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Psychological responses to nuclear war: An examination of the contribution of Robert Jay Lifton

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PSYCHOLOGICAL RESPONSES TO NUCLEAR WAR: AN EXAMINATION OF THE CONTRIBUTION OF ROBERT JAY LIFTON

by

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Abstract

PSYCHOLOGICAL RESPONSES TO NUCLEAR WAR:
AN EXAMINATION OF THE CONTRIBUTION OF ROBERT JAY LIFTON
by
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The field of nuclear psychology has grown much in recent years. The main thrust of the field is the examination of the changes in psychological life in response to the advent of nuclear weapons. Many studies attest to the deleterious effects of the idea of nuclear war upon psychological development, mental health and human functioning. These studies are reviewed and recurring methodological problems, including the lack of empirical design and hypothesis -generated questions, are outlined. The contribution of psychoanalysis to the discussion of the effects of nuclear weapons on psychological funcioning is reviewed. The most prominent theorist in the field of nuclear psychology is the psychoanalyst Robert Jay Lifton. His contribution is examined and

his two main hypotheses are outlined; the idea of nuclear weapons induces a) psychic numbing and b) a shift in the belief in symbolic immortality toward the fifth mode, which emphasizes the experience of the moment. In order to test these hypotheses responses to the idea of nuclear war were compared to responses to other death, war and control stimuli. Subjects were randomly assigned to groups and presented with identical abstract poems that differed only in their title and the repetition of that title in the body of the poem. The titles were "Nuclear War", "War", "Death", "Car Crash" and the control "Thoughts on life". Pre- and post-experimental measures assessed psychic numbing and symbolic immortality. When memory for the poem was the measure, the experimental groups all showed more numbing than the conrol group. When doubt of mood was the measure, the nuclear group showed more numbing than the car crash and death groups, but less than the war and control groups. Nuclear war prompted no shift in symbolic immortality different to the other groups. The findings are discussed. Lifton's hypotheses are not clearly supported. The concept of numbing requires greater refinement; these findings suggest that numbing involves diffusion of emotional experience rather than cognitive processes. Implications for further research and for the field of nuclear psychology are discussed.

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I dedicate this work to my grandparents with great affection.

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CHAPTER 1

INTRODUCTION

Introduction To The Problem

This study will attempt to test two hypotheses of Robert Lifton regarding the effects that the presence of nuclear weapons have on psychological functioning. Initially the background to the field of "nuclear psychology" will be examined and the attempts to examine the psychological consequences of the nuclear arms race will be overviewed. It will be argued that Lifton's theories are the most cogent and influential, and hence are most in need of empirical examination.

Background to Nuclear Psychology

Many regard the bombing of Hiroshima on 6 August 1945 as the beginning of the nuclear age (Wyden, 1984; Schwebel, 1986). Whilst the event itself heralded the end of World War II and was thus greeted with joy and relief, there were many, including the scientists and politicians who had combined to build and deploy those first rudimentary nuclear weapons, who understood that the presence of such weapons would change the nature of the world in which we live (Goodchild, 1961; Wyden, 1984).

The changes in the political, economic, international relations and military spheres that became evident in the years following the Hiroshima bombing, have been well documented (Dumas, 1986; Dyer, 1985; Falk, 1982). We now live in a world which houses at least 50,000 warheads in the combined arsenals of the United States and the Soviet Union, and the nuclear arms race and a policy of deterrence are facts of life (Craig and Jungerman, 1986). The destructive power of these weapons is a theoretical question. Suffice to say that it is apparent that they are sufficiently powerful to destroy the entire planet a number of times over. It is hypothesized that the detonation of only a small percentage of these weapons will be sufficient to prompt a "nuclear winter" which would irreparably damage all biological life on the planet (Turco, Ackerman, Pollack and Sagen, 1983; Sagan, 1986).

It is the unprecedented power of the nuclear weapons that makes the nuclear age unique. As Schwebel (1986) notes, in the past there have been periods when there was objective cause for alarm, such as the bubonic plague of 1348 which decimated the population of England , Europe and Asia; but never has the human race as a whole faced the possibility of extinction (pp. 7-12). It is this threat to survival that is recognized as the single most unique feature of the nuclear age (Schwebel, 1986, Lifton, 1987). What are the human responses to this change in the environment, if you will, that the nuclear age has brought ?

There is little evidence as to people's awareness of the changes heralded by the nuclear age following the Hiroshima

bombing. It was in the late fifties and early sixties that nuclear air-raid drills became commonplace in schools in the United States, bringing the fact of nuclear weapons to the collective attention of a generation of school children. Memories of these drills and their effect on the lives of the participants have been the subject of two retrospective psychological studies (Carey, 1982, Wangh, 1981). However it was not until the early sixties and the Cuban missile crisis, that the first studies were undertaken into the psychological responses to the increasingly apparent threat that the weapons embodied. Milton Schwebel (1965) and Sybil Escalona (1965) conducted the first of these studies, which are generally recognized as the initial studies in the field of nuclear psychology (Beardslee and Mack, 1982).

Nuclear Psychology

Since those initial studies the field of "nuclear psychology" - a term coined by Schwebel (1986) - has examined many facets of human functioning related to the presence of nuclear weapons in the world. Psychologists have examined psychological assumptions behind civil defense planning (Churcher and Lieven, 1983); the effect of civil defense planning (Carey, 1983; Thompson, 1985; Wangh, 1981); the psychological effects of the bombing of Hiroshima and Nagasaki (Lifton, 1967; 1979) and other disasters (Thompson, 1985); human fallibility and nuclear arms (Dumas, 1980; Thompson et al, 1983; Thompson, 1985); interactive

processes related to war, such as decision-making, conflict resolution, and crisis management strategies (Holsti, 1986; Janis, 1972, 1986; Lebow, 1981, 1986; Smoke, 1986; Snyder, 1978); the personalities of decision makers (Holsti, 1982); the role of fear and pride in the maintenance of the nuclear arms race (Frank, 1986; White, 1984a); risk assessment and the possibility of unintentional nuclear war (Frei, 1983; Plous and Zimbardo, 1984); mispercetions in international relations (Tetlock and McGuire, 1985; Jervis, 1976; White, 1984b); the implications of attitudes toward the Soviet Union (Bronfenbrenner, 1986; Kennan, 1982; White, 1986); non-violent alternatives (Kelman, 1979; Osgood, 1962); understanding the arms race in terms of "game theory" (Bennett and Dando, 1983); the role that psychologists can play (Blight, 1984; Gralnick, 1986; Holt, 1984; Morawski and Goldstein, 1985); the effect of the arms race on educational practice (Tizard, 1984); the effect of the arms race on the role of psychotherapy (Kovel, 1984; Porter, Rinzler and Olson, 1987), the effect of the nuclear threat on the evolution of psychoanalytic theory (Wangh, 1984); differences in attitudes and beliefs of anti-nuclear activists and survivalists (Tyler and McGraw, 1983; McGraw and Tyler, 1986); changing attitudes towards war (Feshbach, 1986; Rogers and Mewborn, 1986); education about nuclear weapons and peace in schools (Feshbach, Kandel and Haist, 1985; Kimmel, 1985; Markusen and Harris, 1984; Meehan, 1984); the impact of nuclear weapons on family interaction (Greenwald and Zeitlin, 1987); the attitudes, beliefs and conditions that motivate anti-nuclear activism (Fiske,

Pratto and Pavelchack, 1983; Flamenbaum, Hunter, Silverstein and Yatani, 1985; Garrett, 1985; Hamilton, Chavez and Keilin, 1986; McClenney and Allbright, 1985; Milburn and Watanabe, 1985; Tyler and McGraw, 1983; Wolf, Gregory and Stephan, 1986); the reasons people are not anti-nuclear activists (Gilbert, 1988); the attitudes of psychologists to nuclear weapons (Polyson, Stein and Sholley, 1986), and the impact of the television movie, "The Day After" (Schofield and Pavelchack, 1985).

Psychological Consequences of Nuclear Weapons

Following the first studies of Schwebel (1965) and Escalona (1965) a number of studies have addressed the question of the effects that the presence of nuclear weapons have on psychological development and functioning. Schwebel's study set the tone of subsequent studies, asking four questions about nuclear war and fallout shelters to a large sample of students. Overall, he concluded that students were very concerned about the possibility of a nuclear war and he hypothesized a number of effects that this might have on their development. He suggests that thinking about nuclear war made his subjects feel anxiety, helplessness, resentment, no hope for the future, a need for immediate gratification, selfishness, nervousness, tension and pressure (Schwebel, 1982).

Escalona (1982) reviewed her 1965 study and concluded that "growing up in a social environment that tolerates and ignores the

risk of total destruction by means of voluntary human action tends to foster those patterns of personality functioning that can lead to a sense of powerlessness and resignation" (p.601).

Beardslee and Mack (1982), in their study for the APA Task Force on Psychosocial Aspects of Nuclear Developments (American Psychiatric Association, 1982) concluded from interviews about nuclear fears with teenagers, that there is a major effect on the development of a healthy ego ideal which results in a damaged sense of one's own values and abilities and "impulsivity, a vague system of 'get it now', the hyperstimulation of drugs, and the proliferation of apocalyptic cults" (p.90).

Other writers have pointed to other possible consequences of the arms race, including a feeling of incompetence and guilt in parents (Crain, 1982), a diminution in the opportunity to learn about aggression in a healthy manner (Salguero, 1983) and intrusions in identity formation, confidence in adults, an inability to cope with death, and an unwillingness to invest in family relations and to make commitments (Shecter, 1986).

Among the most cogent and influential theses as to the effects of the nuclear age on emotional and psychological experience is presented by Robert Jay Lifton. Lifton's thesis has its roots in his experiences interviewing survivors of the Hiroshima and Nagasaki bombings (Lifton, 1967) and his own particular reworking of Rankian psychoanalysis (Lifton, 1976). He suggests that there are two major effects of the nuclear era; a general "psychic numbing" which is a conglomerate of psychoanalytic defense mechanisms all

associated with the blunting of emotions, and an alteration in the human tendency to believe in "symbolic immortality". This refers to a theory outlined by Lifton (1979) which concentrates on the ways in which people believe that they will live on after they die. For instance, people may believe that they will live on in their children or their work after they die. Lifton suggests that there are five modes of symbolic immortality; the biological mode involving "the assumption of living on in one's descendents" (Lifton, 1974, p.124.); the theological mode emphasizing life after death embodied by many of the world's religions; a creative mode involving "immortality through man's works "(Lifton, 1974, p.125); a natural mode, emphasizing the continuance of nature; and a fifth mode involving "experiential transcendence", which emphasizes the involvement in one's own immediate experience to the exclusion of thoughts of mortality and the limits of human life. Lifton argues that a major effect of the nuclear era involving the possibility of global destruction is an impairment in the traditional beliefs in symbolic immortality - the first four - and a tendency to rely on the fifth mode. Since this mode involves immediate experience and sensation, it is less vulnerable to the misgivings about historical durability, on which the others are most dependent. Lifton believes that the experiential mode has taken on a new significance in the nuclear age, when all the other modes are threatened.

Research into the hypothesized psychological effects of nuclear weapons can be divided into the qualitative and quantitative studies. The qualitative studies have involved open

ended responses to questionnaires and structured interviews (Beardslee and Mack, 1982; Escalona, 1965, 1982; Goodman, Mack, Bearslee and Snow, 1983; Schwebel, 1965, 1982) and in depth interviews (Coles, 1985, 1986). All of these involve an unsystematic analysis of the subjects' responses to the questions, and all of these studies conclude that there is a prevalence of worry and fear about the possibility of the use of nuclear weapons.

The quantitative studies have been surveys (Bachman, 1983; Doctor and Goldenring, 1984; Solantus, 1984) that have asked children or adolescents to rate nuclear war among other "worries"(Doctor and Goldenring, 1984), to state degree of worry about nuclear war and other "problems facing the nation" (Bachman, 1983) or to respond to questions about hopes and fears in the future (Solantus, Rimpela and Vappu, 1984).

All of the above studies have found a consistently high rate of concern or worry about nuclear war and all of these writers have hypothesized as to the psychological effects that this worry may engender. None, however, have addressed these in an empirical manner involving the control of dependent and independent variables.

Two studies have attempted to examine the effects of worry about nuclear war on mental health. Both examined the relationship between indicators of anxiety and concern about nuclear war, and indicators of the hypothesized effects of that worry. Newcomb (1986) found a relationship between people who evidenced higher nuclear anxiety and patterns of drug use, depression, low

life-satisfaction and powerlessness. Diamond and Bachman (1986), however, found no relationship between indicators of poor mental health and concern about nuclear war, when they examined data collected from over 17,000 high school students as part of the Monitoring the Future Study.

Methodological Problems

There are a host of methodological problems with these studies that include, a reliance on unsystematic analysis of open-ended responses; the lack of "blind" subjects - in every study the subjects are aware of the nature and purpose of the study and are asked directly about nuclear war; and a reliance on self-report. Most pervasive though, is the lack of an empirical approach that would compare the responses to nuclear war with responses to another phenomenon.

Death and War: Control Stimuli

Schwebel (1986) writes "we are faced with the question: Is there a difference in post-1945 consciousness that is attributable to the circumstances of living with the threat of nuclear war?"(p.6).

It is obviously impossible to turn back the clock and see if before 1945 people evidenced less of the variables outlined above, that are said to be due to the advent of nuclear weapons. The next

best means of assessing whether these hypothesized responses are in fact due to nuclear war, is to compare responses to nuclear war with responses to other phenomena.

The other phenomena that appear most suitable for this purpose are death and war.

Death. In a study that evaluated the relationship between death anxiety and cognitive/emotional responses to the threat of nuclear war, Hamilton, Keilin and Knox (1987) found a high positive correlation between death anxiety - as measured by Templer's Death Anxiety Scale (1970) - and measures of nuclear war-related anxiety and worry. Hamilton et al (1987) conclude that high levels of death anxiety may predispose the individual to react emotionally to the threat of nuclear war. It is possible, however, that the measures of emotional response to nuclear war and of death anxiety measure the same or very closely interwoven phenomena.

The question therefore arises: are the suggested psychological responses to nuclear weapons indeed unique or are they responses to the notion of death that is implicit in any mention of nuclear war ?

It is argued here that a study that attempts to clarify a particular effect of nuclear weapons needs to control for the confounding variable of death. In other words, there is a need to show that a particular hypothesized effect of nuclear weapons is indeed that: and not a response to the notion of death that is embedded in any mention of nuclear war.

War. It is clear that war elicits profound psychological

reactions. It is unclear whether the responses to nuclear war are substantially different to those experienced in response to the idea of war in general. There is a need to compare the psychological responses to the idea of nuclear war with those elicited by the idea of war.

This Study

This study examines two hypothesized psychological effects of the nuclear arms race and attempts to discern whether they are unique to nuclear weapons or whether they represent responses to the notion of death that is embodied in the idea of nuclear war.

The hypothesized effects that are examined are those suggested by Lifton (1982a, 1987); that there is a general psychic numbing resulting from knowledge of the existence of nuclear weapons, and that there is a shift away from traditional beliefs in symbolic immortality and toward a mode of symbolic immortality emphasizing "experiential transcendence"(Lifton, 1982a).

Lifton's thesis was chosen for examination for the following reasons: the hypothesized effects are clearly stated and defined; the hypothesized effects are grounded in an overall theory about human functioning rather than hypothesized by way of explaining questionnaire responses; Lifton's work is regarded as seminal in the field of nuclear psychology (Locatelli and Holt, 1986; Mathews and Mister, 1987; Schmitt, 1982).

Subjects were randomly assigned to groups and presented with

different stimuli, in the form of poems. They were told that this is an experiment examining the relationship between comprehension of poetry and affect. One group read a poem on nuclear war, another group read a poem about death in general, another group read a poem about death in a specific instance - automobile accidents - , another group read a poem about war, and the control group read a poem about a neutral subject. The poems were identical except for their titles and the repetition of the title in the body of the poem. The subjects' levels of psychic numbing and tendency to modes of symbolic immortality was assessed. A comparison between the groups on these variables clarifies whether the effects of psychic numbing are unique to nuclear war, or can be fostered by presentation of other death related stimuli.

Statement of Hypotheses

1. Subjects who read a nuclear-related poem will evidence significantly more psychic numbing than subjects who read passages relating to death, specific death, war and a neutral subject.

2. Subjects who read a nuclear-related poem will evidence a significantly greater tendency toward the fifth, "experiential transcendent" mode of symbolic immortality rather than the other four modes outlined by Lifton (1979, 1982a), when compared with other groups who read poems on death, specific death, war and a neutral topic.

3. In order to ensure the efficacy of the read-and-assess methodology, it was hypothesized that the neutral group will evidence less psychic numbing and less tendency toward the fifth mode of symbolic immortality than the nuclear, death, specific death and war groups.

Significance of the Study

This study empirically studies two hypotheses suggested by Robert Lifton. Although Lifton's theories are frequently alluded to as central to the nuclear psychology field there has been only one attempt to empirically test his hypotheses. That attempt (Schmitt, 1983) was flawed by methodological problems, to be addressed below.

There is therefore a need for a careful and systematic study of Lifton's hypotheses. This study addresses this need.

This study addresses the methodological problems that have persisted in the field of nuclear psychology, and therefore makes an important methodological contribution to the field. Subjects were "blind"; where possible standardized instruments were used to measure the dependent variables; measures addressed psychological processes rather than attitudes; and most crucially, responses to nuclear war were compared with responses to other phenomena; death and war.

Assumptions and Limitations

An assumption underlying this design is that exposure to written poems about nuclear war, war and death focuses the readers' concentration on these issues (without explicitly stating that this is desired); and that when focussed on the material, subjects' everyday experience related to this material (such as hypothesized psychic numbing or a hypothesized need for experiential transcendence) are intensified. It is this intensified experience that is assessed by the measures in the study.

A limitation of this study is the representativeness of the sample. All subjects were college students from City College in Manhattan, New York. This is a college population and one that is predominantly comprised of minorities. There is conflicting evidence regarding particular biases that this population may harbor regarding nuclear weapons, and how representative this group may be, of the general population. This problem is in part addressed by the random assignment to groups, but remains a limitation of the study.

CHAPTER II

REVIEW OF THE LITERATURE

In this review the theoretical and empirical investigation of the psychological responses to nuclear weapons shall be examined. Particular attention will be given to the suggested effects on mental health and development, highlighting the contribution of Robert Lifton and the methods of investigation used in the field. The review will also present the literature on the individual and group differences in responding, the role of psychological defense; the unconscious manifestations of nuclear weapons and the role of the fear of nuclear war in psychoanalytic theory and practice.

Responses To Nuclear Weapons

There are a considerable number of studies addressing attitudes and beliefs about the nuclear weapons. First, those that have focussed on children and adolescents, and then the literature on adult attitudes will be overviewed.

Children and Adolescents

The first studies to examine perceptions of and reactions to the threat of nuclear war were by Milton Schwebel (1965) and Sybille Escalona (1965). These studies involved analyses of responses to questionnaires.

Milton Schwebel's study began shortly after the height of the Berlin crisis in 1961. He polled 3000 students ranging from second grade to second year in college about the threat of war and the use of civil defense. The questions were:

Do I think there is going to be a war ?

Do I care ?

Why ?

What do I think about fallout shelters ?

Schwebel subsequently gave the same questionnaire to 300 high school students during the first week of the Cuban missile crisis in 1962.

Schwebel found that following the Berlin crisis almost 50% of the students expected there would be a nuclear war. During the Cuban crisis 25% expected a war. Despite this decrease in expectancy of a nuclear war, there was a consistently high level of caring about the danger; 95% answered affirmatively to the second question. Many expressed this caring with intensity, making comments such as "anyone who doesn't (care) is insane", "...a naive question" and "it's insulting to be asked". Likewise Schwebel reports that the children were quite clear in stating their concerns

about a nuclear war. The majority stated simply "I will die" or "we will all die together". A minority contemplated their fate if fallout shelters were to provide adequate protection and expressed concern that there would nevertheless be no living world left to sustain them.

Schwebel (1982) discusses the higher level of worry evident in 1961 (50%) than in 1962 (25%) when according to him there was greater international tension. He suggests that the greater tension fostered an irrational optimism which, he believes, indicated a prominence of denial as a means of coping with the threat. He evokes denial again when contemplating another noteworthy finding; the younger children in both studies reported more fear than older ones. Whilst acknowledging that this may be due to greater naivete, he suggests that older children were more likely to use their greater knowledge to psychologically defend against the fear.

The subjects of Schwebel's studies were a mixed sample, described as "female and male; black, Hispanic, Oriental and white; urban and rural".

Schwebel's studies are regarded as seminal in that they opened up the new field of nuclear psychology and highlighted a state of concern and fear that demanded the further attention of psychologists. There were, however, a number of methodological problems with his study. Chief among these is the nature of the questions. By asking specifically about nuclear war, the subjects attention is focussed on that particular issue. The reader is left

with no sense of where the stated concern about nuclear war rests within the respondents life and whether nuclear war was on his or her mind at all until the question was asked. Furthermore there was no attempt to address the subjects' concerns about other fearful and fatal phenomena, that would have offered a comparison. This lack of a comparison weakens Schwebel's main conclusion; that there are unique responses to the nuclear threat.

The lack of spontaneity of response was addressed by Sybille Escalona (1965) who asked 311 children open-ended questions about the future. However, her study was less systematic; different members of the study group did not use exactly the same wording when asking their questions. The kind of question asked was : "Think of the world as it may be ten years from now. What are some of the ways in which it might be different from today ?'

Of the 311 children, 218 (or 70%) mentioned the atomic bomb, either by envisaging a gruesome existence underground, or in terms of wholesale destruction.

It was another fifteen years before there was any further psychological research in this area. In the 1980s the field grew rapidly, and in order to bring some clarity to this expanding field of literature, the studies will be divided into quantitative and qualitative studies as suggested by Beardslee (1986). First the qualitative studies will be the focus.

In 1977 William Beardslee and John Mack were invited to join the American Psychiatric Association Task Force on psychological impacts of nuclear developments, the findings of which were

subsequently published (American Psychiatric Association, 1982). Their study involved three samples totalling 1,143 high school students in three cities. The initial 1978 questionnaire elicited open-ended essay responses and the subsequent two had a quantitative format. The questions asked addressed many aspects of the nuclear age: what the word "nuclear" brought to mind, participation in nuclear-related activity, age when first heard about nuclear weapons, feelings about nuclear power, attitudes regarding nuclear weapons and national security, attitudes toward civil defense, probability of self, city and country surviving a nuclear attack, feelings about a hypothetical situation in which terrorists threaten with nuclear
weapons, the degree to which nuclear weapons have influenced plans for marriage, having children, planning the future and ways of thinking about the future.

This study is subject to the same criticisms levelled at Schwebel's study (1965), that the questions focus the subject on the issue of nuclear war, and that there is no control comparison to responses to another phenomena, plus a criticism made by the authors themselves (Beardslee and Mack, 1983) that non-systematic sampling and the questionnaire format were limited, and is criticized by Coles (1986) for the limited time spent with each subject. Nevertheless, the results suggested that many young people were indeed worried about nuclear war. Nuclear war typically brought to mind images of darkness, death and holocaust. Two examples of responses are:"Bombs, the world as

nothing, completely wiped out"(p. 75). "Energy, society, advances, bombs exploding, people dying, buildings ruined, society demolished, big wars between countries" (p. 76).

Subjects did not feel that they could survive a nuclear attack and many talked of nuclear weapons affecting their plans for their future lives: "The world might be gone in two seconds from now, but I still plan for a future, because I'm going to live as long as I'm going to live."(p. 84); "They have made me live a little more day to day knowing any time I might not be around" (p. 84).

Some of the sample claimed that nuclear advances had no effect on their lives, but overall, Beardslee and Mack (1983) conclude that "the majority (of their subjects) were concerned about at least some aspect of the threat of nuclear war and a number were very afraid. the respondents were alone with their fears and not certain about what to do" (p. 81).

Goodman et al (1983) examine in greater depth the interview section of the Beardslee and Mack study. They investigated the effects of the nuclear arms race upon the lives of the subjects and the perceptions of the arms race and the political situation that fosters it, with thirty-one high school students from the Boston area. The interviews suggested a tendency to feel fear and to attempt to "shut it off" (p. 510) by using drugs, ignoring the issue or lapsing into helplessness. Every interviewee reported thinking about the threat of nuclear war often and felt that it was inevitable. Thus Goodman et. al. comment that "most live on two levels - thinking that there will be no future, and still making

plans as if there will be" (p. 524). The study is subject to the same critique as that levelled at Beardslee and Mack (1982), concerning sampling and interview procedure, but is nevertheless of interest and relevance because it is one of just a few studies that involves a qualitative examination of the content of the thoughts about nuclear weapons. Such responses as " Sometimes I have dreams and those are bad. I usually dream that when a nuclear war happens, I'm alone....I always envision loud noises, and a lot of bright light and I just wake up terrified" (p. 510) or "I feel incredibly, incredibly cheated and I feel helpless" (p. 521)
suggest strong emotions and therefore require further psychological investigation, irrespective of the representativeness of the sample or the interview procedure.

Beardslee (1986) points to two educators who have produced qualitative studies which report their experiences in talking to classes about nuclear war (Engel, 1984; Snow and Goodman, 1984).

The study by Engel (1984) involves the examination of a discussion recorded in a classroom of about twenty children in a small, urban, private progressive school. The class which consisted of kindergarten children, first- and second-graders, was drawing pictures and writing on the topic "If I were boss of the world". The children show a tendency to fly into fantasies such as giving everyone wheels and "making everybody happy" in general ways including getting rid of all weapons. The teacher focusses the children on the idea of arms reduction and they talk about President Reagan not liking this:

Bill: He wants to make weapons.
Dan: Nuclear bombs to threaten each other.
Amy: They wouldn't want to destroy half the world.
Bill: All the nuclear bombs in the world can destroy half the world.
Dan: Or could damage the world. (p. 310)

Here they exhibit some ideas about the power of nuclear weapons and their role (threatening the opponent) and at other points illustrate how nuclear weapons have become integrated into the childrens' world of play and fantasy. However the study falls short of allowing insight into the childrens emotional reactions to these thoughts. It is unclear whether nuclear weapons have a meaning for these children that is any different to that attached to weapons or ideas of violence in general.

The study by Snow and Goodman (1984) reports on a class of adolescents' responses to a curriculum of nuclear education. The curriculum addresses the uses of violence, technological aspects of nuclear weapons, the effects of nuclear explosions and the political history of the arms race. The class emphasized discussion and the development of points of view. The report focusses on the development of these adolescents' awareness and of their sense of efficacy. the latter is illustrated by a class message sent to youth in the Soviet Union : "We're the young generation today, and we're the one's that can make a difference tomorrow, and if it's peace we want, then why can't we have it ?" (p. 328).

Unfortunately the study includes no measures or questionnaire

responses taken before the curriculum and therefore while the study offers an insight into the responses of this class to a nuclear curriculum, it cannot be said to shed light on the general responses of adolescents to the advance of nuclear weapons.

Robert Coles has made a significant contribution to the qualitative studies in this field. He has reported his findings from interviews with children about nuclear war and comes to conclusions that differ somewhat from the previously sited researchers (Coles, 1985; 1986). Coles adopts a unique style of investigation, talking for long periods and without particular emphases with children in different communities over the United States. He often talks at length with all family members and in some cases has interviewed older siblings and family members in previous studies some years before. Coles (1986) dicovered some marked differences in the attitudes of children to the bomb. Some children were surprised by his questions regarding their thoughts about nuclear weapons, responding with such comments as "Well, sir, I don't give the nuclear bomb much thought, no sir" and "I haven't been thinking of nuclear bombs" (p.252). In many cases Coles observed the attitude that nuclear bombs were simply bigger and more powerful bombs that aroused no special issues: "They felt that bombs are bombs, and big bombs are big bombs, and bigger bombs are - well, bigger bombs"(p. 259).

Other children showed an interesting tendency to understand the existence of nuclear weapons within the dominant issues of their culture. For instance a Pueblo Indian girl shows awareness of

the possibility of nuclear devastation, but construes it within the context of the Pueblo culture's struggle to overcome the dominant Anglo culture:

> There could be a war one of these days, and everyone would die. Then there'd be no more life, and there'd just be a big desert here. Maybe some of our (Pueblo) people would escape, though: they'd go and hide in the caves. We know the caves that the Anglos don't know. (p. 252)

It is possible that this girl finds some comfort in the fantasy of her people surviving, and in doing so lessens the emotional impact of her previous sentences about "everyone" dying. Alternatively, she understands the social significance of nuclear weapons in the same mode as she does other social phenomena; that of the Pueblo struggle against the Anglos. Another example of this manner of assimilating the idea of nuclear weapons in Coles' study comes from a black child who responds to a description of the power of nuclear weapons by his class teacher with this commment:"If the Klu Klux Klan ever got that bomb, it would be real bad for us" (p.257). The child was aware of Klan violence against a member of his family and construes the notion of nuclear weapons within the framework of other violence that he has known.

Coles describes in detail his interaction with Sue, the daughter of affluent white professionals who are involved in anti-nuclear activities. Talking to Coles about nuclear weapons, while she painted, Sue is engrossed in the subject:

> ....the bombs will be used, and then we'll see black clouds

> over our cities, all of them, and so will the Russians, and it'll be the worst thing anyone has ever seen, and we'll all be gone....(p. 262)

Coles has a strong reaction of personal discomfort and perplexity, to Sue and is surprised at Sue's insistence on staying with the topic, continuing to talk about it after long silences during which she paints. Her painting is included in Coles' book (1986) and is a vivid rendition of this child's view of the nightmare of a nuclear war. Blackness pervades, buildings burn and bodies are scattered through out the scene. Coles is struck, not only by the horrific images that populate this girl's mind, but also by the closeness of her views to those of her parents and the contrast between these views and those of poorer, lower class children. The latter, appear to Coles to internalize their parents' views that surviving day to day is the biggest issue in their lives and there is no room for any other "big issue". Coles concludes from these observations, that nuclear fears are specific to upper classes. This notion will be examined at a later point. For the moment we can conclude that Coles has presented insights into the manner in which individual children think about nuclear war. Coles' contribution is regarded as particularily valuable because of his detailed focus on these individual children. However it is recognized that this focus is also the source of his study's limits, in that no generalizations to the whole population can be made.

In summary, whilst methodologically limited, the qualitative studies point to a general concern about nuclear weapons,

centering around the fear of death and resentment of the propagators of the weapons. There is disagreement as to whether the fear and concern may be limited to certain groups only. Overall though, when the concern is experienced, it is suggested that it has a significant impact on the psychological life of that individual.

The general thrust of the quantitative studies has been to give questionnaires to large, more representative samples in an effort to uncover general trends and modes of responses to the threat of nuclear weapons. Doctor and Goldenring (1984) attempted to address one of the criticisms of the prior studies: that subjects had been asked about nuclear war, but not about other areas of concern to them.

Their study appraised the fear of nuclear war in relation to other fears and worries in a replicable and statistically analyzeable manner. Over 900 12 to 19 year-old senior and junior high school students from two suburban areas in California were asked to list the three things about which they worried the most. Subjects were then asked to list 20 worries according to a standard Likert scale ranging from "not worried at all" to "very worried" ("Nuclear War" was in eighth position on the list) and then to list the top five of the twenty listed worries. Goldenring and Doctor's results supported notions of the prominence of concern over nuclear war but its place among other worries became clear. Twelve percent spontaneously mentioned "war-peace issues" including nuclear war as their primary worry, placing this sixth on the list of spontaneous worries. On the forced choice section,

worry over nuclear war ranked third (31%) behind "parents dying" (53%) and "getting bad grades" (37%). Although spontaneously on the minds of only a small percentage of the subjects, once attention was brought to the nuclear issue, subjects placed it as their third worry, and the most worrisome event that was environmental, rather than strictly personal in nature. Adelson and Finn (1985) in their critique of the study point out the very different nature of the threat posed by "getting bad grades" and "nuclear war". They suggest that this "peculiar" finding highlights a "deep flaw" (p. 30) in the methodology. Their first point is well taken and while not perhaps illustrating a "deep flaw" in the methodology, certainly does raise interesting questions about the psychological meaning that nuclear war has for individuals. Is it, for instance imbued with special associations and emotions, or is it just another, in a long list of worries on these subjects minds ?

Of note here is the finding that those who were most worried about nuclear war, placing it among their top three worries, were in general less anxious (as measured by the Speilberg State Anxiety Test) than their peers. They displayed indications of better adjustment, greater self-esteem and overall had a better grade point average than their peers. They also tended to be well informed about nuclear issues. Of further interest is the finding that these adolescents tended to be the most optimistic about the possibility of prevention of nuclear war. Goldenring and Doctor (1986) discuss this last finding and suggest that the better adjusted teenagers evidence an "appropriate" and "beneficial"

anxiety (p.86) in the face of the threat.

Jerald Bachman (1983) used material collected as part of the Monitoring the Future project, a study of high school seniors conducted by the Institute for Social Research, to assess attitudes towards nuclear war. High school seniors were surveyed each spring for seven consecutive years from 1976 to 1982. The pupils were drawn from 130 schools in 48 states and sample sizes ranged from 16,662 to 18,924. They were given extensive questionnaires which were responded to by checking one of a number of prepared answers. For instance the students were asked, "of all problems facing the nation today, how often do you worry about each of the following ?" The first problem on the list was "the chance of nuclear war". The percentage reporting that they worry "often" about this possibility quadrupled between 1975 (7.5%) and 1982 (30.9%).

The most striking response was to the statement "Nuclear or biological annihilation will probably be the fate of all mankind within my lifetime". In 1975 just over 20% agreed with this statement and 46.9% disagreed. By 1982, 36% agreed and only 27.9% disagreed. The study is described by Tizard (1984) as "methodologically the best U.S. study" (p. 273), and a significant increase in pessimism about the prospects of surviving for the duration of a lifetime is described. However, the study by Bachman has limitations. In responding to prepared statements, the subject can contribute no personal information as to the psychological meaning or the context of these attitudes. This is a limitation that

lingers in regard to many of the well designed survey studies that followed. Overall then, these two studies in the United States do suggest that adolescents are aware of nuclear arms, are concerned that they may be used and worry that their lives may be shortened accordingly.

Solantus et al (1984) investigated the response of adolescents in Finland to the threat of nuclear war. Using the Population Registry, 12 to 18 year olds were sent questionnaires consisting of 108 questions concerning all aspects of their lives. Over 5,000 responded (81%). The respondents' hopes and fears for their own life and future were uncovered by open-ended questions. The percieved threat of war was investigated by means of eight structured questions sent to a subsample.

Solantus et al found that the fear of nuclear war exceeded all other fears in each age group. 10% of the sample spontaneously reported dreams about nuclear war. The fear of war decreased with age (12 years, 79%; 14, 72%; 16, 57% and 18, 48%), whilst other fears increased over age. Fears regarding work and employment rose from 7% to 19% and fears of sickness rose from 5% to 11%. Hopes were more broadly distributed than fears. The largest class of hopes in all age groups was for work and employment. Hopes for peace formed the second largest class.

This study was the first major European effort to examine attitudes to nuclear war. A finding similar to that of Schwebel (1965) was that the fear of nuclear war decreased with age. The major finding of the Solantus et al study; that nuclear war is the

primary fear of adolescents across all age groups is more pronounced than any American study. This may be due to the geographic location of Finland itself, a neighbor to the Soviet Union: or to the prevalence and acceptance of anti-nuclear attitudes within the society. Whichever it is, the fear of nuclear war is also found in studies in other European countries.

In Britain, Thearle and Weinreich-Haste asked open ended questions and gave scales measuring political trust, efficacy and protest to 60 British 17 year olds. They were examining the relationships between different coping methods and defense mechanisms, and adolescents' ways of dealing with the nuclear threat. In the first part of the study, respondents were simply asked to record their thoughts and feelings about the future. They found that 75% of males and 85% of females spontaneously mentioned nuclear war. Thearle and Weinreich-Haste conclude that this attests to adolescents preoccupation with the issue of nuclear war (p. 140).

In Norway, Raundalen and Finney (1986) surveyed 2,444 children and adolescents between ages 11 and 19. Subjects rank-ordered a list of ten "future problems", according to the felt level of seriousness, and then wrote in greater detail about the highest ranked problem. They found that nuclear war was chosen as the most prominent "future problem" far more often than any other; in 52% of the responses nuclear weapons were mentioned first. Unemployment was second with 20.1% of the responses. Also of interest is their finding that, once again, concern about nuclear

weapons decreases with age from 12 years (64.6%) to 18 years (38.0%), but then Raundalen and Finney found an increase at age 19 (38.9%). They also found that girls consistently ranked both nulcear weapons and unemployment as of utmost concern more often than did boys.

The essays were read by two independent raters and were rated as either "pessimistic" or "optimistic". Thoughts about nuclear war were divided into five categories. Of these five categories, "pessimism" was the most common accounting for 44.2% of the subjects. These were judged to have clearly indicated pessimism or to have indicated that they had a notion that their life may be shortened by nuclear war. 12.9% of the responses were categorized as illustrating "repression" in that the respondents indicated that they could not bear to think about nuclear war and 12.2% were categorized as illustrating "powerlessness", stating that nuclear weapons were a fact of life and that nobody could intervene in this. Those illustrating "optimism", believing that there would not be a completely destructive war and "active hope", expressing the possibility of acting upon the problem of nuclear arms, together accounted for only 25.8% of the total. Thus Raundalen and Finney (1986) found that almost three-quarters of their sample had negative attitudes about the future and that the majority regarded nuclear war as the most prominent "future problem".

From the studies reviewed, the following conclusions can be drawn: many children and adolescents over the industrialized world

are worried about the threat of nuclear war. Cultural differences have been suggested; U.S. children fear parents' death more than nuclear war, and European children show the opposite tendency. Children and adolescents most worried about nuclear war have higher self esteem. Younger children show more fear of nuclear war and females tend to report more fear than males.

Adults

The research into adult attitudes and beliefs about nuclear war has focussed on the analysis and consideration of data gathered by survey agencies.

Kramer, Kalick and Milburn (1983) conducted a preliminary examination of responses to nuclear-related survey items from 1945 to April 1982 which are on file at the Roper Center for Public Opinion Research. They note that this is a preliminary investigation because the Roper Center is only one of a number of such centers and because the majority of surveys were conducted at times when the nuclear issue was prominent in the public's mind, such as immediately after the Hiroshima bombing and during the Cuban missile crisis.

They found that responses to the question of whether the United States should use nuclear weapons in response to a Soviet invasion of Western Europe have shifted. In 1949, 50% said "yes", in 1955, 44% agreed and in 1982 the number had fallen to 28%. Views regarding halting the development of nuclear weapons have also

changed, from 34% in 1946 to 74% in 1982. An increase is also found in the public's perception that the USSR has a comparable, if not superior nuclear arsenal: 9% felt the USSR was ahead in 1955 and 41% felt so in 1982. Kramer et al note that this may reflect the impression that the Reagan administration has sought to portray. Also of note is their finding that there has been a consistent belief by between 60% (1982) and 75% (1946) that if another major conflict breaks out, it would trigger the use of nuclear weapons.

As regards personal worry regarding nuclear war Kramer et al find a paradoxical trend. Estimates of surviving a nuclear war have decreased from 29% in 1956 to 9% in 1982, yet those reporting being very worried about a nuclear war has only increased from 14% in a1958 Gallup Poll to 28% in a1982 Los Angeles Times Survey. Thus while only 9% believe they may survive a nuclear war, only 28% report that they are worried about this. It is this finding that has prompted the psychological speculation that people are defending against the ideas of nuclear war (Fiske, 1987).

Further evidence of the adult populations' views regarding nuclear war has been gathered by the Public Agenda Foundation (1984) who conducted a national attitude survey among a cross section of 505 American adults. Their findings suggest that adults have fairly unified attitudes toward nuclear war.

> - by an overwhelming 96% to 3%, Americans assert that "picking a fight with the Soviet Union is too dangerous in a nuclear world"
> - by 89% to 9%, Americans agree that "there can be no

> winner in an all out nuclear war; both the United States and the Soviet Union would be completely destroyed"
> - by 83% to 13%, Americans conclude that in a "limited nuclear war, if either superpower were to use nuclear weapons, it would turn into an all out nuclear war."
> - by 76% to 23%, the public rejects the suggestion that the statement "....all life on earth could be destroyed in a nuclear war is a wild exaggeration."
> - by 68% to 20%, the majority rejects the concept that "if we have no alternative we could fight and win a nuclear war against the Soviet Union." (p. 3)

The surveyers note that it is uncommon to find such a widespread degree of consensus on a controversial issue. In summarizing these findings Yankelovich and Doble (1984) comment that this survey "underscores what many others have discovered: Americans have come to believe that nuclear war is unwinnable, unsurvivable" (p. 34) The difference between these findings and responses to similar questions in the fifties is marked. For instance, in the fifties a two-to-one majority of Americans believed that nuclear arms served the cause of peace and lessened the dangers of war (Public Agenda Foundation, 1984, p. 17). Yankelovich and Doble (1984) comment that this shift may be due to the observation that "voter perceptions of the Soviets are not as black-and-white as they once were.." (p. 36) and to " a serious change of heart about the impact of nuclear war on our national security" (p. 35). The latter seems to be linked to the following findings by the Public Agenda Foundation that are of particular

interest. In 1984, 77% believed that their chances of living through a nuclear war would be poor, as compared to 43% in a 1961 Gallup Poll. Furthermore in 1984, 68% believed that "if we and the Soviets keep building missiles instead of negotiating to get rid of them, it's only a matter of time before they are used." Women (75%) and those under 30 years old (78%) figured prominently in this group.

In response to the statement "compared to five years ago, I find myself thinking about the possibility of nuclear war", 55% responded "more often" and 37% responded 'the same". Again those under 30 years old were most prominent in this group accounting for 72% of those responding in this manner.

Thus more adults and predominantly women and young adults believe that it is inevitable that nuclear weapons will eventually be used and 76% of all adults understand that nuclear war could destroy all biological life. Predominantly young adults worry more in recent years about nuclear war. Once again, even though those reporting "more worry" are in a significant majority, it would appear surprising that more adults do not report more worry, and that the worry is heightened in a particular age group. Again this is a finding that has prompted the generation of a number of psychological hypotheses.

Psychologists that have examined adult responses to nuclear weapons have similarily uncovered an increase in fearful associations to nuclear war. Fiske, Pratto and Pavelchak (1983) surveyed a random sample of 65 Pittsburgh adults by telephone.

They asked questions about the plausibility of nuclear war, the salience of the issue and the general level of their political activity. They were then asked open ended questions aimed at tapping the content of their images: "Please name off the top of your head the first things you think of when you imagine a nuclear war" and " ...the first few feelings that come to mind when you think of a nuclear war." Fiske et al (1983) categorized the responses according to whether the constituted concrete or abstract images. They found almost twice as much abstract content as concrete content. The most common references were to physical destruction, death of specific individuals and death in general. Less common responses referred to images of weapons, surviving, radiation, end of the world imagery such as "hell" and "oblivion" and historical references such as Hiroshima and the Holocaust. In response to the second question, the most frequently mentioned emotions were fear, terror, worry and sadness. Anger, hate, helplessness and peace were also mentioned.

In a study that addressed the amount of distress associated with the threat of nuclear war, Newcomb (1986) gave the Nuclear Attitudes Questionnaire which consists of 15 items, to 722 young adults between 19 and 24 years old. The Nuclear Attitude Questionnaire was designed to assess attitudes, beliefs and emotional reactions toward nuclear war, nuclear weapons and nuclear power plants. The respondents rated their degree of agreement for each questionnaire item on a five-point scale. Newcomb found that respondents felt concerned about how many

countries possessed nuclear weapons, did not feel that the USA needs an unlimited number of nuclear warheads, felt afraid about all the weapons in the world, and experienced the world as dangerous because of nuclear weapons proliferation. The respondents felt that there would not be a nuclear war within the next ten years, felt that they would not survive a nuclear war, and did worry and at times felt depressed about the threat of nuclear war. However, the respondents would not hesitate to raise children. Newcomb concludes that "in general, these respondents seemed to be quite concerned, sometimes frightened, and generally worried about the nuclear issue facing the world" (p. 915).

Newcomb's study differs from Kramer et al (1983) who found a lower level of worry. This may be due to the younger age of the subjects, who, as the Public Agenda Foundation (1984) found, tend to report more worry.

In summary then, adults have an unusually cohesive set of attitudes regarding nuclear war. The majority regarding the weapons as dangerous and existence threatening. The majority believe that they would not survive a nuclear war, and some believe that it will happen inevitably. The typical adult reports fear, terror and worry when asked about nuclear weapons. Younger adults and women express more concern in their lives about nuclear war. In general, though, adults report a low level of worry about nuclear weapons.

Individual and Group Differences in Responses to Nuclear War

Of course every individual responds to an environmental phenomenon such as the nuclear arsenal in his or her own idiosycratic manner. Some researchers have sought to uncover relationships between different responses to nuclear weapons and various cognitive styles, emotional styles, personality variables and assessments of the risks involved.

Fiske et al (1983) investigated the relationship between the concreteness of cognitive images about nuclear war and political activity related to nuclear war. In analyzing the data from their questionnaire study described above they found anti-nuclear activity to be correlated with more detailed concrete images. Anti-nuclear activity was not related to the emotional concomitants and the availability of the image. The authors are unable to offer any hints at the direction of causality. We do not know if people who are able to think more concretely about the effects of a nuclear war become active in anti-nuclear activity as a result of this tendency, or, if anti-nuclear activists are exposed to educational materials that foster a more concrete manner of imaging nuclear war. However the lack of correlation between anti-nuclear activity and emotional content of the images would seem to discount any notion that people who are most fearful or scared are the ones who turn to anti-nuclear activity.

Another interesting finding of Fiske et al (1983) was that there was no correlation between general political activity and

anti-nuclear activity. This suggests that whatever it is that motivates anti-nuclear activity is based on factors other than those that motivate political activity related to other areas.

Fiske et al (1983) also found that the more plausible people thought a nuclear was, the less likely they were to take anti-nuclear action. Fiske et al regard this as somewhat surprising (p. 58), and suggest that people who accept the possibility of a limited or full scale nuclear war may numb themselves, and be unable to become politically involved. Thus those who would be involved in anti-nuclear activity would be those who believe that nuclear war is not inevitable and can be intervened with.

This finding echoes one obtained by Tyler and McGraw (1983) who sought to identify the antecedents of behavioral responses to the threat of nuclear war. They examined the relationship between survival or prevention activity and judgements of personal efficacy, attributions of causality and moral responsibility. Tyler and McGraw interviewed members of groups that represented different behavioral responses; the general public (representing non-involvement), members of a survivalist organization and members of a nuclear freeze organization.

The subjects were asked questions regarding policy on nuclear arms and their own degree of worry over nuclear war. Two types of efficacy were assessed; efficacy of strategies related to nuclear war and more general feelings of political efficacy and internal control. Subjects responded to statements such as

"nuclear war is inevitable and there is nothing that can be done to prevent it" and "to what extent can citizens influence whether nuclear war occurs ?'. Political efficacy was assessed by response to statements such as "As far as world affairs are concerned, most of us are the victims of forces we can neither understand nor control". Subjects also rated themselves on a seven-point political scale from "extremely liberal" to "extremely conservative".

Tyler and McGraw found that those who feel that nuclear war is preventable are less likely to believe that it is survivable, and those who feel efficacious are more likely to feel that nuclear war is preventable. Furthermore, those who believe that war is preventable are more likely to engage in prevention behaviors and more likely to support disarmament policies. The opposite is true for beliefs about survivability; those who view nuclear war as survivable are more likely to engage in survival behavior such as preparing shelters.

As regards worry; anti-nuclear activists worried significantly more than the other two groups and both anti-nuclear activists and survivalists perceive nuclear war as more likely than the general public.

What unfolds in Tyler and McGraw's study, is a picture of people behaving rationally. The subjects act according to a percieved threat. However, once again no directionality can be assumed. Individuals who feel a certain way may be drawn toward a particular organization, or it may be that Tyler and McGraw observed a difference in attitudes based on the exposure to those

attitudes within a particular group.

Thearle and Weinreich-Haste examined the range of different responses that a group of 60 British adolescents have to nuclear arms. After recording their thoughts and feelings about the future, subjects were asked to write some advice in response to a letter to an "agony column" expressing fear of nuclear war. They were also asked about the perceived effects of media coverage of nuclear issues on individuals and the question, "If you felt strongly about nuclear issues, is there anything you personally feel you could do about it ?" From the responses to all of these items Thearle and Weinreich-Haste deduce four distinct types of response to the nuclear issue.

There is the "affective actor", who is more likely to be female and shows little avoidance of the issue, expressing anger or fear. The "affective actor" has little political trust and tends toward anti-nuclear protest or behavior.

The "deffering defender" has faith in the system, feels helpless and is not involved in any action. The "deferring defender" expresses no fear or anger, and the authors suggest that they use much denial.

The "powerless pessimist" has little political trust, little personal efficacy and feels helpless. They show a high degree of denial and are politically alienated.

The "resistant rationalizers" are most often male, showing much helplessness, denial and little political activity. They have faith in the responsiveness of the system.

A noteworthy finding in this study was the correlation between an emotional response and the potential for political action, a correlation not found in any of the American studies with adults. Also of note is the finding that females, in general, were more pessimistic than males.

Whilst the Thearle and Weinreich-Haste study can be criticized due to the limited sample and some of their assumptions, such as the notion that if someone does not mention nuclear war spontaneously, they are "denying their fear", the study still provides an interesting look at the very different kinds of responses people have to the nuclear arms race. A more thorough study may have linked these response differences with wider ranging personality and demographic variables.

An attempt at elaborating the make-up of different response to nuclear weapons was made by Hamilton, Chavez and Keilin (1986). They examined the relationship between eight different categories of response to the nuclear threat and cognitive/emotional factors. 308 American undergraduates responded to nine questions concerning opinions about nuclear war and then rated eight statements, each representing a different nuclear attitude, according to their degree of agreement. Finally the subjects were instructed to "think about the threat of nuclear war" while completing a questionnare that measures threat related emotionality. They found that "disarmists"; those who feel that nuclear war can be prevented through action, thought about nuclear war more than others and reported more worry than all

other groups except "stoics". "Stoics" believe that nuclear war is a distinct possibility and feel that there is not much that one can do about it. It is unsurprising that this group report the most anxiety. Those who believe that nuclear war is likely but with adequate precautions will be survivable ("survivalists"), rated the probability of nuclear war lowest and those who believe that nuclear war will never occur because human beings are basically good ("romanticists") reported that nuclear weapons had the least impact on their lives.

Among their conclusions Hamilton et al note the discrete nature of the different attitudinal categories, and they speculate that attitudes are based more on the basis of general belief systems than on a linear assessment of risk and rational decision-making. However they do offer the caveat that they have a particular moral/philosophical viewpoint as regards the rationality of particular responses to the nuclear threat.

Hamilton et. al. note that variability is the dominant feature of reponses to nuclear war and they suggest that it is likely that one would see fluctuation in intrapersonal attitudes and reactions over time. For instance they speculate that "romanticists" may shift attitudes if exposed to particular kinds of information.

This study is particularily useful in that the authors highlight some of the individual features that contribute to responses to nuclear weapons. In addressing the variability of attitudes they draw attention to the interface between the environmental phenomena of nuclear weapons and the multitude of personal and

social factors that constitute an individual's response.

One variable that has been much discussed (Butterfield, 1984) is that of social class. Robert Coles (1986) suggests, on the basis of his various interviews with children across the United States and in other countries, that concern over nuclear war is concentrated in children of middle to upper class parents who are able to give their attention to political issues. He compares these children with those of working class families where the prevailing emphasis is on a day-to-day survival.

Coles's suggestion that fear of nuclear war was class specific aroused controversy. Schwebel(1984) responded with an angry letter to the New York Times, in which he disagreed with Coles and sited the Solantus et. al. (1984) study that evidenced no class differences. He did however acknowledge that "if parents and children must work long hours to put food on the table, they can hardly have the psychic energy for nuclear anxiety" (Schwebel, 1984). Coles' hypothesis finds no support in the quantitative or qualitative studies sited here. Diamond and Bachman (1986) reviewed the data collected as part of the Monitoring the Future Project and found no correlation between concern about nuclear war and father's and mother's educational level, projected income level, or satisfaction with standard of living. Neither Fiske et al (1983) or Tyler and McGraw (1983) found any correlation between social class and anti-nuclear activity.

In summary, these studies into individual differences highlight the variety of responses to nuclear war. Within the different

response groupings a coherence of attitudes, emotions and beliefs about nuclear war appears to prevail. Within this intragroup coherence many factors are at work and as yet it cannot be said that these attitudes are invariant over time.

The Effect of Nuclear War on Development and Mental Health

In their initial studies of the responses to nuclear arms, Schwebel (1965) and Escalona (1965) suggest that these weapons have an effect on childrens' development. Escalona (1982) expands on their initial ideas. The main focus of her ideas is the notion that childrens' perceptions of adults will be altered by adults' tolerance of the situation. She writes: "growing up in a social environment that tolerates and ignores the risk of total destruction by means of voluntary human action tends to foster those patterns of personality functioning that can lead to a sense of powerlessness and cynical resignation" (p. 601).

Escalona bases her ideas on knowledge of how children come to know the world; via their perceptions of how adults manage their affairs. Hence, she suggests that what children see and sense about our individual and collective responses to the nuclear threat will have a strong bearing on the development of their potential ego strengths, their self concept and, essentially, their manner of approaching and interacting with the world. Growing up in a world where adults are perceived as weak and helpless and perhaps prone to relying on uncontrolled hostility, has, she suggests, an effect

on the developing self-concept of children. It is, however, important to note that this assertion may not be unique to the nuclear age, or to the realm of nuclear weapons. It is conclusions like these by Escalona, that speak clearly to the need for a comparison of responses to nuclear war with responses to other fearful and fatal phenomena.

Basing her notions on the data collected in her and others studies of children's ideas about nuclear war, Escalona (1982) further suggests that children do comprehend the destructive power of nuclear weapons. This, she suggests, touches upon deep and primitive fantasies of world destruction and of adult limitations: "It is as though the wildest adolescent fantasies of adult insufficiency had suddenly come true" (p. 605).

The notion that knowledge of adults' tolerance of arms developments has a profound effect on children's ability to feel protected by and trusting of adults has been aired by a number of contributors to the field. Goodman et al (1983) found mention of this factor in their interviews with adolescents. Many of their interviewees perceived political leaders as unable to protect them and as uncaring. A number of them mentioned that they perceive the government and leaders as not caring about "human life and human society", but rather about facts and figures (p. 527). Schwebel (1982) reported the bitter resentment he observed when the children and teenagers who were a part of his study considered the "old men who who have lived and who control our government"and blamed them for not caring about the young (p.

610).

Beardslee and Mack (1982) consider the developmental consequences of the perceived lack of adult competence and protection that they believe the nuclear arms race represents. They suggest that there are major effects on the development of a healthy ego ideal. They define the ego ideal as "the image we carry within of our best selves or of what we would wish to be like" (p. 89). This ego ideal, they exlain, is the outcome of a series of compromises a child makes with reality; the child learns that gratifications are not immediate, that they cannot exclusively posses their parents and so on. The building of an ego ideal is dependent on a stable and enduring environment and a future upon which they can, to some degree, rely. Beardslee and Mack suggest that the current perception of world leaders as cynical, stupid and incompetent, at the mercy of their own greed and lust for power and inconsiderate of those whose lives are ahead of them, seriously undermines the development of a healthy ego ideal. The effect is that young people have a damaged sense of their own abilities and values: "impulsivity, a value system of "get it now", the hyperstimulation of drugs, and the proliferation of apocalyptic cults...seem to be natural developments" (p. 90).

Adelson and Finn (1985) have criticized Beardslee and Mack for exaggerating the effects that nuclear weapons have on children (p. 31). It would certainly seem that while their work has produced interesting findings in the interviews with children and adolescents, they are prone to hyperbole. Here, the initial notion of

the growth of the ego ideal being interfered with, is a point well made. However, much of what follows is critisized as overstatement. For instance the perception of world leaders as cynical and only interested in their own power is not a feature new to the world. Again the need for a controlled examination of thishypothesized effect of nuclear weapons is clear.

Crain (1986) construes the impact of the nuclear age on the parent-child relationship from a different perspective. Crain outlines the findings of a series of interviews with parents carried out by Winn (1984), in which the general theme is that parents no longer feel secure and able in their role of parenting. Rather they feel "incompetent and guilty" (Crain, 1986, p. 10). Whilst Winn (1984) points to various societal features from the Vietnam war to Watergate to explain her findings, Crain (1986) suggests these feelings are attributable to the features of the nuclear age. Parents are aware that they cannot secure their children's future and thus feel incompetent as parents. Crain further suggests that one consequence of this has been to foster a need for children to develop too quickly. Children "who feel unprotected cannot be child-like - trusting, innocent, fanciful and carefree. They feel they must fend for themselves and learn about the real world as soon as possible" (p. 12). Children thus have less opportunity to play and enjoy the richness of childhood. The developmental consequences are not specifically outlined by Crain 1986), but he speculates that they may be far-reaching.

Lifton (1982) also proposes that the development of nuclear

weapons has had an impact on family relationships:

> Consider the radically new situation between parent and child. Undermined now in that relationship is the fundamental parental responsibility: that of family security, seeing the child safely into some form of functional adulthood. (p. 68)

Lifton suggests that children sense their parents' concerns and that the ambivalence that is always present in family relationships, is intensified, and may "subvert feelings of love".

Salguero (1983) makes a similar point and elaborates another aspect of the effect of the nuclear age on the family. He paints a picture of parents repressing their own fear of nuclear war and of their sense of their inability to protect their children. Parents deny these realities and so do their children. Salguero argues that by growing up with parents who, in effect, ignore the risk of total destruction, children will develop without learning how to experience or express fear. They will be denied the healthy opportunity to understand the meaning of aggression and learn how to modify it and transform it in an adaptive manner (p. 96). The solution, suggests Salguero, is increased communication about nuclear war within families so that the denial will be confronted.

The ideas of Lifton, Salguero and Crain, highlighting nuclear weapons among a host of societal and environmental features that may have an impact on the confidence of parents and cohesion of families, requires further study. Without isolating that variable in an empirically controlled setting, the suggested effects on

complex phenomena such as parenting, can never be more than hypotheses.

After reviewing much of this literature, Shacter (1986) suggests four potential deleterious effects on development; faith in the future and identity formation, confidence in adults who must assure the future, an inablity to cope with death, and an unwillingness to invest in family relationships and enduring commitments. Shacter contends that nuclear age rhetoric regarding "evil empires" versus "good guys" affects development in a negative way. He cites the work of Mahler, Pine and Bergman (1975) and Kernberg (1975) on development and their emphasis on the need to integrate both positive and negative representations of ourselves and others. As the child matures, there is a need to accept good and bad parts of the self, relinquishing the sense of omnipotence and the view of others as all good and all bad. When leaders represent opponents in primitive ways and opponents come to symbolize the feared destruction, then, argues Shacter, ego integration and the development of empathy can suffer.

Shacter, like others cited here, is speculating and extrapolating from the studies already completed. There is, in fact, no evidence that, for instance, the posturing of political leaders actually affects childrens' development in this way. Tizard (1984) also reviews the literature and voices a word of caution. If, she argues, the effects on development are as far-reaching and deleterious as that suggested by Beardslee and Mack (1982) and others, then one might predict trends in juvenile crime, drug and

alcohol abuse and suicide which would correlate with the peak periods of anxiety about nuclear war (p. 274). She does not find any such patterns in the United Kingdom. If anything the patterns were the opposite of what one might expect. Tizard highlights the difficulty in validating the claims of the literature and underscores the multitude of variables that must be considered. For instance she suggests that the pattern of troubled youths in Britain may be more linked to the specter of unemployment that any other factor.

Diamond and Bachman (1986) like Tizard, looked for some correlation between the incidence of mental health problems among adolescents and the threat of nuclear war. They reviewed the findings of the Monitoring the Future project in which 17,000 to 18,000 high school students were surveyed on many issues every year from 1975 to 1986.

In analyzing their data, Diamond and Bachman make an interesting contribution. They suggest that the term "nuclear anxiety" or "fear" is too broad. Instead they attempt to be more specific and break down the construct of nuclear "anxiety" into two lower order constructs. They distinguish between nuclear "concern" and nuclear "despair". Nuclear "concern" refers to those who answered "often" to the question "How often do you worry about the chance of nuclear war?". Those who answered in the affirmative to "Nuclear or biological annihilation will probably be the fate of all mankind, within my lifetime" and negatively to "The human race has come through tough times before, and will again"

were said to evidence nuclear "despair". Diamond and Bachman found that these two indices were themselves uncorrelated, supporting their notion that "concern" and "despair" were quite different in nature.

In looking for relationships between indicators of mental distress and "concern", Diamond and Bachman found no significant correlations. Concerned students were no different from others in terms of life satisfaction, self efficacy, depression, anxiety, plans for the future, coping ability and other variables.

Despairing students, on the other hand, did show tendencies that differed from others. They were slightly more likely to get into trouble. They tended to dislike competition and the fast pace of society, and were absent from school more often. Most importantly, despairing seniors were more likely to feel worthless, alienated from their communities, and dissatisfied with life. In general they felt less able to control their lives than their peers, were more lonely and less interested in friendship and the problems of others. Both the level of despair and the level of mental health problems have, according to Diamond and Bachman's analysis remained stable over time and so no unusual relationship can be inferred.

However, the analysis of their data permits them to make the following conclusions. Nuclear "anxiety" is not a unidimensional construct, but is comprised of at least two components. A construct called nuclear "concern" has become more widespread but is not significantly related to any variables that indicate

mental health difficulties. A construct called nuclear "despair" has remained stable in frequency and is correlated with mental health variables.

These findings are interesting, yet the problem of causality remains. Are there some adolescents who experience a general pessimism and despair that we see carried over into their projections for the future of the human species ? Alternatively does this correlation indicate that the felt lack of hope for the future related to nuclear arms contributes to their general despair ? Diamond and Bachman (p. 219) concur that their data can only help to clarify these questions rather than offer answers.

The second conclusion is one taken up by Newcomb (1986) who assesses the relationship between reactions to nuclear war and mental health, in particular depression and drug use. A Nuclear Anxiety Questionnaire was developed. It was comprised of 15 items designed to tap attitudes and beliefs, emotional concern and denial or rejection of nuclear concern. The latter were assessed by questions about the survivability of nuclear war and the lack of worry about such events. Like Diamond and Bachman (1986), Newcomb presumed that worry over nuclear war is comprised of various components, and thus he predicted the emergence of a second order factor which he terms "nuclear anxiety". This factor would correlate with depression, powerlessness and general drug use. In fact it seems that he was searching for a construct not disimilar to Diamond and Bachman's "nuclear despair". Newcomb (1986) states his hypothesis thus: "the threat of nuclear

annihilation as measured via Nuclear Anxiety may be related to degraded subjective life quality (depression, lack of purpose in life and less life satisfaction), a feeling that personal and world affairs are beyond one's control (powerlessness), and increased use of ways to lessen anxiety (general drug use)" (p. 907).

In order to test the hypothesis, Newcomb gave his subjects a Purpose in Life Test consisting of 20 items, a Life Satisfaction Test, a 20-item depression scale, a Powerlessness scale and a 26-item questionnaire on the frequency of drug use. Data were collected from 722 young adults aged 19 to 24 as part of a long term study on adolescent development.

Newcomb's results included a more heightened level "nuclear anxiety" among women than men, and the presence of nuclear denial, to be addressed later. He did find that the intercorrelations between the four necessary factors were significant enough to support a second-order construct of Nuclear Anxiety. Furthermore, this construct was significantly associated with increased substance use, less purpose in life, lowered life satisfaction and depression. Newcomb notes that he cannot infer causality from this correlation. However he concludes that "for many people, the threat of nuclear war and nuclear power accidents is significantly associated with their emotional well-being (p. 918) and he suggests that his results support hypotheses of Schwebel (1982), Escalona (1982) and Beardslee and Mack (1982), that the threat of nuclear war has a deleterious effect on emotional life and development. "Results of this study show clearly the emotional

(depression and lowered quality of life) and social (drug use and its attendant problems) concomitants of living in a world in which a nuclear atrocity is a very real danger. The consequences for emotional and psychological development are staggering because a feeling of security and trust is fundamental to healthy growth and maturation" (p. 918). It must be noted however, that before Newcomb can reach such a conclusion there is a need to assess other societal and environmental features that are related to depression, low purpose in life and substance abuse. Again the multiplicity of variables is prohibitive, and once more, here are findings that would seem to speak to the need for more controlled empirical research.

Nevertheless both Diamond and Bachman (1986) and Newcomb (1986) have shown significant relationships between constructs called "nuclear despair" or "Nuclear Anxiety" and emotional distress. In doing so both studies raise many questions. Most prominent among these is that regarding causality. Do depressed and pessimistic people regard nuclear war in the same manner that they regard most other areas of their lives, or is their depression and pessimism a function of their experience of powerlessness in the face of nuclear weapons ? Either way, these findings are of interest, and speak to the need to research the differential effects of nuclear weapons on people with different emotional styles and difficulties.

Nuclear War in Psychoanalytic Theory and Psychotherapy Practice

Freud, War and Nuclear War

Sigmund Freud did not live to see the development of nuclear weapons. He did however give consideration to aggression and mankind's need to make war, the growth of weapons and the increasingly technological methods of warfare and killing that he witnessed in his lifetime. Freud (1931) contemplated this and wondered whether humans would develop weapons with so much power that the total destruction of humankind would be within their power. He suggests that knowledge of this possibility is a central cause of anxiety:

> The fateful question for the human species seems to me to be whether and to what extent their cultural development will succeed in mastering the disturbance of their communal life by the human instinct of aggression and self-destruction. It may be that in this respect precisely the present time deserves a special interest. Men have gained control over the forces of nature to such an extent that with their help they would have no difficulty in exterminating one another to the last man. They know this, and hence comes a large part of their current unrest, their unhappiness and their mood of anxiety. (Freud, p. 145)

An evaluation of the applicability of Freud's notions of war to the current nuclear age has been made by Botstein (1984). He argues that here Freud is talking metaphorically. Like others of his time

Freud could not truly envisage the notion of total annihilation. Botstein suggests that when he talks of extermination "to the last man", Freud is referring to the narrowing of the distance between those involved in the war and civilians who in prior times had been safe, rather than a notion of total death (p. 299). Botstein thus argues that whilst thinking of the metaphorical possibility of total annihilation, Freud continued to construe war within the structures of psychoanalytic theory that did not assume a total annihilation.

Eros and Thanatos

In that war was regarded by Freud as an expression of the struggle between life and death, Eros and Thanatos, it performed the same function as conflict within the individual: it created life anew and is a natural process. In 1932, when writing to Albert Einstein, Freud spoke of the "general principle" involved in war: "It is a general principle, then, that conflicts of interest between men are settled by the use of violence . This is true of the whole animal kingdom, from which men have no business to exclude themselves" (Freud, 1932, p. 204). War was thus regarded as a manifestation of fundamental biological instincts and part of the natural order of things. However, as Gifford (1988) points out there was considerable ambivalence about this, on Freud's part. In his correspondence with Einstein, Freud also argues passionately against war, because it "puts an end to human lives that are full of

hope and compels men against their will to murder other men, and because it destroys precious material objects which have been produced by the labors of humanity" (Freud, 1932, p.213). He then appears to let this sentiment momentarily overturn his theoretical position: "Why we rebel against war is that we cannot help doing so. We are pacifists because we are obliged to be for organic reasons." (p.214).

Gifford, himself argues that the destructive power of the world's nuclear weapons and the history of human destructiveness only serve to confirm the working of Thanatos, the death instinct. Taking an unpopular position in today's psychoanalysis, he argues that much of modern civilization demands a price and that this is in essence destructive. He, of course, alludes to nuclear weapons as the most clear example of this phenomena, but also refers to oil spills, nuclear and chemical waste, excessive carbon dioxide, the thinning of the ozone layer and so forth. He says that "these products of technological progress seem obvious examples of the death instinct, striving to return our biosphere to the lifeless elements from which it emerged." (Gifford, 1988, p. 21). In this manner Gifford typifies those who evoke the workings of the death instinct to explain human destructiveness.

Martin Wangh is another psychoanalyst who has emphasized the utility of the death instinct in understanding the impact of nuclear weapons. He suggests (1984 1986) that in the face of the threat of total destruction, the tripartite, structural theory is of decreasing relevance. He favors a new evaluation of the

Eros-Thanatos duality.

Wangh notes that when Hartmann (1958) presented psychoanalysis as a comprehensive psychology, he postulated the existence of an "average expectable environment". Wangh suggests that this environment is no longer average or expectable, but:

> the noise of the supposedly silent background has become more and more intrusive....since the advent of the nuclear bomb with its threat to the survival of humanity and of the earth's biological system we cannot assume to be living in a stable 'average expectable environment'. (Wangh, 1984, p. 213)

In the new environment of the nuclear age, Wangh suggests, we live with increasing anxiety. In the past a fine balance between Eros and Thanatos has prevailed. This has afforded an evasion of awareness of Thanatos. In the nuclear age, the balance has been upset and it is increasingly harder to avoid the notion of total death. Denial is the typical response to this anxiety and Wangh suggests that this can only contribute to the nuclear holocaust (Wangh, 1986, p. 253). Wangh suggests that the increased narcissism that has characterized both society and analytic theorizing in recent years reflects a shift in focus directly related to the need to minimize the growing presence of Thanatos as an active force. Wangh proposes that increased exposure to the reality of nuclear force is necessary to overcome the denial and to strengthen the power of the drive for life, Eros.

This last point finds psychoanalytic theorists much in concert

with other writers in the field. Increasing exposure to the realities of the nuclear age is a means of overcoming the deleterious effects of this age.

Post-Freudian Psychoanalysis: The Role Of Primitive Fantasy

A key point in Botstein's (1984) critique of the applicability of Freudian psychoanalysis to the threat of nuclear war, is the notion that one's own death and the total annihilation of a nuclear holocaust have no instinctual or experiential bases.

In post-Freudian psychoanalysis, and particularly the work of Melanie Klein, attention has been turned to the centrality of pre-oedipal experiences and fantasies in development and in the fabric of the unconscious (Klein, 1964, 1975). Among these, the fear of annihilation figures prominently. Hence, psychoanalytic writers have turned to Kleinian theory as offering a psychoanalytic framework within which to understand the nuclear age. In general, it is suggested by different writers, that comprehension of the nuclear threat involves a regression to infantile, pre-oedipal fantasies.

Glover (1946) sets the tone. He proposes that the real threat of total destruction that nuclear weapons hold has made real, fantasies that previously had only existed "in dream life and the fantasies of the insane" (p. 274). He writes:

> Nagasaki destroyed by the magic of science is the nearest man has yet approached to the realization of

> dreams that even during the safe immobility of sleep are accustomed to develop into nightmares of anxiety. The first promise of the atomic age is that it can make some of our nightmares come true. The capacity so painfully acquired by normal men to distinguish between sleep, delusion, hallucination and the objective reality of waking life has for the first time in human history been seriously weakened. (p. 274)

Franco Fornari (1975) elaborates on Glover's notion that "the nuclear era may involve a crisis of our very capacities adequately to witness the reality in which we live" (Fornari, 1975, p. 157). He suggests that in order to understand the potential that nuclear weapons hold for total destruction each individual must associate himself with a notion of his own sadistic attacks against a love object. This, he points out, is the central task of the depressive position as elaborated by Melanie Klein. Fantasies of human destructiveness or annihilation may in the past have been regarded as psychotic reactions only seen in very regressed patients. Fornari himself gives the example of a woman, diagnosed as psychotic, who believed that she was responsible for the fact that no more children would be born in the world and spring would never again arrive (p. 158). However, in the presence of the real destructiveness of nuclear weapons, fantasies associated with the depressive position and psychotic process in adults, have come to be regarded as "instruments of verifying reality" (p. 160) rather than psychotic phenomena.

An interesting elaboration of the Kleinian attention to the importance of annihilation fantasies in the unconscious is

presented by Janine Chasseguet-Smirgel (1988). She suggests that the preoccupation with apocalyptic fantasies that characterizes the nuclear age, reflects the "archaic matrix of the oedipus complex" (p.71). This term is an elaboration on Klein's notion that the infant wishes to empty the mother's belly of it's contents. This is the earliest manifestation of the oedipus complex; to take the place of the father inside the mother (Klein, 1928, 1932). The father and other contents of the mother represent reality. Acceptance of their presence represents acceptance of the reality principle. Chasseguet-Smirgel argues that for the infant, because the contents of the mother's body represent reality, the fantasy of their destruction represents the destruction of reality; a reality that all infants wish destroyed before they have individuated. She applies this constellation to the understanding of apocalyptic visions in the bible and history, and of course in the current nuclear age. In all of these, destruction is followed by some fantasy of eternal bliss to be shared by only the chosen few; by her suggestion, the primitive oedipal victors.

This an elaboration of Glover's (1946) original observation, that the nuclear age has made real for all, what has previously been the subject of psychosis. Chasseguet-Smirgel has outlined the unconscious motivation behind the apparently illogical wish for the apocalypse that nuclear weapons embody.

W.W. Meissner (1988) conceptualizes the responses to nuclear arms as elaborations on the paranoid process. His formulation of the paranoid process is lengthy and complex (Meissner, 1978) and

can only be briefly described here. This formulation centers around the development of a victim introject as aggressive conflicts are resolved in childhood. Meissner applies his formulation to reactions to trauma. These reactions, he argues, involve reactivations of previous traumatic episodes in the person's developmental history, and the activation and reinforcement of the individual's version of the victim introject. This introject encompasses qualities of weakness, helplessness, powerlessness, and vulnerability. These are typically called forth in responses to trauma (Meissner, 1988, p. 102). Meissner then argues that the current nuclear situation evokes aspects of the paranoid process, and in particular the victim introject. Defenses usually only seen in post traumatic situations are common; displacement, intellectualization, numbing and denial, together with experiences of helplessness and vulnerability. Such a constellation is fertile ground for paranoid, hateful and violent reactions, which, Meissner argues, predominate.

Meissner's contribution would appear to elaborate upon Lifton's notion that in some way we are all survivors of Hiroshima and Nagasaki (Lifton, 1979), and like the other writers referred to here, he turns to a formulation based upon the evocation of early developmental phenomena and internalizations.

While Fornari, Segal, Chasseguet-Smirgel and Meissner each take a different theoretical angle from which to observe responses to nuclear war, the common thread is the application of theorized early infantile experience to the adult experience of the

nuclear war. Whilst vulnerable to the criticism that these are no more than gross analogies between infantile experience and complex societal phenomena, these suggestions would appear to offer new and rich avenues for further examination and detailed study, which may yield more refined and operational hypotheses.

Psychoanalysis of Groups and Nuclear War

Franco Fornari (1975) sets the plight of the individual within the context of the changes in group life that have evolved in response to the nuclear age. Like Botstein (1984) he suggests that war no longer fulfils its role in society. However, he casts that role in a different manner to Botstein. War, explains Fornari, enabled the fantasy preservation of the love object through the concrete projection of the cause of its destruction onto the enemy, rather than understanding the wish for its destruction to be at least ambivalently located in the self. This is referred to as a group "paranoid delusion". In the nuclear era, this paranoid delusion of killing the enemy into whom one has projected the cause of the love object's destruction is no longer possible. In the new situation all will be destroyed in a nuclear war; both enemy and the self. As a result it becomes increasingly difficult to split the world into the good object (us) and the bad object (them), the enemy. In Fornari's words:

> the enemy object and the love object, brought together by an identical fate of destruction, tend to become fused

> with each other. That is, in the place of two distinct, antithetical objects (the enemy, the friend), a situation tends to emerge which is comparable to a 'mixed object'. (p. 169)

This transition to a mixed object corresponds to the function of the depressive position in the development of the individual child, according to Kleinian theory. Fornari reminds us that it is never achieved without considerable anxiety, and suggests that the group or society is struggling with this transition at the present time.

Furthermore, with the change in group functioning, the group enters a state of crisis and individuals experience themselves as abandoned by the group; old ways of relating and bonding with the group are no longer welcome (p. 168). The individual can also no longer rely on the group to preserve the fantasy of the preservation of the love object and must withdraw and "fend for himself" (p. 168). In this manner a process of "desocialization", where each cares about the self, predominates. This notion of "desocialization" certainly seems to correspond to the many references to the "get-it-now" or hedonistic cultures that more recent writers have referred to as responses to the nuclear threat (Beardslee and Mack, 1982; Frank, 1982; Schwebel, 1982).

Segal (1987) refers to Fornari's notions of the changes in the function of war within the group and suggests that the rise in the tide of fundamental religions is in direct response to these phenomena. She echoes both Fornari and Glover when she too recognizes that "the existence of atomic weapons mobilizes and

actualizes the world of the schizophrenic...omnipotence has become real, but only omnipotent destruction" (Segal, 1987, p. 7). Everyone mantains a primitive part of the self that contains unintegrated wishes and terrors. The nuclear situation, says Segal, evokes these, and in turn there is a regression to primitive defenses such as denial, splitting and projection as well as a return to primitive part-objects. When part-objects are called forth, such interpersonal traits as empathy, compassion and concern are excluded. This, according to Segal, is a lack of humanity that paradoxically maintains the arms race itself.

These psychoanalysts of the Kleinian school; Fornari and Segal, thus describe a change in the group process of society that nuclear weapons have heralded. War can no longer play the important role it has previously played in group process. Primarily this role has involved an externalization and projection of aggression onto an enemy in the service of protecting the goodness of the group. These group changes have effects on the individual. Fornari focusses on the abandonment of the individual and Segal on the regression to primitive part-object unintegrated fantasies.

A distinct but related approach is taken by Vamik Volkan (1988) who addresses the issue of nuclear weapons within the framework of his psychoanalytic approach to international relations and the need to have enemies. He suggests that the need to have enemies and allies is "the end result of our unavoidable efforts to find a cohesive self and to form integrated representations of others" (1988, p.112). Processes of splitting

"good" and "bad" self and object representations; and externalization of bad objects onto others form the basis of this process. Like Fornari (1966) Volkan highlights the role of the enemy in protecting "ourselves and our loved ones from our own archaic destructive wishes and fears" (1988, p.118).

It is against this background that Volkan discusses the role of nuclear weapons. He proposes an analogy with the oedipal male child's conflict in regard to the aggressor parent with whom he wishes to identify and to be separate from. In normal development this conflict leads to psychological growth. Volkan suggests that:

> with the technological advances that bring tools that can be controlled and used as extensions of the self (not unlike a little boy's using his sense of genital posession), mankind is, en masse, trying to identify with the primal father, God. (p. 122)

This quest for identification is regressive and promotes the fear of becoming too close to the primal father which raises the fear of retaliation. The solution to this conflict is the fusion of all enemies and the self in an atomic blast. Hence Volkan observes "regressed forms of international politics may similarly subtly embrace 'solutions' not unconnected with annihilation" (p.123).

These attempts to apply psychoanalytic theory to the understanding of the role that nuclear weapons play in the context of groups (Fornari, 1966; Segal, 1987; Volkan, 1988) offer much food for thought. In particular, all share the view that enemies and conflict are a natural, instinctual fact of human biological life,

and that this law of nature, as it were, is threatened by the presence of nuclear weapons. It would seem that the crisis brought on by having to forgoe war is one that needs further consideration in the social sciences.

At times these applications of psychoanalytic theory to the wider group process can become insubstantive. For instance, Volkan's analogy of the conflict over identification with the primal father is fascinating, yet may appear somewhat fanciful, and perhaps no more than an analogy. There is a need to substantiate these ideas with research and data. Like other approaches to the psychological effects of nuclear weapons, there appears to be an assumption that there is a unique psychological response to the existence of the weapons. This remains an unanswered empirical question, to which this study addresses itself.

Overall, psychoanalytic theory offers a theoretical approach to the internal psychological, or intrapsychic effects of the nuclear age. These would appear to elaborate upon data from surveys and other studies that have suggested a prevalence of concern. These notions are however untested, and require detailed examination.

Nuclear War in Clinical Practice

Until recently there were few reports of case material involving responses to the nuclear threat, in the practice of psychoanalysis and psychotherapy.

Segal, in a postscript to her 1987 paper (Segal, 1988), however, reports that all of her patients have mentioned nuclear war in their analyses. She wonders why there are so few reports of this from other clinicians, and suggests that perhaps it is due to her and other Kleinians' particular attention to hidden aspects of destructiveness in their analysands' material. Segal suggests that as long as the task of dealing with patients' basic defenses is accomplished, "the relevant material will appear, because, in fact, below the surface, patients are anxious, even terrified. And if we deal properly with the defenses, anxiety about the possibility of nuclear disaster is bound to be expressed."

Wangh (1981) reports a case of particular interest. When the patient was a child, his father worked in a profession connected with nuclear power. The patient was in psychoanalysis and reported two dreams while working through the traumatic experience of the birth of a sibling in 1952. In the first dream the patient recalls: "I am with another man in an underground vast place...liquid seems to come from the wall...a leak occurs about 6' from the ground" (Wangh, 1981, p. 318). The second dream is as follows:

> I am with my father, standing on a beach - like the title of the movie. Then I am with this whole nuclear family - mother, father, son and daughter - like those families in the Jim and Jane readers which I read earlier than other children. Across on an island is to be seen a huge power plant dressed up to look innocent in white bricks. Some disaster is about to happen - a glow on the horizon appears. (Wangh, 1981, p. 318)

The patient's associations to this dream link it first to anxieties surrounding the birth of his sibling. He is then struck by the recollection of the film "On The Beach", and the use of the term "nuclear family". Wangh comments that while some of the content of the dream relates to the patient's experiences around his sibling's birth, and thus has a very personal meaning, the references to the culture and the idea of nuclear explosions also offered material for analysis. The patient further associated to memories of a television image of an atomic cloud from his childhood and memories of hiding under the table in school during an atomic bomb drill. The analyst then points out to him the connection between these childhood memories and the glow on the horizon that featured in his dream. The patient falls silent.

At the next session the patient exhibited highly unusual behavior for him. He refused to lie on the couch, and sat on a bench opposite the analyst for five minutes, staring intensely and wordlessly at the analyst. Wangh's understanding of this behavior sheds some light on the interface between the nuclear culture, intrapsychic and interpersonal worlds.

Wangh suggests that the threat of the fantasy of total annihilation of both the patient and the analyst, which is inherent in the images of nuclear war, fostered a regression to a pre-verbal mode of interacting that would be typical of early childhood. He writes:

> The actions of my patients allow for the inferential

> interpretation that after the idea of total annihilation had begun to approach his conscious via the associations, 'On The Beach', 'Nuclear Family' and 'defusing', and after I had drawn his full attention upon this theme, he had to disrupt the psychoanalytic situation. The next day he sat up in front of me and stared at me in silence, thereby making sure that I exist and he exist. At the same time his silence also indicated a degree of regression towards a pre-verbal transference. (Wangh, 1981, p. 320)

Wangh continues:

> War now unconsciously meant the destruction of all fathers, all mothers, all grandparents and all teachers alike. There could remain no Homer who would sing the praises or tell the saga of the dead heroes. Similarily the reevocation of this anxiety in the psychoanalytic situation could only mean the end of all communication between the participants in that situation. There is nothing to be said or felt anymore....the patient had to 'defuse' my anticipated interpretation. Ergo, utter silence followed particularily after I had focussed my patient's full awareness on the theme of nuclear destruction. (p. 321)

In a later reevaluation of this case, Wangh (1988) suggests that the patient's silent staring at him may have illustrated the patient's attempt to "recoup the object image" (p.220) of the therapist after the consideration of total object loss contained in the dream of nuclear destruction. Wangh has examined the unconscious meanings that this and other patients attribute to the idea of nuclear weapons, and the possible effects that this may have on the analytic relationship.

A less psychoanalytic psychotherapy case is described by

Abraham (1983). He describes Jane, a 16 year old adolescent girl who was the older child in an upper-middle class family. On coming to therapy Jane dressed in "mismatched tatters" (p. 75), complained of social isolation, decreased interest in school, falling grades and an increased use of alcohol and marijuana. She was interested in politics and aware of nuclear issues. She described being overwhelmed by anger, confusion and despair in relation to this and often felt sad and resigned. Abraham then describes a sudden turn of events. Following attendance at a lecture on nuclear war Jane began to volunteer for work in a group dedicated to nuclear education. From this time forward, Abraham reports, all of Jane's symptoms diminished.

Abraham acknowledges that it is not uncommon for an adolescent to emerge from a period of chaos by adopting an idea that provides a focus to life. Nevertheless he claims that Jane's confusion and emotional disturbance offer an insight into the responses that many have to the nuclear arms threat. Indeed, the case study would seem to give an individual elaboration of the trends uncovered by Newcomb (1986) in his survey study of increased alcohol abuse in adolescents that he relates to the nuclear threat.

While not offering the same degree of insight into the unconscious manifestations of nuclear war that characterize Wangh's case study, the case of Jane is interesting and highlights the need to examine in greater depth the interface between individual dynamics and the environmental phenomenon of nuclear

arms.

This point is also highlighted by a case reported by Jacobs (1988) in which a 16 year old boy's anxiety, fear of physical ill health and conflicts surrounding the marital stress of his parents coalesce when he suffered an anxiety attack when he saw a film about the effects of nuclear war. Jacobs summarizes the case thus:

> Nuclear destruction served as an adequate representation, as well as an externalization, of his inner turmoil. It resonated with his own bodily concerns and his perception that the world of his nuclear family was coming apart, leaving him once again, unprotected, vulnerable and angry. as might be expected, as his personal issues were explored, his anxiety about the public issue of nuclear war faded (p. 182)

Further illustrations of clinical case material on the topic of nuclear war are included in papers by Mack (1988), who notes that the material can relate to the pervasive background of nuclear life, to feelings of rage and hatred, total destruction, death, loss, separation and aloneness, a sense of futurelessness, concern with protection and its failure and adaptation; by Becker (1987), who observes that material related to nuclear war may be brought up in many ways such as "dreams, off-the-cuff remarks, chatter, "stuckness", hopelessness, futility, or as pain for the world" (p.32); and by Wilkeson (1987) who in addition to a number of case studies examines the role of therapist countertransference in relation to issues of nuclear war.

All of these clinical observations provide interesting material for further study. An advantage of such observations is that the subject of nuclear war is mentioned spontaneously in clinical treatment and the associations are then examined. This framework provides an important research opportunity that requires more organized and empirical attention.

There also exists a growing body of literature that examines the role that psychoanalysts and psychotherapists ought to take in relation to the nuclear threat. Mack (1988) considers whether analysts should be visibly commited to a particular political position and the possible effects of his commitment to disarmament on his clinical work. He and others, such as Porter (1987) and Jacobs (1988) agree that the role of the therapist is changed in the nuclear world and that their clinical technique ought reflect that. Porter (1987) suggests giving patients anti-nuclear literature and Wilkeson (1987) suggests interpreting nuclear anxiety from manifest content that does not explicitly mention nuclear war. While these practices are by no means taken into the mainstream of therapy, they highlight interesting questions about the role of political reality in therapy and in clinical practice, and require more careful study. In particular, such practices assume an underlying fact of anxiety or other deleterious effect of nuclear arms on psychological functioning. This is, at present, no more than an untested hypothesis: one which this study will address.

The Role of Psychological Defense

Many who have researched the question of responses to the threat of nuclear arms have been struck by one or all of the following apparent discrepancies. Fiske (1987) points out the discrepancy between the assessment of chances of survival and the reported level of worry. Grinspoon (1986) highlights the discrepancy between the reported fear of nuclear war and activity that is related to its prevention and Schwebel (1982) observes the decreasing level of reported fear as age increases. In seeking to understand these phenomena, and in seeking to understand responses in general to nuclear arms, psychologists have made reference to the idea of psychological defense.

Schwebel (1982) sets the tone followed by many others. In commenting on the interviews about the fear of nuclear war he carried out in 1961 and 1962, he notes the greater degree of reported worry at a time of less international tension and hence less actual cause for concern. This he attributes to the operation of denial. He suggests not only that the young interviewees in his studies were denying their anxiety, but that they were also seeking to keep both rage at their parents and their own feelings of helplessness out of their mind. He bases this suggestion on the observation that when the interviewees were asked in detail about their thoughts on the subject, it was thoughts of anger and helplessness that surfaced (p. 610). Salguero found similar fears and similar denial in children and adults. He succinctly explains

that "the idea of exterminating ourselves is so chilling that we have decided to deny it to ourselves and to our children and pretend it cannot happen" (p. 95). On the basis of informal interviews with children, he too suggests that the denial in children is a mechanism to protect them from the overwhelming helplessness that the nuclear threat calls to mind.

Doctor and Goldenring (1986) discuss the findings of survey studies of adolescents concerning their fears of nuclear war. In response to the general finding that fear of nuclear war is at a relatively low level, Goldenring and Doctor suggest that the fear is primarily unconscious and denied (p. 84). This association of low level of reported fear with denial would seem to be oversimplistic and not a little tautological. It is, however repeated by a number of writers. Among them is Newcomb (1986) who designed some items of his Nuclear Attitudes Questionnaire to assess the level of denial. This he achieved by surveying the reported assessment of the survivability of nuclear war and the lack of worry about such events. In his analysis of the data he found a denial factor. Most interesting is his finding that the denial factor was positively correlated with favoring nuclear weapons and technology and negatively correlated with nuclear concern and fear for the future. Thus although his construction of the denial factor is questionable, Newcomb has a finding that is of interest; that people who deny the fear of nuclear war are more likely to support the weapons themselves.

Wangh (1981) examines a series of informal interviews he

carried out with young adults who were children at the time when nuclear testing was a feature of society and elaborate fallout shelter drills were a part of school life. He is struck by the degree of denial that surfaces in these interviews. For instance one interviewee recalls how she had "grown up thinking that at any moment the world might be destroyed" (p. 313) and remembers huddling in the basement during fall-out shelter drills. As a child she had daydreams of magic carpet rides and in the present regards the fuss over nuclear weapons as ridiculous commenting that "people survived concentration camps". Wangh suggests that these last two comments reflect the operation of denial. The childhood fantasy and adult rationalization illustrate the need to deny the reality of the threat.

A number of writers have drawn the analogy between the denial of the emotions associated with nuclear weapons and the denial adopted by those who are diagnosed with a terminal illness. Goldberg et al (1985) conclude their interview study of Canadian adolescents with this analogy and Fiske (1987) begins her review of the literature with the description of "a friend" who has cancer:

> She has reason to believe that she has a one-in-three chance of dying from it....she does not discuss her situation publicly, she goes on about her normal life....people say she is suppressing her fear, denying reality and desensitized to her own death. My friend is the average American citizen. Her cancer is the possibility of nuclear war (p. 207)

In less dramatic style, and with more theoretical consideration,

Abrahams (1983) also asserts that the anxiety of nuclear death is masked by denial (p. 71). He notes that this denial is comparable to that observed by a medical colleague who surveyed medically ill patients for the degree of curiosity about one's own diagnosis and its gravity. Whilst reporting no hard data, Abraham writes that the findings of the study suggested that the more serious the illness was, the less interested the patient was in learning about it. He borrows from Weisman who has studied terminally ill patients (Weisman, 1972) and described a level of awareness of one's own death between denial and acceptance which Weisman called "middle knowledge". This, Abraham suggests, is prevalent in our society in relation to nuclear weapons. A "middle knowledge" accounts for the general awareness of nuclear weapons and their power whilst continuing life as if they did not exist.

Both Mack (1984) and Tizard (1984) make reference to means of not feeling the emotions connected to nuclear war that appear to verge on the notion of denial.

Mack (1984) considers the response of parents and suggests that "in relation to the horror and despair which confront us when we consider the possibility of a nuclear holocaust, we pull away, wanting urgently to consider less painful matters" (p. 263). He suggests that there is a "resistance to knowing" (p. 264) which protects parents in particular from consideration of their failure in fostering a safe environment. Tizard (1984) notes that "although fully aware that everyone that we love may be destroyed in an instant, our knowledge is not matched by the appropriate

feeling or behavior" (p. 276). She suggests that we avoid the feelings, are resigned to it and we "block our feelings" (p. 276).

Abraham (1983) illustrates the workings of the defense mechanism, isolation of affect. This defense mechanism allows the consideration of the horror of nuclear destruction with no more than facile emotion. Abraham, for instance, refers to the statement in 1981 by Charles Kupperman, an appointee to the Arms Control and Disarmament Agency, that "nuclear war is a destructive thing, but still in large part a physics problem" (Scheer, 1982, p. 4) and the now infamous comment by the Deputy Under Secretary of Defense for Research and Engineering, Strategic and Theater Nuclear Forces in 1981, that "if there are enough shovels to go around, everybody's going to make it" (Scheer, 1982, p. 18). Abraham asserts that these are examples of isolation of affect. It would in fact appear that there are many psychological and group processes at work when highly placed officials talk in this manner. It may be something of a simplification to label these examples of isolation of affect. However whatever the mechanism or factors involved here are, it does appear that there is a process at work that helps these men control their emotions and even their level of knowledge.

Abraham (1983) makes reference to rationalization and intellectualization. Both of these, he suggests, render the nuclear threat harmless by focussing on the scientific and technical aspects of the weapons. In this manner, the human aspect of the destructive power is filtered out.

Many of the writers sited above use terms such as "denial" which are borrowed from psychoanalytic theory. Often these terms are used in a less than specific manner and hence the exact meaning of the writer's words is unclear. In general all of the writers cited here are referring to some process or operation by which the individual and/or the group keeps the emotional impact of nuclear weapons out of their conscious awareness. The noted Kleinian psychoanalyst Hanna Segal recently turned her attention to the nuclear issue and attempted to clarify the defense mechanisms that may be in operation in this process.

Segal (1987) considers the role of denial in the individual and in the workings of governments who envisage a nuclear war and avoid consideration of the reality of what this would entail. She suggests that what is in operation here is:

> close to denial, but not identical to it, (it) is the turning of a blind eye. I think that the mechanism here is of a particular form of splitting (described by Freud as disavowal, operating in perversions). In the split we retain intellectual knowledge of the reality, but divest it of emotional meaning (p. 4)

Segal gives the example of the finding that many believe nuclear war is inevitable and that survival is impossible, yet life goes on as if the threat were not there.

Segal does suggest that denial is in operation here, but it is not helplessness or fear that is denied. Rather, in keeping with a stricter reading of psychoanalytic theory that asserts that denial can only operate against an impulse from within the individual,

she suggests that denial serves to minimize the consequences of our own aggressive impulses. Nuclear weapons are a representation of these impulses and hence knowledge about them and consideration of their effects on others is kept out of awareness.

Furthermore Segal notes the tendency for leaders and citizens to dehumanize themselves. She sites a memorandum by Robert McNamara to President Kennedy in which he states that the Air Force considers the loss of 50 million American lives, in case of a Russian counter-strike, to be acceptable. She suggests that such functioning in the individual involves a "regression from the depressive position, characterized by a capacity both to function in reality and to make reparation. The regression is to the paranoid/schizoid position, characterized by the operation of denial and splitting" (p. 5). She further asserts that the frequent responses to the nuclear threat such as "it won't happen, it won't be that bad" are examples of the use of defences typical of the regression to the paranoid/schizoid mode of functioning. These defenses include denial, disavowal, splitting and projection. She also observes the regression to part-object relationships, which allows for the unempathic, dehumanized manner of viewing the "enemy" (p. 8).

Jane Pearce (1983) outlines the role of apathy and dissociation in the response to feelings of terror aroused by the presence of nuclear arms. The terms "apathy" and "dissociation" are terms taken from the theories of Harry Stack Sullivan. These refer to

"security operations", which in Sullivan's theory, are psychological operations that result in a limitation of awareness of a reality that is percieved as unmanageable (Sullivan, 1953). They are included here as being functionally similar to more classically defined defense mechanisms The terms also connote origins in infancy and Pearce constructs her thesis accordingly.

Pearce suggests that in infancy, feelings of terror brought on by interference in the supply of basic sustenance given by air, food, warmth and so forth, can lead to distress and panic. The infant screams and if not interrupted, may choke or become convulsed. Generally, though, infants do not reach this degree of distress. Rather, apathy takes over, and when this occurs, the infant becomes exhausted, the urgency disappears and ultimately the infant sleeps. In this manner the fear is said to be dissociated. The terror-to-apathy process is crucial to the infant's successful development in a world where supplies are sometimes interrupted (Pearce, p. 7).

Pearce outlines how the patterns of dissociation are learned in the family environment: for example "The father's fear of his own fear triggers his contempt for his son's"(p. 9). Thus children learn to avoid moods that evoke unpleasant responses in the parents, and later in life the same applies within the social group and society as a whole.

Thus Pearce's thesis is that having learned to respond with apathy in order to dissociate terror in infancy, and having had this pattern supported through out life, adults respond to terror in the

same manner. The response to the nuclear arms threat is terror, she suggests. This terror is dissociated by apathy, which manifests itself in the many means by which people avoid dealing with the weapons. Pearce suggests that adults act as if the terror were itself fatal, as it was experienced in infancy. The need, in keeping with this thesis, is for a greater experience of terror "in adult terms" (Pearce, p. 12).

The Work of Robert Jay Lifton: Psychic Numbing and Symbolic Immortality

Perhaps the most cogent and thorough examination of life in the nuclear age is be Robert Jay Lifton (1967, 1972, 1982a, 1982b, 1987). His work weaves together many of the threads touched upon in this review. Lifton's work began with an interview study of survivors of the Hiroshima and Nagasaki bombings and has extended to studies of emotional functioning in the nuclear age (1982a, 1982b, 1987), his own particular reworking of Rankian psychoanalysis (1976) and a study of Nazi doctors (1987). He has written much, and thus for the purposes of clarity, the two major theses he proposes with regard to the psychological consequences of the arms race will be examined.

Psychic Numbing

The most comprehensive presentation of the role of psychological defenses in response to the nuclear age has been made by Robert Jay Lifton (1979, 1982a, 1982b, 1987). His own thinking on the subject was largely moulded by interview research he conducted with the survivors of the Hiroshima and Nagasaki bombings (Lifton, 1967). Essential to the experience of many of the survivors was what Lifton came to term "psychic numbing", a "paralysis of the mind" or "psychic closing off" (p. 31). He maintains that for the survivors who recalled being surrounded by the scenes of grotesque personal horror, this psychic numbing was a necessary defense mechanism. In such a state, according to Lifton, people are aware of what is going on around them, but loose their emotional investment in events, however shocking or awful they may be.

Lifton's thesis is that whilst clearly not in the same position literally, as those citizens of Hiroshima, people's current situation bears a marked resemblance in that all are implicitly survivors of Hiroshima and Nagasaki. Like the survivors themselves people are aware of the terrible consequences of the use of nuclear weapons, but have difficulty emotionally comprehending the consequences of their use. People resort to a permanent psychic numbing as a means of continuing to function. Like the survivors, people are aware of what is going on around them, but are unable to experience any emotional investment in

events. In this way, people cope with the specter of total loss embodied in nuclear weapons.

"Psychic numbing" is an all inclusive category which, Lifton holds, is not a single defensive strategy.

> What I am calling psychic numbing includes a number of classical psychoanalytic defense mechanisms: repression, suppression, isolation, denial, undoing, reaction formation, and projection, among others. But these defense mechanisms overlap greatly around the issue of feeling and not feeling. With that issue so central to our time, we do well to devote to it a single overall category, which we can observe operating in different ways and under different conditions in virtually any individual mind. (Lifton, 1982a, p. 103)

Lifton (1982a) outlines three levels of numbing that he differentiates. The "numbing of massive death immersion" is epitomized by the experience of the survivors of the nuclear bombings. When this numbing occurs mental processes almost totally cease to function. The individual may be able to engage in limited planning and action, but is unable to experience any feelings at all.

The "numbing of enhancement" is a less severe form of psychic numbing. It involves the loss of emotion in some areas of psychic functioning. Lifton offers as examples the performance of a surgeon or of an artist. Both need to block out parts of their emotional experience in order to function appropriately at their tasks.

Less incapacitating still is Lifton's final category; the "numbing of everyday life". In this state people function fully whilst blocking out their emotional responses to the threat of nuclear arms. It is this numbing of everyday life that, Lifton feels, is prevalent in the nuclear age. Lifton's work contains many examples of this numbing. For instance, he highlights how we "domesticate" the weapons using language that renders them benign, with names like "nukes" (Lifton, 1982a, p. 106). This general tendency is highlighted in the naming of the two atomic bombs dropped on Japan. The first was named "Little Boy", bringing to mind notions of a newborn and growth, and the second was called "Fat Man" after Winston Churchill. Further psychic numbing of everyday life is evidenced, according to Lifton, in the language we use to discuss nuclear weapons (p. 107). Phrases like "nuclear exchange", "megatons", "megadeaths" and the like are used to make it possible to talk, without feeling, about billions of people being literally melted alive and their environment forever destroyed.

Another aspect of psychic numbing is the tendency to deify the "nuclear experts". Lifton (1982a, p. 109) points to the reverence with which the "experts" are treated and the manner in which they contribute to the numbing by speaking in ever more technical language.

At its most bizarre, psychic numbing can take on the form of an embracing of the weapons and their power. Lifton gives many examples of descriptions of the weapons rich in religious awe and power. Of these, perhaps the following most clearly captures this

sentiment:

> The whole country was lighted by a searing light with the intensity many times that of the midday sun. It was golden, purple, violet, gray and blue. It lighted every peak, crevasse and ridge of the nearbye mountain range with a clarity and beauty that cannot be described but must be seen to be imagined. It was that beauty the great poets dream about but describe most poorly and inadequately. (Lifton, 1982a, p. 89)

These are words written by a "tough brigadier general", Thomas Farrell, Deputy Commander of The Manhattan Project, and they describe the first atomic bomb test explosion. They are taken by Lifton to illustrate the reaction formation part of psychic numbing. This reaction is clearly most evident for the turning of the destructive power of the bomb test into a thing of beauty; the numbing of the fear and aggression that the spectacle, Lifton assumes, must have evoked.

Serious consideration has been given to Lifton's idea of psychic numbing and its consequences by Locatelli and Holt (1986) who argue that his use of one general category called psychic numbing is an error. They also note that the defense mechanisms which Lifton says comprise psychic numbing - repression, suppression, isolation, denial, undoing, reaction formation and projection - are all, with the exception of suppresion, associated in psychoanalytic psychopathology with serious psychopathology (p. 145). They argue for the use of less pathological and more "ordinary" (p. 158) explanations.

In carrying out a study to understand the motivation and emotional life of antinuclear activists, Locatelli and Holt gave a number of measures and questions to 66 students of varying degrees of antinuclear activity. One of their questions asked about the emotional reaction to the TV movie "The Day After". Locatelli and Holt found that regardless of level of antinuclear activism, all subjects reported emotional reactions to the movie. They suggest that this finding undermines the notion that many are numbing themselves to feelings related to nuclear war. Rather, they offer the alternative explanation of the "availability heuristic", a notion illlustrated by Tversky and Kahneman (1973). They demonstrated that if people do not have readily available imagery or memories to make a hypothetical notion appear more real, they will tend to judge that hypothetical possibility as improbable. This, Locatelli and Holt suggest, is a more reasonable and less pathological explanation than psychic numbing. They refer to the finding of Fiske, Pratto and Pavelchak (1983) that activists held more concrete images of possible nuclear war than nonactivists as further illustration of the availability heuristic. Granberg and Faye's (1972) finding that attitudes among adults changed after seeing the movie "Hiroshima/Nagasaki-1945" is also referred to by Locatelli and Holt as confirming this notion.

Another "ordinary" psychological process that Locatelli and Holt prefer to psychic numbing is that of "adaptation level" (p. 156). Such occurrences as the quick alteration that the eyes make to a dazzling light and the sensory adjustment that can rapidly

make a foul smell no longer noxious, are examples of adaptation level. The principle of adaptation has been applied to the emotional and motivational realm (Helson, 1959). Locatelli and Holt suggest that rather than being psychically numb, people have simply adapted to the presence of nuclear weapons, just as people adapt or "get used to" working in a steel mill or living near a chemical plant.

A very similar point is made by Frank (1982) who refers to "habituation". He writes "like all living creatures, we humans stop attending to stimuli when they persist unchanged over a long period of time. Survival in the wild required not only the ability to detect any changes in the environment, but also to ignore them if they persisted without any actual danger" (p. 631). Habituation, suggests Frank is central to people's reaction to the threat of nuclear weapons.

Locatelli and Holt note Lifton's distinction between the three levels of psychic numbing; the numbing of massive death immersion, the numbing of enhancement and the numbing of everyday life. They suggest that the latter is most likely another way of talking about adaptation (p. 157).

Furthermore Locatelli and Holt observed that many nonactivists tended to talk of putting the thoughts of nuclear weapons out of their minds. Indeed, comments of this nature have been frequent in many of the above cited studies. Locatelli and Holt propose that this operation is that of suppression, a benign and most adaptive defense mechanism highly correlated with good

adjustment (p. 158). It is thus due to the prevalence of suppression, rather than the more pathologically associated defenses such as denial, projection and so forth, that nonactivists were not found to be more mentally unhealthy than activists. They comment "that there is no reason to believe that people ought - for the sake of their mental health - to be fairly constantly thinking about the danger of a new holocaust and feeling the appropriate, dreadful emotions. Anyone who deliberately sets aside such feelings need have no fear that he or she is engaging in denial, traditionally considered a hallmark of psychosis" (p. 158).

Locatelli and Holt refer to other investigators who have also underlined the protective and adaptive aspects of "escape from thinking about nuclear horrors" (p. 145). Schell (1982), for example, suggests that the denial of the threat of nuclear war may "spring in part at least from a love of life" (Schell, 1982, p.6). Lifton himself has opined that "no one, psychologically speaking, can live in the world of nuclear weapons all the time" (Lifton, 1982a, p. 109-110).

Locatelli and Holt (1986) have produced a serious and provocative consideration of Lifton's notion of psychic numbing, and in doing so have raised questions about whether it is psychological defense mechanisms that play such a major role in people's response to nuclear weapons, or other, less pathologically tinged "ordinary" psychological processes. In concluding Locatelli and Holt note that Lifton's concept is too general to stand up to detailed analysis and interpretation. "If we construe it narrowly,

as referring to the operation of specific defensive manouvers we run the risk of misrepresenting Lifton. If, however we construe it as broadly as he does.....it becomes so encompassing as to be difficult to measure" (p. 154). They therefore take sharpest issue with Lifton's insistence on the need for one general category of psychic numbing. They feel that this large category encumbers research, and that the term "numbing" lends itself to misunderstanding due to its pejorative tone.

Locatelli and Holt (1986) make a number of interesting points, all of which speak to the need for a careful examination of Lifton's hypothesis of psychic numbing. Their study of the responses to "The Day After" is problematic. The subjects reported on their own emotional state in a manner outside of the experimenter's control. However, the method of presenting subjects with nuclear related material, such as "The Day After", followed by an assessment of emotionality, is instructive and will be followed in principle in this study.

Locatelli and Holt propose that a close reading of Lifton's concept of psychic numbing may distort his overall meaning. Consequently, they use a somewhat global measure of emotion rather than focussing on the specific aspects of psychological functioning that Lifton suggests are indicated by psychic numbing. Furthermore, there is no control group to whom the reactions of the people watching the "Day After" may have been compared. The problem here is one of matching stimuli, which is impossible with such rich and varied stimuli as TV movies. The present study

addresses both these issues by studying the specific mental processes that Lifton suggests are operational in psychic numbing and by using a constant stimuli presented to different groups. Until these methodological difficulties are addressed, it cannot be said that Lifton's theory of psychic numbing has been supported.

Symbolic Immortality

A central thread in Lifton's work is the notion of symbolic immortality, or he "individual's connection with man's general past and future" (Lifton, 1968, p.xiii). Lifton believes that the need for symbolic immortality is present in all people and that its expression may take many forms or "modes". Lifton proposes five different modes of symbolic immortality (1973). The first common mode is called the biological mode. This mode encompasses the sense in which people feel they will "live on" through their children. Lifton does not resrict the biological mode to direct genetic lineage. In the same mode, Lifton includes attachments to one's friends, neighbors, profession, country, even to mankind in general.

A second mode, which Lifton calls the creative mode, emphasizes one's personal achievements and contributions which will benefit those who survive us. Included in this category would be things ordinarily classified as creative works such as paintings, writings, or industrial accomplishments. Also included in the same mode are less tangible contributions to people who

will survive us: healing of a doctor's patients, helping friends, or facilitating the careers of younger colleagues.

A third mode concerns religious beliefs. Lifton tries to define this mode in its broadest sense to include beliefs encompassed by most religions. These beliefs include the general notion that death results in "release from profane life to existence on a higher plane" (1972, p.32). Also, many religious beliefs include the notion that death brings peace and harmony with God or some higher principle of the universe.

The fourth mode emphasizes the relatedness of man with nature. Lifton says this mode is important in the Japanese culture and was important in the European Romantic Movement. The main distinguishing feature of this mode is that it emphasizes man's relatedness and connections to other living and non-living aspects of nature, conveying a sense of immortality through integration with nature.

The fifth and final mode of symbolic immortality, is radically different and somewhat the antithesis of the other modes. Lifton characterizes this mode, which he calls the "experiential transcendent" mode (1982, p.65) as being in a psychological state so intense that time and death disappear. This state occurs when people "lose themselves" in what they are doing. It can occur in song, dance, athletics, sex, or any intense activity in which one's sense of existing in time and place is diminished. Whereas the other modes concern the connections of the self to the past and future, this mode emphasizes the dissolution of the self, and is

totally centered on the here and now. It is precisely because of this live-for-the-moment aspect of this mode that Lifton believes people turn toward this mode and away from the others when the future of mankind is in doubt (i.e. threatened by nuclear war).

Lifton (1982a) states his position succinctly:

> "....if we anticipate the weapons being used - as I believe everyone in our society from about the age of five or six in some measure does - we can hardly be certain of descendants in whom to live on....We can no longer feel certain of biological posterity....the idea of any human future becomes a matter of profound doubt....There is no one after us to leave anything to" (p.67).

Lifton suggests that the effects of this break in the human chain are a diminishment in the making of plans for the future, a lessening in making plans to marry, in making plans to have children, in seeing meaning in daily activities such as work, and an inability to imagine one's work or progeny living on in the future (Lifton, 1982a, p.68-72). He emphasizes that it is toward the fifth mode of experience and transcendence that people turn: "we find a tendency to seek this mode with special intensity when, during times of crisis, the other modes are threatened, and this is especially true when the threat is so extreme" (1982a, p.76).

Only two studies have attempted to examine Lifton's notions about symbolic immortality in the nuclear age. Raymond Schmitt (1982) assessed the concept of the impairment in modes of symbolic immortality, by analysing written material that was

taken to reflect "representative American contexts". These contexts were: the "Transition Section" in *Newsweek* , which contains quotations illustrating perspectives of recently deceased public figures; discussions of death and immortality included in Studs Terkel's book "Working" (1975); Schmitt's own observations from "everyday life", which refers to television programs he watched and interactions with family and friends; responses to a questionnaire of open-ended questions constructed by Schmitt for the study.

Schmitt found little evidence of Lifton's notion of impairment in symbolic immortality. On the contrary, he found numerous examples in all four contexts he examined, of symbolic immortality. For example, he found in *Newsweek* Charlie Chaplin commenting that he wished to be remembered by his film "The Gold Rush"; in Studs Terkel's book, a fireman said "I can look back and say 'I helped save somebody', it shows something I did on this earth"; Schmitt's father-in-law said that he was happy his son had a male child so that 'the family name will go on'; a child in his questionnaire study responded to the question "if you had to pick one color to represent or stand for death, what color would you pick ?", with "green, for eternal life; green is a symbol of life".

This is a vast wide-ranging paper that covers much diverse data. However, it exemplifies a study that is confounded by responses to death. In nearly all of his examples, Schmitt quotes people responding to the notion of death, rather than to the specific death embedded in the notion of nuclear war. One is

unable to say whether his findings do indeed reflect a persistence in symbolic immortality, or whether they represent a persistence of a ubiquitous denial of death, such as that outlined by Ernest Becker (1973). Similarily, his finding that the children surveyed reported talk of "making wills" and "funeral arrangements" and so on in their homes, at times of death, cannot be taken as a refutation of Lifton's thesis, nor can his finding that children showed an emotional reaction to the notion of death. Schmitt's study is also subject to criticisms based on the selectivity of the data (most particularily when he relied on his own observations for examples of symbolic immortality in "everyday life").

Overall, however, Schmitt's work is limited by the lack of a control. To make his point that there is no less belief in symbolic immortality in the nuclear age, he would need to compare data from before 1945 with subsequent written material. This is however a precarious task. The problem of selectivity of data would remain.

It is these needs, for a more empirical approach to examining Lifton's ideas, and for a comparison to either pre-nuclear times or non-nuclear material, that are addressed in the present study.

The other study that has addressed Lifton's theory of symbolic immortality, focusses on the notion of the five different modes of symbolic immortality. Mathews and Mister (1987) attempted to operationalize Lifton's idea of five modes of symbolic immortality and to develop an instrument that measures a person's need for each of the five modes.

They developed a symbolic immortality instrument that consisted of fourty belief statements generated to reflect Lifton's five modes of symbolic immortality. Eight statements were generated to correspond with each of the five modes. Their study was carried out with 401 adult volunteers in the Baton Rouge area, whose average age was 40 years.

Mathews and Mister conducted a statistical analysis designed to divide a set of variables into non-overlapping clusters in such a way that each cluster can be interpreted as essentially uni-dimensional. They found a high level of agreement between the obtained cluster scores and Lifton's five modes of symbolic immortality, thus supporting Lifton's theory. Furthermore the high statistical significance of the clustering suggests that their symbolic immortality instrument can adequately measure an individual's tendency toward one or more of the five modes of symbolic immortality.

This study offers strong support for Lifton's notion of five distinct modes of symbolic immortality. Furthermore the strong statistical support for the instrument developed by Mathews and Mister, presents the researcher with a valid tool for assessing the level of belief in each of the five modes of symbolic immortality, and facilitates future research of this concept. Indeed, this measure will be used in this study.

In summary, Lifton hypothesized two specific psychological effects of the presence of nuclear arms; psychic numbing and symbolic immortality. It is recognized by many (Locatteli and

Holt, 1986) that Lifton's contribution is central to the field of nuclear psychology. Research into psychic numbing was not supportive of Lifton's notions but has methodolical difficulties. Strong support has been found, however, for his notion of symbolic immortality and its five distinct modes. Overall, Lifton's work provides the most coherent approach to the psychological effects of the presence of nuclear weapons, and as such, demands further empirical examination.

Summary

In this review many aspects of nuclear psychology have been addressed.

This review examined the literature on the attitudinal and belief responses of children and adults to nuclear weapons. In general it has been found that both adults and children fear nuclear weapons but are generally not inclined toward action related to this fear.

Research on individual and group differences in responding to nuclear weapons was reviewed. Although a variety of responses to nuclear war was clear, a coherence of attitudes, emotions and beliefs about nuclear weapons appeared to prevail, as does the instability of those attitudes.

The overview of work relating to the effects of nuclear weapons on mental health revealed a consensus among writers

that the presence of nuclear weapons has a deleterious effect on psychological development and functioning, although different writers have chosen to highlight diverse aspects of functioning that are so effected. The jury is still out on the effect of nuclear weapons on mental health, with one study suggesting confirmation of a relationship between nuclear fear and psychiatric difficulties and another finding no such relationship.

The methodological problems noted in assessing the work in these three areas include: the reliance on self-report data; the unsystematic analysis of responses to open-ended questions; the lack of "blind" subjects; the lack of organized research pertaining to a theoretical position yielding specific hypotheses; and most salient of all, the lack of any control group or data that might help clarify whether the sited correlates pertain specifically to nuclear war or to reactions to other phenomena such as death and conventional war.

The contribution of psychoanalysis to the understanding of the psychological meaning of nuclear weapons was reviewed. Whilst remaining untested hypotheses, these theoretical contributions offer a way of construing the intrapsychic and group consequences of the change in the role of war and the presence of the nuclear weapons.

The many references to the role of psychological defense in tempering the emotional response to the weapons were reviewed. Many defenses are alluded to in the literature. A coherent picture emerges of a general tendency to control the emotions aroused by

the presence of nuclear weapons.

The contribution of Robert Jay Lifton was outlined and set in his theoretical context. His two predominant hypotheses regarding psychological responses to nuclear weapons were outlined: psychic numbing and a shift toward the fifth mode of symbolic immortality. Research into Lifton's work was overviewed and it was suggested that this has been insufficient, but speaks strongly to the need for further examination.

This study seeks to move on from here and draws together some threads of this review. In view of the criticisms of the literature examining psychological responses to nuclear war and the prevailing need for a clear examination of these responses, this study will attempt to empirically examine the hypotheses emanating from the theoretical contribution of Robert Lifton. This study asks whether his hypothesized psychological responses to nuclear weapons are indeed unique to the weapons themselves, or are similar to responses to other death related and fearful phenomena.

CHAPTER III

METHOD

Design of the Study

There were five subject groups to which the subjects were randomly assigned. Each group contained 25 subjects. [This figure was arrived at following a power analysis (Cohen, 1969) where the desired level of power to detect was .8; the number of groups, 5; the effect size, .3; and the level of significance was .05].

1. The Nuclear Group. This group received stimulus material in the form of a poem that was titled "Nuclear War" and contained the words "nuclear war" on three occasions. It was this group who, according to Lifton's predictions, would show a heightened psychic numbing and a tendency toward the fifth mode of symbolic immortality, in response to being presented with the nuclear stimulus.

2. The General Death Group. In order to judge whether the effects shown by the nuclear group were particular to nuclear war and were not responses to the idea of death embedded in nuclear war, this group were presented with the identical poem, which was titled "Death" and featured three mentions of the word "death".

3. The Specific Death Group. This group served the same

control function as the general death group. However, in the case that the general death stimuli would be too general and therefore of no salience, specific death stimuli were be presented. The stimuli were in the form of the identical poem titled "Car Crash" and featuring three uses of the words "car crash". This is a form of death that is most relevant to people between 17 and 24 and was therefore assumed to be of salience to the subject group. Other specific death stimuli relating to death due to narcotics and AIDS were ruled out because of their connection with other emotional issues that might have confounded emotional responses.

4. War group. In order to ascertain whether the responses to nuclear war were different to responses to a general notion of war, this group were presented with the identical poem titled "War" and including three uses of the word "war".

5. Control group. This group's responses served as a control for the effects of the other three groups. In other words, if this comprehension-and-assessment design was efficacious, then this fourth group would evidence less intensity on all dependent variables than the other three groups. The control group were presented with the identical poem titled "Thoughts on Life" and including three uses of the word "life".

There were to be three stages in the study, before which the subjects were to be introduced to the study. They were told by the experimenter that this was an investigation of the interaction between comprehension and affect.

The three stages were:

1. Pre-comprehension assessment stage. At this stage two of the measures were to be administered. These two measures (The Purpose in Life Test and The Symbolic Immortality Instrument), which will be described below, were to be given both before and after the comprehension stage, because these two are measures of traits rather than of state. Hence, in order to assess whether the trait is affected by the presentation of the stimuli, it was necessary to administer them both before and after the experimental manipulation;
that is, the presentation of the written material.
2. The comprehension stage where each group was to be given the stimulus poems titled "Nuclear war", "Death", "Car crash", "War" and "Thoughts on life". The poems were to be handed out and the subjects told to read them and pay careful attention to details because they were to be tested on their memory of the poems at a later time. In order to maximize the thorough reading of the poems, they were to be read aloud to the subjects twice and they were to be instructed to follow along. They would then be given three minutes to read the poem once more to themselves. (When read aloud the instructor would not read the identifying words; "nuclear war", "death" and so on. He would simply explain that some words would not be read aloud, before commencing the reading).

After reading the stimulus poems each subject would be required to answer some "comprehension" questions. The function of these questions is to maintain the fiction of the comprehension

experiment and to ensure that the subjects read and attend to all of the stimulus material. Furthermore the degree of error in the comprehension test will be used as one measure of numbing (see below).

3. The evaluation stage . The measures of symbolic immortality and psychic numbing were to be administered to all subjects.

Following these two stages data was to be gathered regarding the subjects' demographics and their recent exposure to death in their personal lives.

Measures

Measures were either developed or chosen to measure as clearly as possible Lifton's concepts of psychic numbing and symbolic immortality.

Psychic Numbing

Lifton (1982, p.103-105) outlined the main manifestations of psychic numbing. He suggested that (a) feelings are blocked and that (b) images and the symbolization processes are blocked, implying a diminishment in the cognitive faculties of representation and retrieval of information.

i. Mood Adjective Check List

To assess the blocking of feelings the "Mood Adjective Check

List" (Nowlis, 1965, 1970) was administered in the short form (Nowlis, 1970). In this questionnaire the subject is required to respond to 33 words describing feelings by checking whether the word definitely describes how the subject feels, only slightly describes current feeling, does not apply to the subjects feelings, or whether the subjects cannot decide whether the word applies to his or her feelings at the time. According to Lifton's suggestion that psychic numbing involves a blocking of feeling, it was predicted that "nuclear" subjects will respond more in the last category; they would be unable to decide whether they felt a certain feeling or not, due to the intensification of psychic numbing in response to the nuclear stimuli. The MACL is included in Appendix I.

ii. Memory

To assess the blocking of images and symbolization processes the performance on the memory task was to be assessed. According to Lifton's hypothesis, there should be a blocking of cognitive capacities when there is psychic numbing. Consequently the prediction was that the "nuclear subjects" would evidence intensified psychic numbing and would therefore not remember the information contained in their written stimulus, as well as the subjects in the other groups. Hence comparison of the sums of correct memory responses were the measure here.

Memory questions were divided into six questions requiring one-word answers and six multiple-choice questions (see Appendix II).

Symbolic Immortality

Lifton has suggested that the break in the human chain presented by the nuclear weapons provokes a re-ordering of the need for symbolic immortality. In a general sense, his hypotheses translates into a lessening of the meaningfulness of life. To measure this notion The Purpose In Life Test (Crumbaugh, 1968) was chosen . More precisely, Lifton suggests that there is a shift in the need for the five modes of symbolic immortality. As mentioned above he predicts a diminishment in four of the modes and an increased tendency to seek the fifth mode; that of "experiential transcendence". In order to measure this hypothesized shift, an abbreviated version of a questionnaire on symbolic immortality developed by Mathews and Mister (1987) was used (see Appendix IV).

iii. The Purpose in Life Test

The Purpose in Life Test (Crumbaugh, 1968) was developed to measure the degree to which a person experiences a sense of meaning and purpose in life. The scale was originally devised to test Victor Frankl's thesis that when meaning in life is not found, the result is existential frustration (Frankl, 1967). The questionnaire is made up of 20 items rated from 1 (low purpose) to 7 (high purpose). Total scores therefore range from 20 (low purpose) to 140 (high purpose). The complete test is included in Appendix III.

It would seem that this test assesses the variable of meaninglessness that Lifton suggests is representative of the shift in symbolic immortality. One adjustment was made to the Purpose in Life Test for this study. In the introduction to the test Crumbaugh (1968) instructs subjects to "Circle the number that would be most nearly true for you". In order to relate the questionnaire to the subjects' feelings on reading the poem, during the post-experimental phase, the instruction read, "Circle the number that would be most nearly true for you, based on your feelings when you read the poem".

v. The Symbolic Immortality Test

The initial instrument was developed by Mathews and Mister (1987) to test for the validity of Lifton's proposition of five distinct modes of symbolic immortality. The questionnaire consisted of 40 items with eight items representing each of the five modes of symbolic immortality. Their statistical analysis of the results of a study using 400 citizens of all ages revealed that all but six of the items were significantly clustered with the other items of that particular mode. For the purposes of this study two items from each cluster were chosen. The items chosen, where possible, were the ones that most explicitly mentioned death and the notion of continuing after death. The result was a ten-item questionnaire where the subject was asked to rate the extent of agreement/disagreement with each statement using a 5-point scale ranging from "strongly disagree" to "strongly agree"

(see Appendix IV).

According to Lifton's thesis the nuclear group would evidence the most clear tendency toward the fifth, "experiential/transcendant" mode (and therefore score higher on the items relating to that mode) rather than the other four.

At the post-experimental phase, instructions were to be given that were designed to help the subjects focus on the feelings aroused by the poem. They were to be instructed to "Think about the poem as you answer these questions" and to "Base your responses on the feelings evoked by the poem".

Experimental Stimuli

The experimental stimuli were versions of a poem, constructed for the purposes of this study (see Appendix V). The poem was in three parts. In each experimental group, the poem remained identical, except for the title and the repetition of the title on three occasions during the poem. The titles corresponded to the orientation of the experimental groups : "Nuclear War", "Death", "Car crash", " War", and for the control group, "Thoughts on Life".

The content of the poem and the title of the control group poem were decided upon following analysis of the responses of fifteen psychology undergraduate and Masters students who were the subjects in a pilot study (See Appendix VI, "Report of Pilot Study"). After piloting the design, including an initial version of the poem, the subjects were asked for their opinions about the

salience, evocativeness and emotionality of the poems. After careful assessment of these responses the content of the poem was adjusted to highten its salience and clarity, and the title of the control poem was changed from "Poem" to "Thoughts on Life".

Data Analysis

Psychic Numbing Hypothesis

If Lifton's hypothesis that attention to nuclear weapons would enduce psychic numbing, was supported, then the following predictions would apply:

i. The nuclear group would perform significantly less well on the comprehension tasks than the other three groups.

ii. The nuclear group would show a significantly greater tendency to respond with the "?" (cannot decide) category, on the MACL than the other three groups.

In order to ascertain the degree of difference in these two dependent variables, between the experimental groups an analysis of variance was to be performed.

Symbolic Immortality Hypothesis

If Lifton's hypothesis that there is a tendency toward the fifth mode of symbolic immortality is supported then:

i. The nuclear group would show a significantly lower sense of meaning and purpose in life as measured by The Purpose in Life Test, than the other three groups.

ii. The nuclear group would show less symbolic immortality as measured by the Symbolic Immortality Test, than the other groups.

In order to ascertain the degree of difference between the pre and post performances of the groups, an analysis of variance was to be used.

Procedure

The data was collected from six undergraduate classes: three at City College and three at John Jay College in New York. the classes were English Literature, Black Psychology (two classes), Human sexuality (two classes) and Developmental Psychology (two classes).

All subjects were informed that their participation was voluntary and that they were free to withdraw their participation at any time. They were informed that the study examined the relationship of poems to emotions. They were handed a workbook including instructions, the poems and the measures.

The experimenter read the first instructions (Appendix VII) to the subjects and asked them to read along. Subjects were thanked for taking part in the study and asked to complete the following two questionnaires and to stop working at the next page of instructions.

The pre-poem administration of the two trait measures (Purpose in Life Test and Symbolic Immortality Instrument) followed the instructions. When all subjects had completed these

measures the experimenter read the next page of instructions (Appendix VIII), and the subjects were told to read along. They were told that they would be required to read a poem and answer some questions. They were told to pay careful attention to the poem because their memory for the contents of the poem was going to be tested. Subjects were also told to proceed to the pages of questions immediately after they had read the poem along with the experimenter twice.

The poems were read aloud twice by the experimenter while the subjects read along. The subjects then completed the post-poem measures; the memory questions, the Mood Adjective Check List, the Symbolic Immortality Instrument and the Purpose in Life Test. Following the completion and collection of all measures the study was briefly explained to the subjects and the experimenter answered any questions or comments.

Chapter IV

RESULTS

Sample

There were 25 subjects in each of the five groups. Subjects were students at City College and John Jay College in New York. The average age of the subjects was 24 years and six months. 58 were male and 67, female. 23 were freshmen; 33, sophomores; 42, juniors, 25, seniors; and 2 were masters students. 45 were psychology majors. 80 majored in other subjects. 78 were born in America and 47 were born overseas. For 91, English is their first language. For 34, English is a second language. 15 described themselves as white, 69 as black, 25 as Hispanic, 9 as Asian, and 7 as "other".

Results: Primary Findings

Each hypothesis will be restated and the findings relating to that hypothesis described.

Hypothesis 1: subjects who read a nuclear related poem will evidence greater psychic numbing than matched subjects who read poems related to death, war, car crash and a neutral subject.

In terms of the design of this study, it was predicted that the nuclear group would perform significantly less well on the memory task than the other four groups, and would show a significantly greater tendency to respond with the "?" response on the MACL, than the other groups.

Analysis of variance of the difference between the nuclear group and each of the other groups on the memory task produced a significant difference between the nuclear group and the control group (who read the poem titled "Thoughts on Life"), F (4, 120) = 2.2746, $p < .05$. No other groups were significantly different to the nuclear group. The mean group scores on the memory measure are presented in Table 1.

Table 1

Group means for memory scores

Control	6.28*
War	5.16
Nuclear war	5.04
Death	4.92
Car crash	4.80

* F = 2.2746. DF = 4, 120. p = <.05

An analysis of variance using the Duncan multiple range test (Duncan, 1955) produced some significant differences in the use of the "?" in responses to the MACL. The nuclear group had significantly more "?" responses than the Death and Car-crash groups using a one tailed (0.5 significance) Duncan's procedure, F (4, 120) = 3. 0945. The group means are represented in Table 2.

Table 2

Group means for use of "?"

Nuclear war	5.60*
War	4.60
Control	4.20
Death	*3.04*
Car crash	*2.28*

Note. Means in subscript are significantly different to mean*.
F = 3.0945. DF = 4,120. p = <.05.

Hypothesis 2: Subjects who read a nuclear-related poem will evidence a significantly greater tendency towards the fifth "experientially transcendent" mode of symbolic immortality rather than the other four modes outlined by Lifton, when compared with other groups. It was hypothesised that the nuclear group will show

a significantly lower sense of purpose in life as measured by the Purpose in Life Test, than the other groups, and that the nuclear group will show a tendency to the "experiential transcendent " mode of symbolic immortality when the responses to the post-poem Symbolic Immortality Instrument are compared with those of the baseline administration.

Table 3

Pre and post differences in Mean Purpose in Life Scores

Group	M
Control	2.88
War	0.20
Nuclear war	-0.04
Car crash	-1.00
Death	-1.54

Note. No means are significantly different. F = .9887. DF = 4,119. p = >.05.

Note. The scores were calculated by subtracting the post-poem scores from the pre-poem scores for each subject and then finding the mean of the group total.

Analysis of variance provided no significant differences between the Purpose in Life Test responses of the nuclear group and those of the other groups, F (4, 119) = .9887, $p > .05$.

An analysis of variance produced no significant differences between any of the groups' tendencies toward the fifth mode of symbolic immortality in the post-poem administration of the Symbolic Immortality Instrument, F (4, 114) = .8139, $p > .05$.

Hypothesis 3: In order to assess the poem-and-measure methodology, it was hypothesized that the neutral group will evidence less psychic numbing (as measured by memory score and use of the "?" response on the MACL), less change in purpose in life and less tendency toward the fifth mode of symbolic immortality, than the other groups.

Using one-tailed (0.05) Duncan's procedure of analysis of variance, there was a significant difference between the control group and the other four groups on the measure of memory, F (4, 120) = 2.2746, $p < .05$. The members of the control group remembered significantly more than the other four groups. Table 1 shows the group mean scores.

There was not a significant difference between the control group's use of the "?" response and the other groups' when responding to the MACL, F (4, 120) = 3.0945, $p > .05$.

There were no significant differences on the Purpose in Life and Symbolic Immortality measures as regards the control group.

Secondary Findings

A series of analyses of variance were carried out to ascertain whether any of the subject descriptors (sex, ethnicity, major, recent death of a friend or family member, frequency of reading poetry and birth place), significantly effected the responses to the measures.

Table 4

Male and Female Mean use of "?" response

	Male	Female
Nuclear war	6.80	3.80
War	6.20	3.07
Death	4.88	2.27
Car crash	3.33	1.20
Control	4.83	3.62
Total	5.28*	2.81*

Note. The Total Means differ significantly. $F = 12.665$. $p < .01$

These analyses showed that major, recent death and birth-place

had no effect on the groups' responses to any of the measures. There were no significant sex differences on the memory, Purpose in Life and Symbolic Immortality measures. As Table 4 shows, there was a significant sex difference in the number of "?" responses to the Mood Adjective Check List (F = 12.665, p = .001) for total subjects, but this did not effect the overall group differences in response to this measure.

Table 5

Mean Purpose in Life scores according to ethnicity

	Black	All others
Nuclear war	1.00	-0.86
War	-0.15	0.64
Death	-1.47	-2.00
Car crash	-2.42	0.80
Control	-1.69	11.0
Total	-1.03*	1.65*

Note. Total means* differ significantly. F = 3.294. p<.05.

Note. These scores are calculated by subtracting the post-poem scores on the Purpose in Life Test from the pre-poem scores, and then calculating the group means.

There were no significant differences in the responses of the different ethnic groups on the memory measure, symbolic immortality and the use of the "?" response on the Mood Adjective Check List. There was an effect on the responses of the groups on the Purpose in Life measure due to the group members ethnicity ($F = 3.294$, $p < .05$). When the mean pre-poem and post-poem differences in the responses of black subjects are compared with the mean pre-poem and post-poem differences in the responses of all other subjects on the Purpose in Life measure, there is a significant difference between the response pattern of black subjects and others, as shown in Table 5.

The overall ethnic difference would appear to be largely due to an unusual finding in the responses of the control group on the Purpose in Life measure. As Table 5 indicates, while the black subjects in the control group scored -1.69, the other subjects scored 11.00. This finding is taken as idiosyncratic, reflecting the unusual responses of one subject.

The frequency with which subjects read poetry had no effect on the memory measure, the purpose in life measure and the symbolic immortality measure. The frequency of reading poetry did influence the use of the "?" response when responding to the Mood Adjective Check List ($F = 4.402$, $p < .05$), but as Table 6 illustrates, this pattern did not influence the groups' responses to the other variables.

Table 6

Mean use of "?" responses according to frequency of reading poetry

	Read Poetry More	Read Poetry Less
Nuclear war	5.27	5.86
War	2.25	6.55
Death	2.27	4.00
Car crash	1.14	2.93
Control	4.50	3.67
Total	3.38*	4.57*

Note. Total group means* differed significantly. $F = 4.402$. $p<.05$.

Summary of Findings

The hypothesis that subjects reading the nuclear poem would show more psychic numbing as evidenced by remembering less of the poem than those who read other fear-provoking poems was not supported. The subjects who read the nuclear poem remembered less than only the control group, who read "Thoughts on Life".

The hypothesis that the subjects who read a nuclear poem

would show more psychic numbing as evidenced by a greater use of the "?" response on the Mood Adjective Check List was partially supported. The subjects who read the nuclear poem used the "?" response significantly more times than those who read poems called "Death" and "Car Crash", but no more than the subjects who read the poem called "War" and the control poem; "Thoughts on Life".

The hypothesis that the subjects who read the nuclear poem would experience a shift toward the fifth mode of symbolic immortality as evidenced by an increased score on the two questions pertaining to that mode on the Symbolic Immortality Insrument after reading the poem, was not supported. There were no significant differences between the groups on this measure.

The hypothesis that the nuclear group would show more psychic numbing as evidenced by a decrease in purpose in life after reading the poem as measured by the change in score on the Purpose In Life Test was not supported. When the group means were compared, it was the control group who evidenced the greatest decrease in purpose in life after the poem and the "Death" group showed the greatest increase in purpose in life.

The third hypothesis, that the control group would show less psychic numbing as evidenced by less forgetting of the poem and less use of the "?" response on the Mood Adjective Check List, and less shift to the fifth mode of symbolic immortality and less purpose in life, was born out on the memory measure only. Subjects who read the control poem, "Thoughts on Life"

remembered significantly more of the poem than did subjects in each of the other groups. This finding would appear to support the premise of the design of the study; that the reading of a poem that is fear provoking will have psychological consequences different to a poem that is neutral.

As regards possible effects of the subjects differences, the subjects' major, birth place and recent contact with death did not influence the groups' responses.

There was a sex difference in the use of the "?" response on the Mood Adjective Check List; males used this response significantly
more than did females. This difference did not influence the group responses.

When black subjects were compared with subjects of all other ethnicities, there was a difference in the effect of the poem on purpose in life. Black subjects showed a decrease in purpose in life after reading the poem and other subjects showed a significantly different increase in purpose in life.

The frequency of reading poetry influenced the use of the "?" response on the Mood Adjective Check List. Those who read poetry more frequently were less likely to use this response.

CHAPTER V

DISCUSSION

In this chapter the seemingly inconsistent findings regarding psychic numbing, and the lack of findings with regard to the hypothesized shift in symbolic immortality will be addressed. The implications that these findings have for the field of nuclear psychology and for future research will be examined.

As regards numbing, the first finding related to memory for the stimulus poems. The group who read the poem "Nuclear war" did not show greater psychic numbing as evidenced by poorer memory of the poem, than the groups who read the poems "War", "Death" and "Car Crash". All of these groups remembered less than the control group who read "Thoughts on Life".

When degree of loss of memory for the poem is taken as an indicator or reflection of psychic numbing, this finding suggests that nuclear war did not evoke a greater degree of numbing than ideas of war, death and car crash. They all provoked more numbing than the neutral poem, but none produced more intense loss of memory (numbing) than the others. This would seem to contradict Lifton's hypothesis. Nuclear war did not engender greater psychic numbing than ideas of war and death.

This finding would appear to suggest that nuclear war may not produce a unique psychological response, and it may not be a

ubiquitous phenomena that "operates.....in virtually any individual mind" (Lifton, 1982a, p. 103). Rather, it is one among many stimuli in the world that imply death, agony and other forms of suffering. This notion runs contrary to the cornerstone of the field of nuclear psychology; that nuclear weapons provoke a new, and more insidious peril to psychological functioning, as suggested by such writers as Bearslee and Mack (1982) and Escalona (1982).

It may be that the nuclear psychologists have been premature in assuming a particular and different response to nuclear weapons. Adelson and Finn (1985), in the only critique of the nuclear psychology literature, anticipate such a finding. Having criticized the methodology of much of the nuclear psychology literature, they suggested that the notion that nuclear war evokes uniquely dangerous consequences for psychological development, is no more than "ideology" and "sanctimoniousness" (p. 29). It does appear that on the measure of memory for the poem, the subjects in this study had no more difficulty with the idea of nuclear war than they had with the ideas of death and war

Caution is in order when interpreting the findings. It can be argued that failure to remember is not an adequate measure of psychic numbing. Psychic numbing is said by Lifton to embody "a number of classical psychoanalytic defense mechanisms" (Lifton, 1982a, p.103). The measure of memory was chosen because it reflects repression, the first of the defense mechanisms mentioned by Lifton.

It may be that measures of other defense mechanisms, that Lifton

suggests are included in psychic numbing, such as isolation, undoing, reaction formation and projection, would have shown a different response to the experimental poems.

Thus far the finding has been termed one of "memory loss". We are however, unable to say at what stage in the encoding- storage-retrieval process of memory that the interruption occurred. A more detailed examination of the memory process may clarify the nature of the forgetting and may highlight differences in the groups' responses to the stimuli that are not apparent when the measure is simply "memory loss". For instance a comparison of recognition for details of the poem with recall might clarify whether the difficulty was at the retrieval or encoding stage of memory.

On the other measure of numbing the finding was that the subjects who read the poem "Nuclear war" used the "?" response on the Mood Adjective Check List, significantly more than the subjects who read the poems "Car Crash" and "Death", and not significantly more than subjects who read "War" and "Thoughts on Life". When use of the "?"response is taken to be a representation of numbing, it appears that the idea of nuclear war evoked more numbing than death and car crash.

Explanations for the doubt evoked by the poems "War" and "Thoughts on Life" suggest themselves. It is possible that the idea of war is more closely associated with the idea of nuclear war than the ideas of death and the more specific car crash, which may have many more and different associations. The idea of death may

have many associations such as old age and sickness. The idea of a car crash is more specific. It would be reasonable to assume that the associations to it are grouped around the thoughts of an automobile accident. War, on the other hand may be closely associated with nuclear war. One would have to research the images that come to mind with the word, "war", but it is reasonable to assume that many, or at least some would overlap with those evoked by nuclear war.

This is a possible explanation for the high degree of numbing evidenced on this measure, by the "war" subjects.

The further examination of the associations to the poems would help to clarify this question and is suggested as a fruitful avenue of further research.

The numbing evidenced by the control subjects could be the consequence of the problems encountered when reading an abstract poem. While the meanings of the four poems presented to the experimental groups are all defined by their titles, the control poem "Thoughts on life" was left abstract. Indeed, it was intended as a neutral stimulus. It may be that when subjects read this poem, they were confused by its very diffuseness, and were therefore less likely to organize their emotions in response to it; hence the high level of doubt as registered on their responses to the MACL. This suggestion too, may be substantiated by further research into associations to the stimulus poem.

A further explanation for the low level of numbing measured in the "car crash" and "death" groups draws our attention to the

make-up of the group of subjects. The subjects are all students in urban New York City. They attend colleges in the City University system. All but seven were minorities. It is possible that for these subjects the ideas of car crash and death are more familiar and arouse less defense mechanisms than they might in other groups. Robert Coles (1985, 1986) suggested that the degree of emotional reactivity to the idea of nuclear war may be dependent on socio-economic class. In this study the subjects are a homogeneous group. Bearing in mind Coles' suggestion that the degree of emotional reactivity to the idea of nuclear war is most probably dependent on socio-economic class, it is noted that the degree and nature of psychic numbing may vary with social context. Accordingly it is recommended that future research examine differences within a heterogeneous subject group and across varied social contexts.

It can, nevertheless, be tentatively suggested that this finding on the doubt measure may offer support for Lifton's hypothesis, that the idea of nuclear war evokes greater psychic numbing than ideas of death or off car crashes.

What, then, are we to make of these first two findings ? One suggesting that nuclear war does not evoke more numbing than the other stimuli and the other suggesting that it does evoke more numbing than, at least, death and car crash.

The answer may be that the idea of nuclear war affects the clarity of emotional life more than it does cognitive functioning.

This, in turn may be taken to be the beginning of the uncovering

of a more specific definition of psychic numbing itself. Perhaps psychic numbing is primarily a process interfering with the awareness of emotions, rather than an overall numbing that effects many aspects of mental functioning. This is a suggestion that invites further study.

This also touches on the problem of an operational definition of psychic numbing. Locatelli and Holt (1986) observed :

> "....a good deal depends on just how one defines numbing. Here we come upon a familiar dilemma. If we construe it narrowly, as referring to the operation of specific defensive maneuvers, we run the risk of misrepresenting Lifton. If, however, we construe it as broadly as he does in the whole of his writings on the topic, it becomes so encompassing as to be difficult to measure - it is hard to know what to exclude." (p. 154)

It would appear, then, that this study has taken the first option and run the risk of "misrepresenting" Lifton, by "referring to the operation of specific defensive maneuvers". Moreover the findings suggest that the concept of numbing may, in fact be enrichened and refined by further detailing of the specific psychological processes that comprise it, and the contexts that effect its operation.

Having outlined the dilema facing researchers, Locatelli and Holt (1986) attempted a resolution by turning away from the concept of psychic numbing to the fields of cognitive and social psychology in order to describe better the apparent lack of a specific response to nuclear weapons in the general population.

They preferred the ideas of the availability heuristic (Tversky and Kahnemann, 1973), wherebye the absence of available images or memories about a possibility tends to make people judge it improbable, as people tend to do in regard to nuclear weapons, and Helson's theory of adaptation level (1959) which extends the observation that the eyes become quickly adapted to bright light, to social psychological phenomena, such as the the presence of nuclear weapons. Locatelli and Holt prefer these concepts because they are both more specific and evoke less idea of pathology than the idea of psychic numbing.

This resolution speaks to the possibility that the concept of psychic numbing may have outstayed its usefulness, so to speak. If it is not better specified, researchers, like Locatelli and Holt, will look to alternative concepts. The results of this study suggest that greater specificity and clarity of the concept of numbing is possible and useful.

The findings as regards symbolic immortality show that the nuclear stimulus evoked no greater shift in the modes of symbolic immortality and purpose in life than any of the other groups, including the control group. Such findings suggest that the null hypothesis is supported; that nuclear war has no special impact on these variables. Such a conclusion must be accepted only with caution.

The control group did not perform in a significantly different manner to the experimental groups, thus suggesting that the measures need to be carefully examined.

The appropriateness of the Purpose in Life Test for measuring symbolic immortality may be questioned. This test was developed by Crumbaugh (1968) to test the validity of Victor Frankl's thesis that when meaning in life is not found, the result is existential frustration.

It may be that the existential frustration required to produce a significantly lowered score on this instrument is something far deeper and enduring that could be evoked by a poem. Indeed, careful examination of the development of the test reveals that those who scored lowest were severely troubled individuals (hospitalized "psychotics' and alcoholics). It may be that the measure was not sensitive enough for the purposes of this study.

The Symbolic Immortality Instrument appears to be more appropriate, developed by Mathews and Mister (1987) for the very purpose of delineating the five modes of symbolic immortality. There was no finding on this measure either.

The belief in symbolic immortality is a fairly stable trait, that may not be readily influenced by the reading of a poem. It is suggested that more intense stimuli are required and that these need to be administered over time, in order to have an effect. It is also evident that measures must be more sensitive to the changes in the beliefs of the subjects about symbolic immortality.

The lack of a finding regarding symbolic immortality may be further support for Schmitt's (1982) conclusion to his study of symbolic immortality, that Lifton may not have been correct in assuming that like the actual survivors of Hiroshima, we are all

reassessing the meaning we give to life and to death:

> "It can no longer be assumed that Americans are survivors of Hiroshima in the same sense as the Hiroshima survivors, or that all Americans asign the same meanings to the symbols of the nuclear era" (Schmitt, 1982, p.112).

Such a conclusion would add more weight to the notion that many nuclear psychologists may have been premature in assuming that the idea of nuclear war provokes profound changes in the meaning of life and death. However, when the problematic aspects of the design are considered, such conclusions cannot be made. Rather, the necessity for further research into this question is indicated.

In summary, this study has attempted to grapple with two fairly elusive concepts: psychic numbing and symbolic immortality.

As regards symbolic immortality no clear conclusions suggest themselves. The need for further research using more sensitive measures and more salient stimuli administered over time is indicated.

Nuclear war did not provoke more interference with memory than death, car crash and war, suggesting that as regards repression, Lifton was presumptuous, nuclear war does not seem to be special.

On the other hand, on the measure of emotional doubt, Lifton's hypothesis found some support. Nuclear war evoked more numbing than death and car crash.

Taken together these two findings on numbing indicate that responses to nuclear war affect clarity of emotional experience rather than cognitive processes. Further research comparing responses of similar groups to different measures of both cognitive and emotional processes may clarify further the nature of numbing. As this definition becomes more specific, one will be faced with the dilema suggested by Locatelli and Holt (1986) . In reaching for a more specific definition of numbing, one may divert from the idea that Lifton is conveying. In this case one will have moved away from the clarification of numbing as a concept and toward a specific examination of individual responses to the idea of nuclear weapons. Such an endeavour can only enrichen the nuclear psychology literature, and may save the concept of psychic numbing from extinction due to its non-specific nature.

For instance, if further research of this nature supports the notion suggested here, that the idea of nuclear war interferes most with the clarity with which one can determine one's emotions, explanations for the lack of anti-nuclear activism may be suggested and strategies for enhancing such activism may become more apparent. For instance, the presentation of highly emotive material regarding the dangers of nuclear war would be preferred over more technical and statistical material.

Further research may increase knowledge about the role of repression and the idea of nuclear war. It may be that the findings of this study will be replicated and sharpened. This would not only have implications for the field of nuclear psychology and the

acceptance of Lifton's thesis, but will tame the inclination of many writers in the field, such as those who presented the supposed deleterious effects of nuclear weapons on psychological development to the House Select Committee on Children, Youth and Families (APA, 1982), to influence public policy. This study would appear to support Adelson and Finn's (1985) critique of those presentations, one of which was made by Robert Lifton.

The conclusion of this study is that Lifton's theses concerning psychic numbing and symbolic immortality are not clearly supported. The picture of psychic numbing that is developing is one of a complex mental process that may be comprised of at least distinct cognitive and emotional features. Future research into psychic numbing and symbolic immortality needs to pay more attention to the role of social contexts and to the sensitivity of the measures.

These concepts have a wide acceptance in the field of nuclear psychology and the whole field will be strengthened if they are delineated and described with greater clarity and detail.

APPENDIX I

THE MOOD ADJECTIVE CHECK LIST (MACL) (Nowlis, 1970)

Each of the following words describes feelings or mood. Please use the list to describe your feelings **WHEN YOU READ THE POEM.** If the word definitely describes how you felt when you read the poem, circle the double check (vv) to the right of the word. For, example, if the word is *relaxed* and you definitely felt relaxed when you read the poem, circle the vv as follows :
relaxed (vv) v ? no (This means you definitely felt relaxed when reading the poem)
If the word only slightly applies to your feelings when you read the poem, circle the single check v as follows :
relaxed vv (v) ? no (This means you felt slightly relaxed when you read the poem)
If you cannot decide whether or not the word applies to your feelings when you read the poem, circle the question mark as follows :
relaxed vv v (?) no (This means you cannot decide whether you were relaxed or not when you read the poem)
If you definitely decide that the word does not apply to your feelings when reading the poem, circle the no as follows :
relaxed vv v ? (no) (This means you were definitely not relaxed when you read the poem)
Work rapidly. Your first reaction is best. Work down the first column, then to the next. Please mark all words. This should take only a few minutes. Please begin.

angry vv v ? no
clutched up vv v ? no
carefree vv v ? no
elated vv v ? no
concentrating vv v ? no
drowsy vv v ? no
affectionate vv v ? no
regretful vv v ? no
dubious vv v ? no
boastful vv v ? no
active vv v ? no
defiant vv v ? no
fearful vv v ? no
playful vv v ? no
overjoyed vv v ? no
engaged in thought vv v ? no
sluggish vv v ? no
kindly vv v ? no
sad vv v ? no
skeptical vv v ? no
egotistic vv v ? no
energetic vv v ? no
rebellious vv v ? no
jittery vv v ? no
witty vv v ? no
pleased vv v ? no
intent vv v ? no
tired vv v ? no
warmhearted vv v ? no
sorry vv v ? no
suspicious vv v ? no
self-centered vv v ? no
vigorous vv v ? no

APPENDIX II

MEMORY QUESTIONS

Think as carefully as you can about the poem you just read and answer these questions. **DO NOT TURN BACK TO THE POEM. THIS IS A TEST OF MEMORY.**
The first six questions require one word answers. Please write them in the space provided.

1. In Part II, what color is the sky ?_____

2. In Part I, how many orders ? _____

3. In Part II, how many factories ? _____

4. In Part III, how many blown engines ? _____

5. In Part III, what color is the argument ? _____

6. In Part III, how many battles are won ? _____

The following six questions offer a choice of answers. Please circle the correct one. You must choose **one**, and no more. **Do not leave a blank.**

7. In Part I, the tragedy is :
   a. tortuous b. glowing c. horrible
   d. unwelcome e. secret
8. In Part II, the guest is :
   a. full b. complaining c. sudden
   b. unwelcome e. unknown
9. In Part II, our doors are :
   a. closed b. locked c. open
   d. shut e. broken
10. In Part III, the unquenched rage is :
    a. smouldering b. burning c. churning
    d. white hot e. lost
11. In Part III, "your disguise is ____"
    a. old b. clever c. too thin
    a. nearly transparent e. completely undone
12. In Part III, "no time to _____"
    a. run b. linger c. talk
    d. complain e. cry

APPENDIX V

POEMS

The stimulus poem is included in this appendix. The poem read by the control group is included here. The other groups received identical poems entitled "Nuclear war", "War", "Car Crash", and "Death". * denotes the places where the titles were repeated.

Thoughts on Life

I.

Life*
Now I have to face you.
You stare in my face.
I have to notice you.
You are doing your job.
Following 867 orders,
A glowing tragedy.
To some
A thing of full beauty

Life is rich
Love is rich
Life is rich

II.

Life*

Where do you come from
so suddenly

from out of a deep blue sky

slowly

from deep within us
from a place we know so well and keep to ourselves

you are a mystery that sweeps over
a lone soul
and engulfs
every living being
are you really a mystery
do we insist on not seeing you
unwelcome guest
you sit at our table
inhabit our neighborhoods,
build 10 million factories
play sports

knock on our locked doors
scream from televisions
we choose to ignore
to turn away
to feign surprise
when your strangle hold is
so tight and your blow impacts
we catch our breath
Life is rich
Love is rich
Life is rich

III.

Life*

how are you dressed this time ?

a baby's cry
a blossoming tree
a spray of lights and colors
a thousand blown engines,
a moments neglect
a grey argument unsolved,
a smouldering rage unquenched
a bolt of lightening,
a long darkness
a burning flame,
500 battles won
A fountain of love and life

But now your disguise is too thin

your warnings are there,
day and night
you consume everything
no time to complain
to shout
I didn't see you coming

once you arrive
and we feel your touch
there's no going back

APPENDIX VI

REPORT OF THE PILOT STUDY

A pilot study was carried out to ascertain the validity of the poem-plus-measures design for tesing the hypotheses.

Subjects. Fifteen psychology students were the subjects. All majored in psychology. Eight were seniors, six masters, and one junior. There were three males and twelve females. The average age was 25 years and one month, and the median age, 23. The ethnic breakdown of the sample was: five white American, four Hispanic, three African Americans, two Indians and one African Caribean. For all but one, English was their first language. Seven had experienced a death of someone close to them within the last year. As regards the frequency with which they read poetry, nine reported reading poetry sometimes, three rarely, two never, and one read poetry very often.

While the sample was not perfectly representative of the sample for the main study it was felt that it was a close enough approximation.

Setting. The subjects were tested in a class they were attending at City College.

Design. The pilot study involved a test for the validity of the poem-plus-measures design.In order to examine whether the poem had any effect at all on the measures, only the control stimulus (the poem called "Poem") and the nuclear stimulus (the poem called "Nuclear war") were presented. It was hypothesized that if the method has any validity, there would be a difference between these two groups. Eight subjects were assigned to the control, "Poem" group and seven to the experimental "nuclear war" group. These assignments were made randomly.

Proedure. The subjects were first told that the study will investigate the effectof affect on memory and comprehension of poetry. They were given the instructions which told them that they were required to read a poem and to answer some questions. They were told to read the poem carefully and to pay careful attenton to the meaning of the poem and to details. They were told that the poem would be read to them twice and that they should follow

along with the reader.

The experimenter then told them that he would rad the poem to them and that certain words would be omitted from his reading.

The poem was read to the subjects twice and the title and title words repeated in the poem were omitted. The subjects were then insructed to take another two minutes to read the poem to themselves. Following this time, the poems were collected by the experimenter and the subjects worked through the questions.

Subjects were given the assessment instruments in the following order: Mood Adjective check List, Memory test, Symbolic Immortality Instrument and the Purpose in Life Test. Finally they were asked to complete a questionnaire asking for demographic details.

Following the experimenal procedure the subjects were asked a series of questions about the study. They were informed of the actual subject of the study and asked to comment on their experience of the study. Questions addressed their understanding of instructions, their ideas about the purpose of the study, their comprehension of the meaning of the poems, what they thought the poems were about, what images the poems evoked, the power of the poems, the ease with which they were able to keep the poems in mind as they answered all the questions, the effect that their own experience of death had on their response to the questions, and finally they were asked to make any recommendations.

Data Analysis. In order to ascertain whether there were significant differences between the "Poem" group and the "Nuclear war" group, as measured by the four instruments, the two groups' score were compared on a series of t-tests.

the feedback of the subjects and their responses to the experimenter's questions were examined in a qualitative, non-statistical manner.

Results. The results are presented in two sections. The first deals with the statistical analyses and the second with the content analysis of the qualitative feedback.

Statistical Analyses.

1. Memory. A one-tailed t-test reveled that there was a difference between the two groups' performance on the memory questions, significant at the .25 level.the nuclear group performed significantly less well than the control group.

2. Mood. There was no significant difference in the amount of "?" responses on the MACL, between the two groups. Furthermore no differences were found betwen the groups when compared for overall scores on the MACL, and for tendency to respon with the "vv" response.

3. Purpose in Life. No significant differences between the groups.

4. Symbolic Immortality Instrument. No significant trend toward the fifth mode of symboic immortality in the nuclear group. Differences on the overall measures of symbolic immortality were not significant.

Content Analysis. The subjects in the nuclear group all reported being emotionally effected by the poem. There were differences in the emotions aroused. Some reported anger, some fear and some sadness. They did feel that the meaning of the poem was still alive for them as they responded to the questions. All exceptone, were clear as to the meaning of the poem. the one subject who was not, could not recall the title of the poem after reading it and believed that it was something to do with death. All subjects reported reading the poem carefully.

The control group reported that they believed the poem was about something to do with death, even though all understood quickly that the poem was abstract in nature. They tended to react emotionally with sadness and feelings of loss. None felt that the poem was particularily neutral.

Subjects from both groups understood and followed the instructions and read the poem carefully. Subjects from both groups felt that their experience of death did effect how they responded once the idea of death was aroused by the poem. Whether distant or recent, they felt that feelings of loss and sadness were re-evoked by the stimuli.

As regards recommendations, the control group recommended that the poem be adjusted to be less evocative of death imagery.

Discussion.

Memory. The finding that the nuclear group's performance on the Memory task was significantly poorer than that of the control group was the strongest finding of the pilot study. Despite the small sample size and the apparently non-neutral qualities of the

control poem, the groups showed a statistically significant difference in performance. the difference was at the .25 level of significance.

the finding was regarded as important because it validated the poem-plus-measures method and the use of a memory test. Whether this was a reflection of psychic numbing was to be discussed later. However this finding was taken as good reason to continue with the major study.

Mood. It was unclear why the difference between the groups on the MACL were not significant. One strong possibility was that the control stimulus was not neutral enough. This would be supported by the subject interviews.

Purpose in Life and Symbolic Immortality. Again, it was unclear why there were no significant differences between the two groups on either of these two measures. Possible explanations include the salience of the control poem and the fact that these measures were administered only once. Both of these instruments inquire about traits, whereas the first two measures are state measures. It was taken that pre- and post- administration of these measures was indicated and that the index of the effect will be the difference between these two administrations.

Recommendations. Adjustments in the experimental procedure and the stimulus were indicated.

a. The poem was adjusted such that the control stimulus was less evocative of images and emotions related to death and loss.

b. The Symbolic Immortality Instrument and the Purpose in Life Test require pre- and post- experimental administration.

Conclusions. The significant difference in the memory scores of the two groups suggested that there was some validity to the poem-plus-measure design of the major study.

The lack of findings with regard to the other three measures plus the content of the subject interviews indicated that changes in the stimuli and in the administration of the measures would strengthen the design of the study.

APPENDIX VII

FIRST INSTRUCTIONS

Thank you for taking part in this study.

In this study you will be required to read a poem, answer some memory questions and some other questions.

Please read the poem very carefully. **Pay careful attention to the meaning of the poem**. The poem will be read to you twice by the instructor. Please read along with him, as he does so. You are going to be asked memory questions afterwards to test how well you remember the details of the poem. So **pay attention to details.**

Once you have finished reading the poem, you must turn the pages over and must not look back at them at any further time.

The poem lasts for two pages. Be sure to read the whole poem.

When working through the pages of questions after the poem, please be sure to **answer all questions.**

Be sure that you don't miss a page out.

ONCE MORE, THANKS FOR TAKING PART IN THIS STUDY.

APPENDIX VIII

MORE INSTRUCTIONS

In the next part of the study you will be required to read a poem, answer some memory questions and some other questions.

Please read the poem very carefully. **PAY CAREFUL ATTENTION TO THE MEANING OF THE POEM**. The poem will be read to you twice by the instructor. Please read along with him, as he does so.
You are going to be asked comprehension questions afterwards to test how well you remember the details of the poem. So **pay attention to details.**

Once you have finished reading the poem, you must turn the pages over and must not look back at them at any further time.

The poem lasts for two pages. Be sure to read the whole poem.

When working through the pages of questions after the poem, please be sure to ANSWER ALL QUESTIONS.

Be sure that you don't miss a page out.

ONCE MORE, THANKS FOR TAKING PART IN THIS STUDY

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