's body being in a state of inhibition. Theorists argue the converse, that any action is likely to interfere with an image. Fischer notes an inverse relation between high "M" on the Rorschach (indicative of high imagination) and motility. This reverse relationship between imagery-fantasy and action is also indicated in an interesting study by Biblow (1973) who reported that subjects high in fantasy are less likely to be aggressive, regardless of the content of the fantasy, than those of a low fantasy level.

Much of the work in cognitive psychology has attacked the notion that imagery is a mere static phenomenon, a form of a perceptual trace. Segal (1971) addresses himself to the problem of processing the stimuli in imagery and perception. Segal claims that "The measurement of imagery is similar to the measurement of perception - both involve phenomenological experiences based on patterns of response within the optic tract and brain, the only difference is that with perception there is clearly defined physical stimulus." He argues that imagery may depend not only on stored information but on relevant physical stimuli present in the

environment. Expanding on the studies of Perky (1910), Segal found that physical stimuli are partially processed and assimilated into images (when the subject is requested to image with eyes open). Gazing at an unpatterned visual field, the subject is asked to have images of various objects (rather neutral in character: food, animals, etc.). During the request to image, an undetected but supraliminal photograph is flashed onto the field of vision. As Perky found, Segal discovered that oftentimes the photograph was incorporated into the image without the subject's knowledge of the external stimuli being present. He concludes that the image, compared to the percept, is the predominant determinant (in other words, assimilation is greater than accommodation). Segal concludes from this line of research that the emergence and formation of an image does not depend entirely on the revivication of past images nor is it a mere replay of previous experiences. (His study may be considered a possible test of what Freud considered to be the residue of the previous day in dream imagery.) Image formation, Segal argues, is an active process in which the observer constructs images not only out of past experiences and memory, but also from any currently available sensory input. His research in imagery, however, epitomizes the underlying problem in research methodology in this area. It is obvious that studying image formation with eyes open as opposed to eyes closed leads to a great deal of contamination and confusion. One could argue that what Segal is studying is not necessarily image formation but rather the effects of noise. One must be very cautious in generalizing his findings to studies utilizing imagery with eyes closed. (His work may also be interpreted to provide evidence to have eye closure during imagery therapy since during the eyes open condition the subject may

assimilate stimuli from the environment for defensive purposes, i.e., to avoid reporting stressful internal imagery, discussed later.) The relationship between imagery and perception as shown above suggests the utilization of the same brain pathways. Further evidence is reported by Singer (1973) who found that subjects processing visual signals (eyes open) are less likely to report visual daydreams, whereas reports of auditory fantasies were unaffected.

Neisser (1971) further describes the intimate relationship between imagery and perception. Both imagery and perception are active constructions rather than mere passive registration of recall. Furthermore, "a subject is imaging whenever he employs some of the same cognitive processes that he would use in perceiving, but when the stimulus input that would normally give rise to perceptions is absent... Our images must be based on what we remember and what we remember is often based on images." Neisser's treatment of imagery, however, is still lacking when we consider that imagery involves a great deal more than perception. An important point emphasized by Neisser is that imagery is not a unitary phenomenon. He finds a wide range of phenomena falling under this rubric even within the mental life of a single individual.

By studying memory, very strong relationships between imagery and language also appear. Paivio (1969) found that imagery and verbal processes are two mechanisms which are differentially effective in sequential and non-sequential memory tasks, language and learning. Language is conceptualized as being linked to two interconnected coding systems. Comprehension and production of language, he considers, can be mediated by non-verbal imagery. For example, the recall of the sentence "The red-haired boy is peeling an orange", one may remember the image

prior to repeating the sentence. Imagery and verbal processes, he postulates, vary on the dimension of concreteness and meaningfulness. "The availability of imagery", Paivio hypothesizes, "is assumed to vary directly with item concreteness or image-evoking value, whereas verbal processes are presumably independent of concreteness but functionally linked to meaningfulness and codability." As reviewed by Bugelski, imagery has direct effects on the ability to recall words. Words that cannot excite any visual reaction (therefore, not a basis for imagery) leave the subject without a foundation of learning. Verbal systems, Paivio continues, can deal with more abstract units of information and information that has to be stored sequentially. Imagery, however, is specialized for symbolic representations of concrete situations and information that is stored spatially. The dimension of concreteness as a property of imagery, however, may be an artifact of experimental studies utilizing paired associative learning rather than a naturalistic property of imagery. Clinical experience reveals abstract relationships that are continually exposed and experienced by individuals that can be vividly expressed in one's imagery.

In opposition to the criticism by Brown and others (who argue that imagery changes are too slow, too general, and are not manifest in many people), Paivio claims that imagery may operate on an unconscious, nonverbalized, short-circuited level. Language and imagery are coded and interconnected on different levels. At the elementary level, there is a "rapidly fading perceptual image" or what Paivio considers iconic memory. The second level is representational, in which the symbolic unit is stored in long-term memory as a concrete image. The third

level, referrential, contains associative connections between image and verbal representation. Finally at the associative meaning level, there are sequences of words and images or both.

Superior memory is thus seen to be dependent on the increased availability of a number of different coding systems for the effective storage and retrieval of information. Citing Paivio, Singer concludes, "visual imagery, when readily generated, may be more effective than verbal mediation because information and the image are spatially organized permitting a rapid readout of the relevant components, whereas the information in verbal storage is sequentially organized as a string of 'mental words' that take up more space in memory, or require longer search time with less sufficient retrieval of the relevant responses during recall or both". Sequential information thus provides less information in a given period of time than imagery in which one can scan an entire situation instantly.

Thus, experimental psychology has readily recognized the extreme potency of imagery. It has strong links with perception, learning, and memory. It is more than a condition sensation or a perceptual trace. As Paivio theorizes, the arousal meaning evoked by a word or other symbol is an organismic reaction with affective, motor (including verbal) or imaginal components. This consideration begins to take imagery into account during the development of the individual, and in its interrelatedness with the other aspects of the individual's functioning.

Werner and Kaplan (1963) consider the development of symbols in imagery from an organismic-developmental framework. Their orientation rests on several assumptions. Any activity, behavior, or organ is dependent upon the context, field or whole of which a constitutive part,

i.e., the functional significance of properties is determined by the larger whole. Behavior, therefore, gains it significance only from the study of the overall functioning of the organism. The activities of an organism are also considered as functioning towards the realization of ends imminent in the activity of the organism as a whole (the assumption of directiveness). This is not a conscious effort but rather a built-in process.

The developmental nature of their orientation assumes that the organism is naturally directed towards a series of transformations (including the quite popular developmental concept which considers development proceeding to increasing differentiation and hierarchic integration from earlier global and undifferentiated states). Development, they further propose, maintains a general continuity with the exception of qualitative changes brought about by the emergence of novel functions and structures. Genetically earlier structures (e.g., imagery) are not lost but are subordinated to more advanced levels of functioning (e.g., language) and subject to re-emerging during periods of conflict and stress. The environment is, therefore, "cognisized" or known in the form of perceptualized objects. Compared to animals and infants, man gains increasingly more freedom from stimulus determined patterns of behavior by means of constructing tangible tools (symbols) out of the properties of the environment and cognitive objects which mediate between man and his physical milieu. The most significant of man's instrumentalities is the symbol.

Symbols are qualitatively different from signals (or signs): symbols represent, compared to signs and signals which merely elicit or inhibit actions. Sign theory is based on spatio-temporal contiguity

and lacks the representative function of symbols. One way to conceptualize the difference is seen in a brief experiment proposed by Werner and Kaplan. For example, by repeating a word over and over again, the word will begin to lose its inner dynamic organization and experience though it can maintain its external tie to its object. This can be easily experienced by constantly repeating the word "car". After a while, it will develop a "lapse of meaning" though no matter how many times one repeats the word, the associative relationship between the word and its object will not be lost. Continuous pairing of reinforcement is not how symbolic vehicles and referrants are linked. (Before continuing, some definitions may be in order: a referrant is an entity which is represented (e.g., father), whereas the symbolic vehicle (e.g., visual, auditory, etc.) is the structure of the configuration and the symbol (e.g., a dragon) is the entity which it represents. The protosymbol (a visual image of a dragon) presents rather than represents.) Werner and Kaplan explain the relationship of symbols to protosymbols. A protosymbol is important in the genetic process of symbolization in that it can be transformed into a true symbol by progressive differentiation: "from true symbols we distinguish, then, those productions whereby the vehicular structure (imagery, verbal patterns, etc.) directly present a meaning rather than represent it... Though on the surface often indistinguishable from true symbols, protosymbols lack the intentional act by which a vehicle form is taken to represent the referrant". The symbol, therefore, is conceptualized as a productive, progressive act rather than a static, copy phenomenon. Symbols (language, imagery, etc.) are activities in which things are organismically expressed.

During ontogeny there is a transformation from knowing things of action to objects of contemplation. Development proceeds from outward reaction to inward reflection marking the internalization of sensory motor patterns. Starting from a "premordial matrix of compressed affect, postural elements, etc., the referrential object as a meaningful entity issues forth though still remains linked to its underlying process of schematization". During development, there is a change in the symbolic process mainly in the form of increasing integration of the symbolic forms. Symbolic vehicles become more conventional (language as compared to imagery), referrants become more complex and abstract, the addressees become peers rather than parents and the addressor matures physically. Most significantly for the focus of this study, there is increasing distance between the referrant and symbol from the primordial sharing situation in which there was little differentiation in the child's experience between himself and the referrential object. A more external interpersonal representation thus emerges. The distancing between a person and the symbolic vehicle is on two levels. The external distancing develops from immediate affective-motor-imaginal transactions to language. Verbal phonal material is more readily shaped by external interpersonal events than the genetically earlier imagery. The internal distancing occurs when the meanings of the vehicles expressed become less egocentric and less idiosyncratic. Genetically earlier symbols are highly individualized in view of private experiences, personal feelings and reactions and thereby lack precision and stability necessary for the communication to others. (This is a brief explanation of the difficulty inexperienced therapists have in communicating and understanding psychotic language. The sharp decrease in the distance between the referrential object

and the symbolic vehicle that occurs in this language makes it a non-consensual means of representation.)

Thus, it is shown that the relationship between a vehicle and its referrant is not a simple one. The active denotative referrence does not merely operate with already formed expressive similarities but is also productive, i.e., it brings forth latent expressive qualities between the vehicle and the referrant, though allows for the establishment of semantic correspondence through schematization. The idea of a dynamic schematization is implied to infer dynamic, victoral, mobile processes rather than a static copy model.

Piaget (1969) argues that internal representation (imagery) is not possible at birth but can emerge only at the later stages of sensory motor development. (This is in sharp contrast to psychoanalytic theory which will be discussed later.) As Wolf (1967) summarizes, Piaget identifies a non-representational phase of symbolic functioning in which no a priori psychic image of an object is utilized. In The Psychology of the Child (1969), Piaget identifies a developmental hierarchy of his semiotic (symbolic) function: deferred imitation--when the infant is capable of imitating the behavior of a model absent from the room (without an internal representation of that model); symbolic play; drawing; mental imagery (the first sign and stage of internalized representation); and finally, language (which eventually overlays all of the prior processes.) Piaget has apparently derived his non-representational stage of functioning from two major works. In Mental Imagery in Children, Piaget focuses exclusively on the use of imagery in its relationship to solving perceptual motor problems (though Piaget appears to want to consider his study as encompassing all intellectual

functioning). After dozens of studies, he concludes that imagery is not utilized and, therefore, cannot be acquired until a relatively late stage of childhood. He concludes, "In short, the two main periods of image development correspond to the pre-operational (before 7-8) and the operational levels... The images of the first period remain essentially static and consequently unable to represent even the results of movements and transformations and a fortiori unable to anticipate processes not yet known. But at seven to eight years... imaginal anticipation makes its first appearance, enabling the subject to reconstitute kinetic or transformational processes." Thus, in the Piaget model we can see a transformation in the type of imagery available to the child. At the pre-operational level, the child has only access to reproductive images (which evoke objects and events already known). Anticipatory images which are representations of events not yet perceived (and cannot be explained by just increasing flexibility of reproductive images) are not realized until the level of concrete operations. This observation of Piaget may explain the controversy in experimental psychology as to whether images are static copies or processes. In Piaget's model we can see that both types of images are present in the adult. It is easy to see the complications that have arisen by attempting to generalize from the observations of one type of imagery. Piaget, however, may be also making a mistake himself by attempting to generalize from observation of imagery in the service of intelligence and neglecting the properties of imagery in symbolic functions in toto. In his studies of pre-verbal children, there must be a great deal of artifact. For example, since the bulk of his research deals with perceptual motor function, the infant's failure to solve such tasks may not be due to

the lack of imagery but rather to non-veridical imagery, poor motor skills, etc.

In Play Dreams and Imitation (1962), Piaget considers the symbolic function as a general system of representation. Though at the expense of misstating and misunderstanding several psychoanalytic constructs, this study appears to be much less constricted than his study cited above. Symbolic thought is seen to be a part of a continuum of thinking and representation. Piaget, rejecting any dichotomy between primary and secondary process, argues that there is no great separation between conscious and hidden symbols but rather a variety of intermediate stages between conscious and unconscious symbolic assimilation. Every symbol, he considers, can be at the same time conscious and unconscious. (Careful reading of Freud and Fenichel, however, reveals that this is not in too much disagreement with Freud.) For example, the mechanisms of thought can be unconscious while its results conscious. To consider the unconscious a region, as he attributes to Freud as doing, is inappropriate since symbols can have a variety of more or less remote meanings. Piaget claims that the field of unconscious symbolism is wider than that accounted for by Freud's censorship and repression. Symbolism, according to Piaget, can be the beginning of conscious assimilation rather than merely a function of censorship. Symbolism, he further argues, extends far beyond the field of what can be considered censoring. The main thrust of his argument, as he cites work by Silberer, is that symbolism must be considered an adaptive independent function unassociated, and relatively independent, from repression and censorship. He supports his position by citing the work of major theorists. Adler, for example, considered symbols not to be a disguise

but rather a reflection either direct or allegorical of the subject's present activity. Drawing heavily upon the work of Jung (it is no coincidence that Piaget was analyzed by a student of Jung's), Piaget furthers his argument for the independent status of symbolism. He offers one interpretation of archetypes as general structures of thought that are: 1) inherent in the individual before he is socialized, and 2) common to children. Altering Jung's archetype explanation, he suggests that imagined representation due to symbolic assimilations which are found to be universal may be a function of general childlike primitive thought forms rather than innate ideas. Primitive symbolic thought, therefore, can be thought to be common to children, independent of censorship and repression.

According to Wolf, Piaget's position stands in sharp contrast to the psychoanalytic conception of the innate capacity to form hallucinatory images, "but satisfaction is not possible, drive tension may be channeled to activate the memory traces of an earlier satisfaction and as a result the child hallucinates the previous occasion to satisfaction as a perceptual reality... (These images are) the precursor of veridical thought and constitute the primary model of ideation in psychoanalysis".

Symbolism, Fenichel cites (1945, p. 48), "is not only a method of distortion; it is also a part of the primal prelogical thinking... In dreams, symbols appear in both aspects, as a tool of the dream censorship and also as a characteristic of archaic pictorial thinking, as a part of visualizing abstract thoughts". This double status of symbols and images in psychoanalytic theory was not recognized by Piaget and thus his criticisms are relatively mute. Fenichel, however, differentiates between the archaic symbolism of prelogical thinking and the

symbolism which are derivatives of repressed ideas: "Whereas in distortion the idea of a penis is avoided through the idea of disguising it as a snake, in prelogical thinking penis and snake are one and the same; that is, they are perceived by a common perception (this is somewhat analogous to Werner and Kaplan's concept of a protosymbol)... the conscious idea of the snake replaces the unconscious one of penis.

Symbols, Freud acknowledged (1935), are formed from language, colloquialisms, myths, fairy tales, jokes, etc. Though he did not address himself specifically to the developmental process within individuals, he depicted the role of imagery in the continuum of consciousness. In The Interpretation of Dreams and his Introductory Lectures, he identifies three processes of dream work: 1) condensation in which several elements are combined into one picture, 2) displacement in which there is a shift in affect and associations, and 3) transformation of thoughts into visual images. (This last process is considered another form of displacement in which there is a change in the verbal expressions into a visual one rather than just another substituted thought.) A dream thought, Freud described, "is unusual so long as it is expressed in an abstract form; but when once it has been transformed into pictoral language, contrasts and identification of the kind which dream work requires... can be established more easily than before between the new form of expression and the remainder of the materials underlying the dreams". This is so because in every language concrete terms are richer in associations than perceptual ones. (This strikes some similar chords as mentioned by Paivio.) Pictorial representation loses something, however, in its translation. It is difficult to test whether the dream element is to be taken in the positive or negative sense, to be inter-

preted historically or symbolically. Freud continues, visual images may also be a source of new material: "this pouring of the content of thought into another mold may at the same time serve the purposes of the activity of condensation and may create connections which might not otherwise have been present with some other thought; thus we find that dream work transforms latent thoughts into perceptual forms. The purpose of dream interpretation is to retranslate the visual percepts into language form. There is a regressive nature to Freudian visual imagery since he argues that our thoughts originated in such perceptual forms and sense impressions. Horowitz (1970) summarizes the psychodynamics of image formation and considers its place in the continuum of symbolic representation:

> "To summarize, image formation is a more primitive system and it tends to be under the influence of a primitive system of regulation, the primary process. Images may be harder to inhibit, and they may also be easily disguised through the mechanisms of condensation, displacement, and symbolization. Lexical representation develops later, when prohibitions have been internalized and inhibitory systems and the secondary process have been developed. Also, words tend to be clear, once they enter awareness: images may be fleeting and poorly recorded in memory. Finally, images are more likely, than lexical representation, to provide partial gratification because they are more analagous to perception."

Considering the experimental and theoretical complexities of imagery, it is no wonder that the integration of imagery into psychotherapy research raises a variety of new problems and questions. In a comprehensive review, Singer (1974) offers a vivid example of the history and range of imagery therapeutic applications.

Though some types of psychotherapy rely exclusively on imagery as the predominant modality, while others tend to use imagery in a more adjunctive fashion (e.g., to overcome resistances, to elicit particular

affects, etc.); regardless of the theoretical orientation of the therapist, application and technique of imagery follow similar patterns of directing the client to image a standardized episode or scene preceded by the therapist directing the patient in progressive relaxation. The thematic material and the directive role of the therapist are not as variable as the theoretical orientations might support.

Singer (1974) attributed the influence of Behaviorism as a deterrent for the growth and interest of imagery in the United States. Dismissing the phenomenon of imagery as being "subjective", the behaviorist advocated the study of more "public" operations which were overt and easily quantifiable. Psychotherapists in Europe, under the influence of Jung, existentialism, and phenomenology, have been less burdened by the methodical restrictions of Behaviorism and were initially more receptive to imagery.

Curiously, the major impetus in Europe for the use of imagery in therapy was an engineer with relatively no knowledge of psychotherapy. Desoille's (circa 1930) procedures have become the prototype for imagery methods: first the patient, with eyes shut, reclines on a couch; the therapist then directs him initially in progressive relaxation and then directs him to visualize specific imagery scenes, and then finally through particular metaphorical scenes depictive of conflicts and life problems. Desoille conceptualizes that the therapist serves as a guide for the patient through highly symbolic-metaphorical imagery episodes. These episodes of imagery allegedly represent major problem areas of living (one's own personality characteristics, opposite sex parent, same sex parent, social constraints, Oedipal conflict, etc.). These "guided waking dreams" are directed by the therapist who encourages the patient

to confront and overcome his conflict by means of symbolic trials and struggles. During periods of resistances and fears, the therapist intervenes actively by having the patient visualize a magical opportunity to increase his strength. This series of imaginal episodes or "trips", in lieu of extended discussion and analysis of patient-therapist dynamics, are considered to have intrinsic curative properties. Through the trips, the patient supposedly experiences mastery, accomplishment, catharsis, and a re-education of new approaches to conflicts. Regardless of Desoille's theoretical validity, Singer argues, as will further be discussed later, that the imagery serves to desensitize the patient from some frightening experiences and anxiety.

Singer notes an attempt to integrate imagery with more traditional therapy is provided by Fretigny and Virel in the use of "onirotherapy". Unlike Desoille, they focus on transference and resistance and give the patient more freedom by using less directed imagery. Though still relying on symbolic and metaphorical representation of the patient's conflicts and imagery, they allow the patient's imagery to unroll as freely as possible after suggesting a particular direction or episode. Their central focus, however, is still on the "oneirodrama"--the dramatic confrontation through imagery (symbolic) of the critical problems of the patient. Imagery again is identified as the critical variable: "Inhibitions are translated into metaphoric form and can be relieved only to the extent that an opportunity for expression is oniric or a dream like form is possible." The work has generated a series of research, particularly on the physical correlates of their onirotherapy (e.g., periods of onirotherapy were differentiated by alpa rhythm and minimal responsibility to the environment).

Another version of guided imagery has been developed by Leuner, a trained analyst, who utilizes ten standardized imagery scenes designed to systematically accelerate therapy by exploring major dimensions of potential conflict and growth. Leuner's "guided affect imagery" again uses some rather highly symbolic and metaphorical representations of the patient's conflicts. As in the above approaches, progressive relaxation is utilized prior to imagery. An example of some of the episodes the patient is directed through is as follows: an image of a meadow (to train him in imagery and also to serve as a representation of a beginning); an image of the patient climbing on a mountain (to obtain information about the patient's competency and aspiration); and image of a stream (to experience energy as well as analgesic and relieving experiences); a rose (to elicit sexual material); a swamp (to evoke instinctual material), etc.

Singer describes Leuner's position as follows: "Confrontation with real people in the patient's life takes place in an ongoing symbolic drama and is worked out there rather than through transference--the therapist in less likely to become a focal point of fantasy." A summary of research demonstrates some support for Leuner's symbolic representations. For example, Singer cites a significant correlation between the height of the mountain described in the patient's imagery and scores on a projective test of striving. In another experiment, images of a rose were found to elicit subsequent sexual imagery. Further examination of some of the more recent American applications will give the reader additional information into the diversity of the field.

Another revision of Desoille's method is the psychosynthesis technique (Assagioli and Gerard). Various symbolic and abstract episodes

are utilized, including visualization of affective states and "controlled visualization of extended symbolization" (e.g., taming a wild horse in imagery leads to growth by preventing the avoidance of frightening situations). Emphasis is placed on the "existential" experiences, catharsis, and peak experiences.

Transactional analysis and Gestalt therapy incorporate imagery and dream techniques individually as well as in groups (e.g., having the entire group image and share the fantasy of a member which is reported to be a productive experience). Moving away from the "uniformed packaged" imagery content, Shorr (1972, psycho-imagination therapy) directs the patient to imagine a hypothetical situation in which he helps the patient work through an anticipated real life situation by providing insight and undercutting resistances.

Similarly, Johnsgard (1969) utilizes the patient's own nightmares as stimulus material for imagery. Again, however, he follows the same basic pattern as the above by having the patient initially undergo progressive relaxation followed by revisualization of the nightmare, with subsequent direction of a symbolic success experience (e.g., directing the patient to image himself climbing Mt. Everest). Scheilder (1974) uses imagery more adjunctively by conceptualizing that symbolic manipulation is not independently sufficient, but rather opens the way for directive discussion about experiences and relationships, undercuts redundancy, and breaks up blockages in therapy.

Behavior modification techniques are distinctively American and rely heavily on imagery. The most widely used and accepted form of behavior therapy incorporating imagery is Wolpe's systematic desensitization (1969, 1961). He prescribes three integral components for the desensitization procedure: 1) the construction of a hierarchy of images ranging

from the least to the most frightening approximations of the feared person or behavior, 2) progressive relaxation, and 3) visualization of the lowest item image on the fear hierarchy paired with instructed relaxation. As the patient begins to experience relaxation with the least anxiety-producing imagery, he then proceeds up the hierarchy until he is able to image the most frightening scene without a great deal of anxiety, with the ultimate goal of permitting him to perform the act.

Instead of a hierarchy, several procedures begin with the most noxious imagery. Cautela formulated "covert aversive therapy"--instead of physically punishing undesirable behavior, the patient learns to image noxious imagery that he himself can pair with the undesirable behavior. Prior to any undesirable behavior, the patient visualizes a preplanned noxious stimuli which serves as a form of covert punishment. The most dramatic treatment, however, is that of Stampfl's (1967) implosive therapy in which the therapist takes the most directive role by exposing the patient to a series of extremely frightening images of feared situations. Stampfl argues that while the patient visualizes these images he does not experience the feared consequences and, therefore, his original fear will be extinguished.

As an alternative to noxious imagery, various behaviorists suggest the use of positive and self-reinforcing images (Cautela) which can be used as a reinforcement whenever needed. Obsessive thought sequences, self-derogatory remarks, impulsive acting out, etc., have allegedly been altered through self-reinforcement.

Recent research (Wilkins, 1971, Weitzman, 1967, Wilson and Reyher 1976) raises critical issues for the behavioral as well as <u>all</u> imagery therapies. Wilkins (1971) evaluated the components of systematic

desensitization psychotherapy and concluded, "neither training in muscle relaxation nor the construction of a graded hierarchy of fear relaxant scenes nor the concomitance of instructed imagination to muscle relaxation are necessary conditions for treatment success; instructed imagination by itself is the only necessary element." He further suggests, as does Wilson, that the therapeutic effect is due to social variables of the patient-therapist relationship and cognitive variables of expectancy of therapeutic gain, feedback of success, training of attention control, etc., rather than to the mutual antagonism between muscle relaxation and anxiety. Wilkins proposes a learning theory model to explain the effect of imagery: The imagined conditioned stimuli is not followed by the unconditioned stimuli and the subject becomes aware of the absence of negative reinforcement and experiences positive reinforcement for non-avoidant behavior through fantasy. This line of argument is supported by Singer (1974) who postulates that imagery provides the patient with the experience of control over previously uncontrollable processes, thereby leading to a subsequent increase in self esteem.

Foreyt and Hagen (1973) in a controlled study compared a covert sensitization group with: 1) a placebo (suggestion group), and 2) a no-treatment group, finding no difference between the treatments. Covert sensitization and suggestion groups were found to be equivalent, unlike the no-treatment group, indicating that the results may be due to factors such as suggestion and attention. Again the exact role and contribution of imagery to the treatment outcome is not clear.

Weitzman (1967) raised further questions about directed imagery therapy and systematic desensitization in particular. He reported that all subjects had a flow of imagery unrelated to the imagery

described by the therapist, and that these possess psychodynamic properties which have as yet an undetermined influence on the therapeutic effectiveness of directed imagery and behavior modification procedures.

Singer (1974), Wilkins (1971), Froeyet (1973), Wilson (1971, 1974), Reyher (1969) and others suggest that the main or total effect of directed imagery may have nothing to do with the presence of imagery per se but rather is due to the presence of other variables such as task demands, suggestion, hypnosis, therapist expectation or a variety of other non-specific variables. Furthermore, evidence has been cited in the above discussion which suggests that during directed imagery the patient may be: 1) not visualizing imagery and/or 2) visualizing other images not related to the content directed by the therapist. The assumption of an ability to follow and produce specifically suggested imagery is further challenged by Bugelski (1971): "Imagery cannot be dictated or directed by the imager. Images are involuntary occurrences, subject to no one's personal control. Even when someone suggests the desired images, they may not emerge or occur. Furthermore, any attempt to evoke a static image quickly results in one image giving way to another."

One approach that offers additional data as to the nature of imagery and also avoids many of the demand characteristics of directed imagery is the observation of the subjects' spontaneous (non-directed) imagery. This use of imagery was briefly considered by Freud (prior to 1904), who focused on imagery as an adjunctive instrument to increase the attention to the psychical perceptions of patients.

In therapy, Freud considered images as serving a double function. When memory is repressed, there often emerges into consciousness an unusually vivid image of a relevant object. The image partially

expresses but also screens from awareness the conflicted memory or idea. Freud postulated, "It is possible for thought processes to become conscious through a reversion to visual residues and in many people this seems to be the favored method." Thinking in pictures is thus considered an incomplete form of becoming conscious which stands nearer to unconscious processes than thinking since it is ontogenetically as well as philogenetically altered and, therefore, represents a continuum between the ego and the id.

Freud explains, "In order that he may be able to concentrate his attention on his self-observation, it is an advantage for him to lie in a restful attitude and shut his eyes." (The Interpretation of Dreams, 1965). Singer summarizes briefly Freud's dabbling with imagery. In the case of Fraulein Elisabeth VonR., 1895, Freud used imagery in an effort to undercut resistances: "You will see something in front of you or something will come into your head. Catch hold of it. It will be what you are looking for." Here we find Freud directing the patient to image but not specifying what to image. In Studies in Hysteria (1966), Freud encouraged his patients to get rid of images by describing them. The continued presence of an image signalled to Freud that there was still something remaining for the patient to talk about. Freud's eye-closed, free reporting approach, however, was changed by 1904.

The use of imagery in psychodynamic psychotherapy has been for the most part neglected and limited to reports on the clients' spontaneous production of imagery during free association (Jellinek, 1949; Kanzer, 1958; and Warren, 1961) or occasional introductions of imagery during the therapeutic hour (Goldeberger, 1957; Kubie, 1943; Kepecs, 1954).

The first systematic use of spontaneous visual imagery in psychodynamic psychotherapy and research was first reported by Reyher in 1963.

The use of imagery was incorporated into a technique called "free imagery", now called "emergent uncovering psychotherapy" (Burns and Reyher, in press, Morishige and Reyher, 1975; Reyher and Morishige, 1971).

In the context of psychotherapy, the spontaneous visual imagery of the patient (during eye closure) tends to become increasingly depictive of repressed conflicts and affects. Formerly covert processes become overt through the use of imagery.

Paraphrasing Reyher (1973), the role of the therapist is to draw the client's attention to manifestations of anxiety, symptoms, and/or resistance and reintroduce into the client's mind's eye the images (hot images) contingent with these manifestations. Unlike other procedures of imagery (Guided Daydream, Implosive), the therapist does not direct the imagery but rather allows the patient to "unfold". Rather than utilizing direct interpretation, the therapist relies heavily on non-directive techniques (observing behavioral indices of anxiety and resistance, e.g., laughter, increased volume in voice, etc.). The interpretive work is left to the patient and as the patient's imagery becomes increasingly depictive of repressed material, he begins to experience insight and appropriate affect. This results in strengthening of ego functions and the satisfaction of self-discovery.

An overview of the research generated by spontaneous imagery provides some depictive evidence of the dynamic (as opposed to static) properties of imagery and suggests factors which would make it difficult for subjects and patients to follow directed imagery. Reyher's work has investigated variables which are important concomitants of imagery: degree of repression, anxiety, psychopathology, and primary process. Much of the early research focused on the comparison of imagery with verbal association.

Reyher and Smeltzer (1968) presented stimulus words (depictive of neutral, hostile, sexual and familial content) with two conditions of instructions. In one condition, the subject was instructed to close his eyes and describe images and sensations. In the other condition, the subject was instructed to keep his eyes open and to verbalize the first thoughts that came to mind after presentation of the stimulus word. Greater anxiety (GSR), more primary process, and less success in establishing defenses were reported for the imagery condition. Free imagery, they concluded, was more regulated by primary process (as consistent with theoretical descriptions). The omission of an eyes closed verbal association group, however, failed to control for the effects of requesting the subject to close his eyes as well as keep his eyes closed in an interpersonal situation (an implicitly anxiety-provoking experimental task).

Reyher's findings have important implications for therapies that utilize imagery. As cited above, the content of imagery varies widely within and between the type of therapies. Imagery scenes can incorporate highly remote and disguised symbolism (e.g., allegorical images from the Guided Daydreams) or very blatant and stressful derivatives (e.g., implosive therapy). Reyher considers the content of imagery an extremely critical variable subject to the patient's dynamics:

> "There is a reciprocal relationship between visual image and drive; that is, an image will stimulate the drive that it depicts and a drive will produce an image to depict itself (the drive will seek out an appropriate object). However, our clinical experience strongly suggests that this reciprocal relationship is not symmetrical. Imposed visual imagery (implosive psychotherapy) has relatively little effect on drives in comparison to the effect of a drive on visual imagery. One of the most reliable phenomena produced by free imagery is the client's inability to revisualize some hot images or to form images of certain people. This contingency generally has great impact on the client as evidence for the operation of repression. It also makes us wonder if clients going through implosive psychotherapy see the dramatic imagery that the therapist conjures up.

> "Since the inclusion of elements of the drive in the visual imagery of a client is not an actual gratification or outlet, but merely an expression of the drive through a protosymbol, the drive is intensified along with a corresponding increase in the regulation of the visual imagery by the drive until anxiety triggers repression or until the person is prompted to obtain gratification through behavior. The reintroduction of "hot" images and dreams by the psychotherapist has a strong intensifying effect on drives in contrast to imposed imagery because they are spontaneous, idiosyncratic, and have particularly intimate connections with a salient drive or drive-complex."

In conclusion, the study of imagery and symbolic function reveals that a wide range of phenomena is incorporated under this rubric. Symbolic function, as shown above, is used by man in a variety of cognitive and affective processes, and operates at different levels of awareness to the individual. All research and therapy is hampered by the fact that reports of dreams, imagery, etc., all involve mediating one form of representation through another (usually language), i.e., to describe an image or a dream one must be able to verbalize it and, therefore, suffer a great deal of contamination in studying the effects; to represent something in drawing, one must draw upon psychomotor abilities and limitations. Pulling all the data from the divergent theoretical camps, one can observe certain patterns to imagery. Imagery has certain static as well as dynamic properties. Developmentally, there are certain alterations in imagery usually from more common undifferentiated images to more socially conventional and differentiated images. And finally, imagery can operate in the service of certain functions as well as being an independent function within individuals.

APPENDIX B

AVERAGE RANK ORDER OF INCREASING PLAUSIBILITY OF ALL IMAGES
(Derived From Three Independent Raters)

1. You begin to circle the moon.
2. As you fly, you see a small dog fly by.
3. You fly over the department store.
4. You begin going higher and higher.
5. You see yourself lifting off the ground.
6. You begin to flap your arms.
7. Little green men hand you a plaque which reads, "Welcome Stranger".
8. Two little green men come towards you.
9. You slap your mother.
10. You lose your temper and hit your father.
11. You see blood running from your father's face (where you hit him).
12. Your mother angrily strikes you in the face.
13. Losing his temper, your father slaps you in the face.
14. You shake your fist at the professor.
15. You get angrier and shout at the professor.
16. The professor shakes his fist at you.
17. You stand up and approach the professor yelling.
18. The professor yells at you.
19. You grab the term paper from the professor.
20. The professor grabs the term paper out of your hand.
21. The door opens and you see the professor's face with a mean and angry expression.
22. You arrive at the professor's office and angrily knock on the door.

23. A small brown bird flies down and lands on your shoulder and chirps in your ear.

24. You see your father's face get very angry.

25. You see the driver has a broken tooth.

26. You tell your father about the accident.

27. The car behind you slams into the back of your car.

28. You see yourself driving the family car to a grocery store in your home town.

29. On your term paper you see a note, "You flunked for cheating, come to the professor's office".

30. You are walking down the street in front of a department store.

APPENDIX C

AVERAGE RANK ORDER OF AGGRESSIVENESS OF ALL IMAGES (Derived From Three Independent Raters

1. You lose your temper and hit your father.
2. You slap your mother.
3. You see blood running from your father's face (where you hit him).
4. Your mother angrily strikes you in the face.
5. Losing his temper, your father slaps you in the face.
6. You shake your fist at the professor.
7. You stand up and approach the professor yelling.
8. You get angrier and shout at the professor.
9. You grab the term paper from the professor.
10. The professor shakes his fist at you.
11. The professor grabs the term paper out of your hand.
12. The professor yells at you.
13. You arrive at the professor's office and angrily knock on the door.
14. The door opens and you see the professor's face with a mean and angry expression.
15. You see your father's face get very angry.
16. You see the driver has a broken tooth.
17. The car behind you slams into the back of your car.

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